Integrated climate change adaptation: towards an emancipatory community forestry-based approach

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SUMMARY

In recent years, the notion of “integrated adaptation” has emerged in international climate change discourse. This approach emphasises the need to analyse vulnerability across sectors and to develop adaptation interventions that create positive cross-sectoral impacts. This paper suggests that community forestry, as an already-embedded form of commoning, could be a useful entry point for implementing integrated adaptation. It presents a community forestry-based climate change adaptation (CF-CCA) framework, as conceived and implemented in Nepal’s Terai. It then evaluates the framework – through the lens of political ecology – and its approach to community level data collection, building linkages with local government, and the tenability of “scaling up” the framework in its current form. We conclude by asserting that the CF-CCA framework is a promising tool for integrated adaptation that must be further “politicised” in order to address dynamic issues of power and inequality and provide emancipatory change.

Keywords: community forestry, climate change, integrated adaptation, political ecology, commoning

Adaptation intégrée de changement climatique: un pas vers une approche émancipatrice basée sur la foresterie communautaire

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La notion d’“adaptation intégrée” a surgi dans le discours du changement climatique international ces dernières années. Cette approche souligne le besoin d’analyser la vulnérabilité dans tous les secteurs et de développer des interventions adaptatives à même d’aboutir à des impacts inter-secteurs positifs. Ce papier suggère que la foresterie communautaire, étant un moyen communautaire bien établi, pourrait-être un portail utile pour mettre en action l’adaptation intégrée. Il présente un cadre d’adaptation de changement climatique basé sur la foresterie (CF-CCA) tel que celui qui fut conçu et mis en route dans le Terai du Népal. Il évalue ensuite le cadre et son approche dans le domaine de la collection de données au niveau communautaire, à travers l’objectif de la politique écologique, en tissant de liens avec le gouvernement local. Il évalue également la possibilité d’agrandir le cadre à partir de sa forme actuelle. Nous concluons en affirmant que le cadre CF-CCA est un outil prometteur pour l’adaptation intégrée et qu’il a besoin d’être rendu politique pour pouvoir faire face aux questions de puissance et d’inégalité et produire un changement émancipatoire.

Adaptación integrada del cambio climático: hacia un enfoque basado en la silvicultura comunitaria emancipada

C.L. CHOWDHARY, W. CONROY, D. GRITTEN, R.S. PAIROJMAHAKIJ, B.H. POUDYAL, L.M. SAPKOTA y R. TRIRAGANON

En los últimos años, el concepto de «adaptación integrada» ha surgido en el discurso internacional climático. Este enfoque hace hincapié en la necesidad de analizar la vulnerabilidad en todos los sectores y desarrollar intervenciones de adaptación que creen impactos transversales

1 This paper was jointly developed by all of the listed authors. The structure of the paper, and its focus on local data collection, building linkages with government, and scaling up, was conceived by R.S. Pairojmahakij and D. Gritten. The specific community forestry-based climate change adaptation (CF-CCA) framework, and the notion that community forestry can contribute to integrated adaptation, was developed by R.S. Pairojmahakij, B.H. Poudyal, C.L. Chowdhary, D. Gritten, and R. Triraganon. L.M. Sapkota contributed insights on the local context in Bishnupur and community forestry in Nepal. W. Conroy is responsible for the paper’s overall emphasis on political ecology and the need to pursue a “politicised”, emancipatory adaptation. Some of the text and data within this document have been featured in related publications that outline the framework and the project process in Bishnupur. These complementary documents can be found at recoftc.org/static-landing/all-publications.
INTRODUCTION

Climate change and integrated adaptation

Given the state of climate change, and the dominance of a global profit system that mandates capital accumulation, swift action is needed for the redirection of resources towards “genuine human requirements and ecological sustainability” (Foster 2015). This is most evident in the global South, where the “slow violence” of climate change is already apparent, and disproportionately impacting rural communities that directly depend on natural resources for their livelihoods (Nixon 2013). In this context, climate change adaptation has come to the fore of international policy discourse, which has increasingly emphasised the need to pursue adaptation with the same level of urgency as mitigation and to direct efforts towards minimising climate vulnerability in poor countries (IPCC 2007, UNFCCC 2011a). In some cases, international bodies have also started to redefine “adaptation” itself, moving away from definitions that present adaptation as an adjustment to new risks, towards definitions that present it as a practice of living with change that requires flexible and forward looking decision-making practices (ODI 2014).

In addition, a number of recent studies have been undertaken to identify best practices for adaptation in rural communities in the global South (see, for example, Forsyth 2013). Some have noted the potential of efforts that address multi-sectoral climate impacts through integrated and holistic landscape management – a practice we will refer to as “integrated adaptation” (Schipper et al. 2014, UNFCCC 2011b). This approach seeks to enable the analysis of vulnerability across sectors, and to maximise the positive cross-sectoral impacts of climate change interventions (UNFCCC 2011b). This literature has illustrated the artificial dichotomy between biophysical and social adaptation, and the ways in which sector-specific interventions can exacerbate negative climate impacts in other sectors (Newell et al. 2005). Integrated adaptation’s proponents assert that sectoral approaches produce piecemeal solutions that fail to address the complexity of the climate change challenge, which includes “ecosystem dynamics, economic and social relations, governance issues” as well as “values, worldviews, and cultural norms” (O’Brien and Hochachka 2010, p. 91).

However, several gaps remain in the literature on integrated adaptation (Schipper et al. 2014). Most pertinently, scholars have identified the need for a rigorous framework that bridges sectors, disciplines, and approaches to adaptation; recognises climate change as complex and non-linear; and addresses the needs and aspirations of different groups with diverse perspectives (O’Brien and Hochachka 2010). Existing research from a range of disciplines suggests that the privatisation of natural resources is at odds with integrated adaptation, and that strategies of commoning will be a useful starting point for local integrated adaptation frameworks (Gibson-Graham et al. 2016, Maldonado 2014, Moss 2014, Murtinho 2016, Randhir 2016). Unfortunately, the “practical” grey literature has failed to provide such frameworks or an adequate range of tools to address complex, cross-sectoral climate impacts (CARE 2009, ICIM 2011, ICIMOD 2011).

Of course, the existing climate change vulnerability assessment literature has provided foundational research that can inform the development of such a framework (for an overview see Adger 2006, Eakin and Luers 2006, Fallmann 2012, Ribot 2014). This literature has made important strides in defining vulnerability and its three components – exposure, sensitivity, and adaptive capacity – through a range of research agendas linked to risk-hazard, political economy, and ecological resilience studies (Eakin and Luers 2006). And, it has produced methods and indicators for assessing vulnerability (Dessai and Hulme 2004, Downing et al. 2001), as well as strategies for stakeholder engagement (Downing and Ziervogel 2004). However, existing frameworks from the vulnerability assessment literature have ultimately reinforced a dichotomised understanding of vulnerability that preferences either biophysical “outcome vulnerability” or socio-political “contextual vulnerability” (O’Brien et al. 2007).

And, efforts to develop integrated vulnerability assessments have been marred by burdensome complexities and resource requirements (Eakin and Luers 2006); an inability to incorporate and reconcile different and sometimes contradictory empirical and local knowledge (see UNEP 2013 on “knowledge elicitation”); and a failure to suggest practicable tools to make use of vulnerability and asset data for integrated adaptation solutions (see UNDP 2004 on “formulating an adaptation strategy”).

Adaptation, power, and inequality

Furthermore, recent research from the political ecology tradition has provided valuable insights into how climate change adaptation interventions relate to power relations and inequality (see, for example, Fletcher 2010, Peet and Watts 1996, Rocheleau 1996, Taylor 2015). Drawing on the resources of neo-Marxian political economy and post-structuralist thought, this literature has shown that adaptation is a socio-political process all the way through, and that power is cemented and contested in the ways in which adaptation is framed and responses are considered (Eriksen et al. 2015). This research
also shows that power relations invariably influence adaptation outcomes, and that adaptation initiatives can reinforce power imbalances by strengthening the unequal relations that contribute to local vulnerability (Nagoda and Eriksen 2015). Some have noted that vulnerable populations and their knowledges are excluded from climate change policies and programmes, which favour hegemonic views of nature-culture relations and capitalist worldviews (Escobar 1995, Maldonado 2014). Others have argued that social complexities and politics have been ignored by technocratic interventions that are confined by dominant developmentalist codes, which cement the hegemony of “expertise” in adaptation, and reinforce power-laden yet seemingly apolitical subjectivities (Guthman 1997, Nightingale and Ojha 2013). They note that adaptation has established new subjectivities that reproduce an unequal binary between who is allowed to develop interventions and who is disciplined to adopt them (Eriksen et al. 2015).

Finally, political ecology research has started to conceptualise the ways in which adaptation might be repositioned within a broader project for the mobilisation of emancipatory subjectivities (Manuel-Navarrete 2010, Taylor 2015). This research asserts that developmentalist adaptation projects naturalise inequality and legitimise hegemonic political and economic constructs, which are themselves implicated in environmental destruction and climate change (O’Hara 2009, Rickards 2010). The adaptation-as-transformation approach is concerned with root causes of vulnerability and using adaptation to unsettle authoritative institutional forms and create hopeful alternatives (Nightingale and Ojha 2013). It seeks to radically transform prevailing relations of power through adaptation in order to create “fairer and less exploitative” social, political, economic, and environmental relations (Manuel-Navarrete 2010, p. 783, O’Brien 2012, Pelling 2011, Turhan 2014).

**Paper overview**

Therefore, in an era in which the commons are increasingly under “assault” through commodification and enclosure (Harvey 2011, Moore 2012), we suggest that community forestry stands as a key existing strategy of commoning (Harvey 2011, Moore 2012), we suggest that community forestry-based climate change adaptation (CF-CCA) can serve as a form of strategic localism that builds on already-embedded local practices, knowledges, and institutional forms throughout the South (Gibson-Graham 2005, Ireland and McKinnon 2013). We do not presume that there is a monolithic “global South” that requires the intervention of community forestry-based adaptation (see, for example, Escobar 1995). Rather, we argue that community forestry-based adaptation can serve as a form of strategic localism that builds on already-embedded local practices, knowledges, and institutional forms throughout the South (Gibson-Graham 2005, Ireland and McKinnon 2013).

Of course, we recognise that to comprehensively address global poverty and climate change, we will also need political and economic solutions that address global regimes of injustice and unequal resource distribution (see, for example, Immerwahr 2015). This paper, however, is concerned with the very real and urgent need for emancipatory community-based climate change adaptation.

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2 In this paper we employ Nightingale and Ojha’s (2013, p. 33) understanding of “subjectivity”. They use the term to refer to the ways in which people come to be “disciplined by and identified with certain discourses and practices”. They see subjectivities as embedded in historically contingent relations of power, and note that unequal subjectivities are the foundation for social hierarchies and inequalities (see, also, Butler 1997, Foucault 1990).

3 We do not presume that there is a monolithic “global South” that requires the intervention of community forestry-based adaptation (see, for example, Escobar 1995). Rather, we argue that community forestry-based adaptation can serve as a form of strategic localism that builds on already-embedded local practices, knowledges, and institutional forms throughout the South (Gibson-Graham 2005, Ireland and McKinnon 2013).

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and the initial research methodologies the team employed prior to developing the framework. This will be followed by a Results section, in which we present the CF-CCA framework developed in Bishnupur – as an instructional guide for prospective users – and key information regarding its pilot implementation. Finally, in our Discussion, we will evaluate the framework, and discuss the key lessons gleaned from its implementation regarding community level data collection, building linkages with local government, and “scaling up” the framework in its current form. This evaluation will explicitly draw on the resources of political ecology and consider the framework’s potential to facilitate emancipatory adaptation.

To conclude, we will suggest that the CF-CCA framework is a promising tool for integrated adaptation that requires further development to ensure that it can sufficiently engage with dynamic and contextually specific issues of power and inequality. Specifically, we argue that it must be further politicised – or attuned to the local and non-local relations of discursive and material power that influence adaptation and community forestry – in order to subvert prevailing inequalities and transgress established authorities (Manuel-Navarrete and Pelling 2015, McCarthy 2005).

METHODS

Nepal

As noted, the project team decided to develop and implement the CF-CCA framework in Bishnupur village, Sarlahi district, Nepal. Nepal is highly vulnerable to the impacts of climate change, as a country in which roughly a quarter of the population lives on less than $1.25USD per day (purchasing power parity) and 80% of the population relies on agriculture as a major source of income (Anderson et al. 2014, Manandhar et al. 2011). Furthermore, the biophysical impacts of climate change, including changes in temperature and rainfall intensity and patterns, are aggravated in Nepal by complex histories of social, political, and economic exclusion, and the current political turmoil following a decade-long civil war (Ojha et al. 2015).

Moreover, Nepal maintains numerous community forestry and devolved climate change institutions and policies, which made it an ideal context for developing and piloting the CF-CCA framework. These include:

1. A formal community forest management apparatus, stretching back to 1993 and the implementation of the Forest Act (Dahal and Chapagain 2008).
2. Over 18 900 formally recognised CFUGs (MFSC 2015).
3. A framework for Local Adaptation Plans of Action (LAPA), which focuses on Village Development Committee (VDC) driven and coordinated adaptation planning.

4. A National Adaptation Programme of Action (NAPA) which aims to direct 80% of all “available funds” to the local level.

Bishnupur, Sarlahi district

Bishnupur, too, provided a distinct context for community forestry-based integrated adaptation framework development and implementation. The majority of Bishnupur’s 359 residents are upper caste migrants, or the descendants of migrants, that moved to the Terai from Nepal’s mid-hill region.5 In general, they are socially and politically well connected and rely on agriculture and livestock for their livelihoods. However, various forms of inequality persist within the community. Marginalised indigenous groups (Adivasi/Janajati) and Dalits (Nepal’s most oppressed caste group) represent 22% and 2% of Bishnupur’s population, respectively. And according to the Bishnupur CFUG’s community well being ranking, 46% of the community is “rich”, 28% is “medium”, and 26% is “poor” (based on criteria provided by the Ministry of Forests and Soil Conservation in 2008). 70% of community members are literate, compared to the district average of 46% (CBS 2014), though the literacy rate among the community’s Dalits is significantly lower than other demographic groups. Bishnupur’s women are generally marginalised and work on average between 12 and 13 hours per day, whereas men work 8 hours (according to data collected in Bishnupur, see Table 1). Single women, widows, Dalit, and poor women are particularly burdened, and are often more reliant on commonly held community resources for their daily livelihoods than other community members.

In addition, the relative vulnerability of Bishnupur’s women has engendered social alliances and shaped political institutions that respond to the intersecting impacts of social, economic and environmental injustice (Vaughn 2016, Butler 2015). This is perhaps most evident in the institution of community forestry. To respond to challenges related to the erosion of a nearby riverbank, natural disaster risk, declining forest cover, and various other forms of economic and environmental stress, several women took the lead in efforts to establish the Bishnupur Community Forest (DFO 2013). The community forest has a women-only management committee, and a CFUG comprised of women and men. The Operational Plan for the forest explicitly aims to improve the livelihood conditions of poor women and Dalits, through a collectively managed pro-poor livelihood development fund, proportional sub-committee representation requirements, and other means (described further in the Discussion section below).

Pre-intervention outline

Prior to beginning onsite research and project implementation in Bishnupur, the project team designed a rough outline of the integrated adaptation framework that would be piloted, with an understanding that it would be modified based on

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5 Hill-origin upper castes are traditionally the most powerful demographic group in the Nepali state.
interactions with CFUG members and other stakeholders. It was assumed that the framework would work closely with the CFUG and make use of the existing adaptation assets and knowledge linked to the institution of community forestry, while not necessarily drawing on the biophysical resources of the forest itself. The proposed framework was comprised of three major phases, with participatory monitoring and evaluation occurring in each phase. They included:

1. Vulnerability assessment, and adaptation topic identification;
2. Feasibility assessment of specific adaptation options; and
3. Intervention implementation.\(^6\)

The proposed first phase involved the use of participatory approaches to identify different land use patterns across sectors (especially those closely related to community forestry), assess current and future climate trends, and evaluate community level institutional, social, and economic factors and their effect on adaptive capacity and livelihoods. The proposed second phase included the prioritisation of potential integrated adaptation options and financing opportunities, followed by the development of project proposals and partner institution engagement. The final stage was understood to include intervention implementation. In general, the research team aimed to develop a framework that would put marginalised populations, including the poor, disadvantaged ethnic groups/castes, and women, at the centre of all its activities.

### TABLE 1 Data collection tools

<table>
<thead>
<tr>
<th>Tool</th>
<th>Information sources (number of CFUG participants)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative review and analysis</td>
<td>Karmaiya and Manusmara meteorological stations; Agriculture Development Office, Naktajhij, Janakpur; and the Ground Water Development Board, Jaleshw</td>
<td>Precipitation and temperature data</td>
</tr>
<tr>
<td>Focus group discussion</td>
<td>CFUG members (49)</td>
<td>General community knowledge on the local impacts of climate change</td>
</tr>
<tr>
<td>District stakeholder workshop</td>
<td>District line agencies, civil society including the Federation of Community Forest Users, Nepal (FECOFUN), CFUG members (45)</td>
<td>General information on the local impacts of climate change</td>
</tr>
<tr>
<td>Transect walk</td>
<td>CFUG members (54)</td>
<td>Visible biophysical changes related to climate change</td>
</tr>
<tr>
<td>Women’s mobility mapping</td>
<td>CFUG members (34)</td>
<td>Information on women’s exposure/relation to climate change impacts</td>
</tr>
<tr>
<td>Household data collection</td>
<td>Operational Plan of the CFUG</td>
<td>Household level socioeconomic data</td>
</tr>
<tr>
<td>Well-being ranking</td>
<td>CFUG members (34)</td>
<td>Identification of climate vulnerable households</td>
</tr>
<tr>
<td>Seasonal calendar</td>
<td>CFUG members (23)</td>
<td>Information on recent changes in agricultural practices</td>
</tr>
<tr>
<td>Historical timeline</td>
<td>CFUG members (38)</td>
<td>Timeline of memorable climate-related events</td>
</tr>
<tr>
<td>Hazard mapping</td>
<td>CFUG members (28)</td>
<td>Identification of major climate-related hazards across sectors</td>
</tr>
<tr>
<td>Pairwise ranking</td>
<td>CFUG members (34)</td>
<td>Prioritisation of identified climate-related hazards</td>
</tr>
<tr>
<td>Social and power mapping</td>
<td>CFUG members (34)</td>
<td>Information on power relations among different demographic groups, with an explicit focus on women’s vulnerabilities</td>
</tr>
<tr>
<td>Stakeholder mapping</td>
<td>CFUG members (34)</td>
<td>Identification of stakeholders in local climate change adaptation</td>
</tr>
<tr>
<td>Focus group discussion</td>
<td>CFUG members (49)</td>
<td>Identification of community activities supporting adaptation</td>
</tr>
<tr>
<td>Office visits</td>
<td>District and regional level line agencies and FECOFUN</td>
<td>Identification of available government- and civil society-provided adaptation services and procedures for obtaining support</td>
</tr>
</tbody>
</table>

\(^6\) In this framework, adaptation response “topics” are general approaches to decrease climate vulnerability. Response “options” are specific strategies that can be implemented on the ground. We should also note here that the development of this proposed framework, and the CF-CCA framework more broadly, drew on work done by USAID Adapt Asia-Pacific, as well as CARE’s Climate Vulnerability and Capacity Analysis, ICEM’s Climate Change Adaptation and Mitigation Methodology, ICIMOD’s Framework for Community Based Climate Vulnerability and Capacity Assessment in Mountain Areas, and DFID’s Sustainable Livelihoods Approach.
It was assumed that the framework would address intra-community dynamics, with an understanding that these dynamics contain unequal relations and are not simply "power-neutral indicators" of "development" (Schild 2015).

**Data collection in Bishnupur**

After this pre-intervention outline was developed, the project team began collaborative onsite data collection in Bishnupur. A number of tools were employed during onsite research to inform the development of the integrated adaptation framework. Participants in this process included CFUG members and other land use and climate change stakeholders from government and civil society institutions. The table above outlines the tools employed during this process, the information sources that were drawn on, as well as the general results obtained.

This early research supported the project team’s assumptions regarding the usefulness of community forestry – as an embedded form of commoning – for implementing integrated adaptation, and provided critical information for the development of the framework. Participant responses confirmed that a community forestry-based approach could provide strong socio-political support for adaptation, given that CFUGs in Nepal often maintain linkages with local government and civil society groups that provide adaptation services, such as the District Forest Office and the Federation of Community Forest Users, Nepal (FECOFUN). Furthermore, this research process illustrated that Bishnupur’s CFUG could provide strong institutional support for adaptation and cross-sectoral community development activities – both related to the biophysical community forest and not – while emphasising equity and the rights of traditionally marginalised groups, such as women, Dalits, the poor, and ethnic minorities (as outlined in the CFUG’s Operational Plan). And this research confirmed that the impacts of climate change in Bishnupur had complex, multi-sectoral implications, which the biophysical community forest could help address, given the range of benefits forests provide linked to agriculture, water management and irrigation, and natural disasters.

**RESULT: THE CF-CCA FRAMEWORK**

After developing a rough outline of the integrated adaptation framework, and conducting onsite research in Bishnupur, the project team developed and implemented the CF-CCA framework. This process began in June 2014, and intervention implementation is ongoing as of June 2016. In this section, we will present the CF-CCA framework as it was developed – i.e. as a prospective instructional guide for adaptation facilitators working with or in a CFUG – and illustrate how it has been implemented in Bishnupur for integrated adaptation to date.

**The CF-CCA framework: phase 1**

The framework begins – following a community level Free, Prior, and Informed Consent (FPIC) process – with a vulnerability assessment (VA). This consists of:

- The identification of climate change threats;
- The assessment of climate change impacts on livelihood assets across sectors;
- The identification of sector-specific climate vulnerabilities; and
- The identification of integrated adaptation topics to respond to these vulnerabilities.

To facilitate this process, a series of “matrices” were developed to help organise information and encourage cross-sectoral analysis. To fill in each of these matrices, both primary and secondary data should be collected. Primary data collection should draw on common participatory action research tools, including those listed in Table 1. Secondary data should come from CFUG Operational Plans and annual reports, district level government offices, forest and land use research institutes, and other available sources. Portions of each matrix are included below, with a brief description of how they should be completed. It is important to note that they have been shortened significantly and only include a small sample of the data gathered in Bishnupur.

**Using the matrices**

Matrix 1 (Table 2) allows for the evaluation of “community knowledge” and “empirical data” regarding the impacts of various climate variables across sectors, in order to determine sector-specific “climate threats”. Therefore, CFUG members and facilitators should begin by determining contextually significant climate variables (e.g. temperature, precipitation, etc.) as well as exposed sectors (e.g. agriculture, forestry, etc.).

Matrix 2 (Table 3) further assesses the sectoral climate change threats determined in Matrix 1, by looking at the threats’ specific impacts on different livelihood assets (natural, social, financial, physical, and human capital) across each sector. The final column can be used to add relevant details regarding the climate impacts on exposed sectoral assets.

Matrix 3 (Table 4) allows CFUG members and facilitators to record and evaluate the adaptive capacities that exist to address the impacts of climate change threats on sector-specific assets. After completing this assessment, through Column D of the matrix, CFUG members and facilitators should develop a clear list of distinct sectoral climate vulnerabilities (Column E).

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7 During the project process different actors drafted slightly different versions of the CF-CCA matrices. Because of these discrepancies, some RECOFTC publications present matrices that differ slightly from those outlined below (e.g. they use the heading “community perceptions” in place of “local knowledge”). Nonetheless, the matrices below reflect the most commonly used headings and structures employed during the research process. Other differences between the various RECOFTC publications on the project are due to the fact that they were drafted at different points in the project process.
In Bishnupur, the variables of temperature, precipitation, flooding, humidity, and wind were evaluated across the sectors of agriculture, forestry, livestock, and water. To collect this information, in addition to community-based tools, the project team consulted a number of external sources of climate change data. These included a report by the Climate and Development Knowledge Network (CDKN) for the Ministry of Science, Technology and Environment, and Nepal’s National Adaptation Programme of Action (NAPA).

Furthermore, in order to get a closer look at climate trends in the study area, climate data on rainfall and temperature over the past 30 years was collected and analysed by the project team from the Karmaiya and Manusmara meteorological stations, located 5 km and 20 km from the study site, respectively. Ground water levels were assessed based on data from the Agriculture Development Office, Naktajhij, Janakpur, and the Ground Water Development Board, Jaleshwar. Notably, access to this data required institutional and personal connections, as well as financial resources.

**BOX 1 Locating climate data in Bishnupur**

In Bishnupur, the variables of temperature, precipitation, flooding, humidity, and wind were evaluated across the sectors of agriculture, forestry, livestock, and water. To collect this information, in addition to community-based tools, the project team consulted a number of external sources of climate change data. These included a report by the Climate and Development Knowledge Network (CDKN) for the Ministry of Science, Technology and Environment, and Nepal’s National Adaptation Programme of Action (NAPA).

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**TABLE 2 Matrix 1 (abridged): identifying climate threats across relevant sectors**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate variable</td>
<td>Exposed sector</td>
<td>Impact assessment</td>
<td>Climate change (CC) threats</td>
</tr>
<tr>
<td>Temperature</td>
<td>Agriculture</td>
<td>Increasing temperatures in hot season make it difficult to...</td>
<td>More intense/hotter dry seasons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Etc.</td>
<td>Changing seasonality...</td>
</tr>
<tr>
<td>Forestry</td>
<td>Local knowledge:</td>
<td>Some indigenous and commercial tree species...</td>
<td>Etc.</td>
</tr>
<tr>
<td></td>
<td>Empirical data:</td>
<td>Meteorological records from 1984–2013 show that temperature in the months of December and January decreased by 0.62°...</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Etc.</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 3 Matrix 2 (abridged): assessing the impacts of climate threats on sectoral assets**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC threats (Matrix I, Column D)</td>
<td>Exposed sector (Matrix I, Column B)</td>
<td>Livelihood assets</td>
<td>Asset description</td>
<td>Impacted? (yes or no)</td>
<td>Description of impacts on sectoral assets</td>
</tr>
<tr>
<td>Temperature: More intense/hotter dry seasons</td>
<td>Agriculture</td>
<td>Natural capital</td>
<td>Land, crops including local seed varieties, organic manure, water table...</td>
<td>Yes</td>
<td>Natural capital: poor soil moisture retention due to factors including...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social capital</td>
<td>Personal connections to...</td>
<td>Etc.</td>
<td>Etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financial capital</td>
<td>Crop yields, loans and available credit...</td>
<td>Etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physical capital</td>
<td>Tube wells, connecting roads...</td>
<td>Etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Human capital</td>
<td>Agricultural wage labour, several highly educated community members...</td>
<td>Etc.</td>
<td></td>
</tr>
</tbody>
</table>
BOX 2 Identifying adaptive capacities and vulnerabilities in Bishnupur

The project team catalogued several cross-sectoral adaptive capacities in Bishnupur through the CF-CCA framework. These included:

• Experience in rotational agriculture, which leaves areas of farmland fallow periodically to maintain productivity;
• Experience in reforestation strategies to mitigate local flooding and riverbank erosion and to improve water quality and quantity;
• Connections to local government line agencies, and non-governmental natural resource service providers;
• Knowledge of water management infrastructures, practices, and institutions; and
• Experience in equitable and efficient information sharing techniques through the CFUG.

And, after assessing local climate threats, their impacts on sectors and assets, and local adaptive capacities, a number of specific vulnerabilities emerged in Bishnupur. These included:

• Low crop productivity due to declining soil fertility and moisture, changing rainfall patterns, and an increasing number of pests and weeds;
• Decreasing incomes due to low sugarcane productivity (the most common cash crop in Bishnupur) and prevailing power relations with local sugar mills;
• Decreasing availability of multipurpose tree species;
• Water scarcity and, therefore, increasing workloads for women, who are traditionally responsible for water collection; and
• Increasingly common flooding and low flood mitigation capacity.

Matrix 4 (Table 5) intends to provide CFUG members and facilitators the opportunity to rate local climate vulnerabilities, compare vulnerabilities across sectors, and to link these sectoral vulnerabilities to integrated adaptation response topics. Column B of Matrix 4 seeks to highlight the “frequency” of climate change threats, while Column D evaluates their “seriousness” according to CFUG members. A clear “vulnerability rating” should then be given to each threat. Then, broad adaptation response topics should be identified in Column F that crosscut the identified sectoral vulnerabilities.

The CF-CCA framework: phase 2

With an aim towards identifying specific, integrated intervention options, the CF-CCA framework also includes a “feasibility assessment” following the VA. This process constitutes the second phase of the framework, and proceeds in a stepwise fashion.

• Step 1: CFUG members and facilitators should review the intervention topics identified in Column F of
BOX 3 Response topics in Bishnupur

The following intervention response topics were identified to address climate related vulnerabilities in Bishnupur.

1. **Agroforestry**: Agroforestry was understood as a potential tool to diversify land-use practices (and move away from a reliance on sugarcane cash cropping), increase the many positive cross-sectoral ecosystem benefits associated with forest cover, increase livestock fodder, and contribute to the growth of multipurpose tree species for income generation.

2. **Water management**: Improved water management was understood to address crop productivity and income generation, as well as the gendered impacts of water scarcity, given that women are primarily impacted by the burdens of water collection.

3. **Riverbank stabilisation**: Riverbank stabilisation was suggested to minimise soil erosion in general, maintain the integrity of the community forest and reduce the impacts of flash flooding on agriculture and infrastructure.

These intervention response topics were intended to address vulnerabilities across sectors. They were also identified via engagement with CFUG members, and are linked in some way or another to the commonly held community forest.

---

**TABLE 6 Template for evaluating selected adaptation topics (abridged)**

<table>
<thead>
<tr>
<th>Topic: riverbank stabilisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Describe how this topic responds directly to climate change vulnerabilities identified in the VA.</td>
</tr>
</tbody>
</table>

The VA phase identified a number of priority vulnerabilities in Bishnupur. This particular intervention topic responds to the identified flooding vulnerability. . .

<table>
<thead>
<tr>
<th>2. How is this topic linked to community forestry (CF), broadly defined?</th>
</tr>
</thead>
</table>
| The Bishnupur CF was initiated as a direct adaptive response to river flooding. While upstream land management practices. . .

<table>
<thead>
<tr>
<th>3. What are the existing assets and risks associated with the intervention topic?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing assets:</strong></td>
</tr>
<tr>
<td>• Strong community level motivation (a sub-committee has been formed for the purpose of implementing this activity). . .</td>
</tr>
<tr>
<td>• Etc.</td>
</tr>
<tr>
<td><strong>Risks:</strong></td>
</tr>
<tr>
<td>• Financial resources for maintenance costs and technical knowledge may not be available . . .</td>
</tr>
<tr>
<td>• Etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. What are the potential impacts of the intervention topic on different sectors and stakeholders (either outside of the immediate “CF landscape” or within)?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sectors:</strong></td>
</tr>
<tr>
<td>• Forest sector: CF land is being lost due to erosion, therefore . . .</td>
</tr>
<tr>
<td>• Etc.</td>
</tr>
<tr>
<td><strong>Stakeholders:</strong></td>
</tr>
<tr>
<td>• Land owning community members, especially those in close proximity to the riverbank, would benefit . . .</td>
</tr>
<tr>
<td>• Etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. What technical expertise/technology is required for this topic? What are some of the potential government service providers, organisations, consultants, etc., that can offer relevant services?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical expertise required:</strong></td>
</tr>
<tr>
<td>• Engineering expertise specific to riverbank stabilisation . . .</td>
</tr>
<tr>
<td>• Etc.</td>
</tr>
<tr>
<td><strong>Government line agencies offering potentially relevant services:</strong></td>
</tr>
<tr>
<td>• District Soil Conservation Office – planning and design of sub-watershed management . . .</td>
</tr>
<tr>
<td>• Etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. What are specific integrated adaptation options under this intervention topic that can create positive cross-sectoral benefits?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specific intervention options include:</strong></td>
</tr>
<tr>
<td>• Loose stone check dam . . .</td>
</tr>
<tr>
<td>• Etc.</td>
</tr>
</tbody>
</table>
- **Step 3:** Section 5 of the evaluation template (Table 6) facilitates the listing of potential resource people and the expertise required for the identified intervention topics. It should first be compiled collectively with inputs from CFUG members. Facilitators should then build upon the list identified, if necessary, while considering a broad range of sectoral stakeholders and service providers. Section 6, which entails the listing of specific response options under each topic, should be completed based on inputs from CFUG members. This section may also require information from the technical consultants and/or service providers identified in section 5.

- **Step 4:** After the above template is complete, CFUG members and facilitators should identify key criteria to assess the feasibility of each integrated adaptation option (Table 7). This should begin with a collective review of all of the suggested intervention options listed according to topic (Section 6, Table 6). The criteria that are decided will determine the columns of Table 7.

- **Step 5:** After deciding on a specific integrated adaptation option(s), CFUG members and facilitators should develop short “intervention work plans”. Each work plan should describe in narrative form the specific steps to be undertaken for the intervention, the intervention timeline, and a monitoring and evaluation framework. The work plans should also include CFUG constructed maps of the intervention site(s). Finally, they should provide a description of the stakeholders and service providers relevant to each intervention, along with pertinent information on budgets and funding.

### BOX 4 Feasibility assessment criteria in Bishnupur

As noted, the CF-CCA framework suggests that the criteria to evaluate the response options identified in Table 6 be developed on a case-by-case basis and reflected in the columns of the final table. In Bishnupur, the table that was constructed (outlined below in Table 7) included sections on the effectiveness of the potential intervention to respond to specific identified vulnerabilities, and the projected cost of the intervention. In addition, a section on the technical/financial support that civil society and government stakeholders could provide for each option was included, which drew on inputs provided in section 5 of Table 6. The table also provided space for additional, un categorised CFUG inputs.

In all cases, the final column in Table 7 should indicate whether or not the cross-sectoral intervention option will be undertaken, with a short explanation as to why or why not.

### TABLE 7 Sample response option feasibility assessment (abridged)

<table>
<thead>
<tr>
<th>Adaptation intervention option</th>
<th>Effectiveness in responding to identified vulnerabilities</th>
<th>Available technical/financial support</th>
<th>Baseline cost</th>
<th>Feasibility</th>
<th>Additional CFUG inputs</th>
<th>Selection decision and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose stone check dam</td>
<td>The activity is not considered to be especially effective as the river...</td>
<td>The District Soil Conservation Office earlier surveyed this site and considered...</td>
<td>NRs. 395,000</td>
<td>Technically not feasible due to...</td>
<td>CFUG members consider that the loose stone option may...</td>
<td>No, because of the nature of the river flow...</td>
</tr>
</tbody>
</table>

### BOX 5 Stabilising the riverbank in Bishnupur

From the intervention topics identified in Bishnupur, CFUG members and the project team decided to first pursue an adaptation response related to riverbank stabilisation. Specifically, the project went forward with a bioengineering intervention that utilised gabion boxes, check dams, and bamboo planting. This intervention was selected in part because it was financially feasible and because governmental bodies including the District Forest Office, the District Soil Conservation Office, the District Development Committee and others could support it in the form of technical advice and subsidised materials.

Ideally, the gabion boxes will control riverbank erosion in the short-term, while the check dams, and additional supportive bamboo, will provide long-term reinforcement. Bamboo was selected with the understanding that it could potentially be harvested for income generation in the future.

As noted, this intervention aims to provide positive cross-sectoral benefits related to agriculture, community forestry, and infrastructure (see Box 3). In addition, the intervention draws on community forestry, broadly defined, for relevant experience, knowledge, governmental/civil society linkages, and construction material.
The CF-CCA framework: phase 3

Following this process, the CFUG and facilitators should implement the integrated adaptation response option(s) identified. Given the structure of the framework, these interventions should create positive cross-sectoral benefits and be linked to the commonly held community forest—given that they were developed by the CFUG—as an institutional, social, political and/or biophysical resource.

DISCUSSION: THE CF-CCA FRAMEWORK AND EMANCIPATORY ADAPTATION

Experiences in Bishnupur offered important insights regarding the strengths and weaknesses of using community forestry for integrated adaptation, and the project team’s approach to framework development and implementation in Bishnupur. It also provided several more specific lessons regarding the framework’s methods for local level data collection, building linkages with government, and the tenability of scaling up the framework in its current form. In order to address these issues, with an emphasis on power, inequality, and emancipatory adaptation, we will draw on a range of resources from the political ecology literature.

Community forestry and integrated adaptation

Based on our experiences in Bishnupur, community forestry, broadly defined, seems to be a useful entry point for integrated climate change adaptation. While bearing in mind that Nepal has robust experience with community forestry and that Bishnupur is distinct for many socio-political and environmental reasons, community forestry was found to be an embedded form of commoning that was well positioned to facilitate cross-sectoral adaptation initiatives. Through this process it became clear that community forestry has already provided cross-sectoral biophysical climate adaptation across Nepal related to local flood mitigation, the improvement of water quality and quantity within watershed areas, and improved grass cultivation in forest areas. In addition, community forestry proved to be uniquely positioned to provide pro-marginalised adaptation in Bishnupur in the form of land allocation for fodder collection in favor of the poor, and non-timber forest product distribution in favor of those most negatively impacted by increasing temperatures and changing rainfall patterns—which tends to be economically and socially marginalised populations. In fact, at least 35% of Bishnupur’s CFUG funds are already reserved for pro-poor activities that benefit the community’s most marginalised populations and facilitate climate change adaptation across sectors. And, the Bishnupur CFUG has supported relatively egalitarian climate-related deliberation and decision-making processes through its women-led management structure, and demographic representation requirements within its sub-committees.

In addition, the CF-CCA framework, specifically, proved to be a useful tool that encouraged CFUG members to discuss which climate impacts pose community level “threats”, how these threats interact, and potential interventions that might be developed in response to address cross-sectoral challenges. In Bishnupur, it facilitated the comparison of different sources of climate change information, and allowed community members to gain a better understanding of the collective resources they have for adaptation, both within and outside of the demarcated community forest. Furthermore, the framework provided CFUG members the opportunity to systematically identify linkages with various sectoral service providers, as well as civil society groups that can contribute to the adaptation process. Such linkages with forestry-oriented civil society groups are especially important in Nepal, given the role these groups play across sectors in influencing policy, promoting democratic governance, and moving CFUGs away from a traditional patron-client relationship with the government (Ojha et al. 2009a).

CF-CCA development and implementation in Bishnupur

However, given the way in which the CF-CCA framework was developed and implemented in Bishnupur the approach was unable to transform prevailing power dynamics and mobilise emancipatory subjectivities. As is the norm in project based approaches to adaptation, the CF-CCA project team did not include Bishnupur CFUG members in the complete design or implementation of the project, and instead relied heavily on the inputs of external “experts” for the project’s completion. In this sense, the project team’s approach resembled dominant development practice, in which “experts” conduct interventions on behalf of the poor without fully collaborative processes (Escobar 1995). On the ground, this enabled a dubious form of environmental subject making, or environmentality, that promoted developmentalist logics and de-politicised the CFUG’s relationship with their environment (Fletcher 2010, Foucault 1991, Mollett 2016). Further, this approach supported the professionalisation of local adaptation, which served to re-entrench an unequal binary between the “development expert” and the “vulnerable local community” (Nightingale 2005, Ojha et al. 2009b).

In addition, because the CF-CCA framework’s development was largely driven by external “experts”, it produced a relatively technocratic, convoluted, and time and resource intensive framework that was inaccessible for many forest users (particularly in its VA phase). The framework proved to be unwieldy, and its language was hard to employ and contextualise on the ground (for example, its distinction between adaptation “topics” and “options”, and climate change “threats” and “impacts”). Therefore, community members with pressing livelihood concerns and minimal free time, such as poor women, Dalits, and marginalised ethnic minorities, were largely unable to participate in the collaborative activities that were undertaken under the framework in
Bishnupur. Instead, the project team drew mostly on the inputs of elite community members that had more ample free time and were more fluent in developmentalist cultural codes. Further still, because of the technocratic nature of the project process, in some cases the project team was driven to unilaterally gather and analyse information without truly collaborative or participatory engagement (see Box 1).

Local data collection

The implementation of the CF-CCA framework in Bishnupur also provided both positive and negative lessons regarding the framework’s approach to local data collection, specifically. Notably, the framework’s emphasis on evaluating multiple information sources of climate change information was found to be particularly useful in Bishnupur. For example, members of the Bishnupur CFUG asserted that drought was the most significant climate threat they faced during the VA. However, available meteorological data pointed to an overall increase in the amount of precipitation in the region. By triangulating multiple information sources, it became clear that while precipitation has increased in recent years, the total number of rainy days has decreased, suggesting high levels of runoff and the limited ability of community members – and, most commonly, poor and socially marginalised members – to adequately capture and manage rainfall. This process of data triangulation, which is embedded in the VA through its emphasis on multi-sectoral information gathering and the comparison of climate change knowledge, helped to draw attention to the notion that relying on one information source can lead to a partial understanding of climate vulnerability and the implementation of poor adaptation strategies. And it illustrated that unequal socio-economic systems and local material constraints, in addition to biophysical changes, influence both people’s access to resources, and their understandings of resource shortages (Mehta 2011).

However, the framework’s approach to data collection also proved to be problematic in Bishnupur for several reasons. Most generally, the framework supported the notion that singular, “empirical” climate change threats and impacts should be the starting point for climate change adaptation data collection, and that adaptation interventions should emerge from those identified threats – as suggested in the format of Matrix 1, as well as column F of Matrix 4, section 1 of Table 6, and column 2 of Table 7. In doing so, the framework obscured the politicised nature of adaptation and the role of dynamic forms of social and economic hegemony in creating differentiated vulnerabilities. This implicitly confined the adaptation options that the framework identified to piecemeal, technocratic interventions. And, despite its partial effort to gather multiple forms of climate change knowledge – as outlined above – the framework employed a linguistic binary that restricted its ability to transcend developmentalist authorities. Specifically, the framework established a binary between “empirical data” and “local knowledge” that is embedded in a regime of truth in which the former subordinates the latter (Hubbard 2006, Said 1978). Therefore, “local knowledge” in Bishnupur was never fully trusted, and was either corroborated or overruled by “empirical data”. As such, the framework gave precedence to developmentalist notions of “rationality” and “objectivity” and failed to provide space for heterogeneous forms of socio-political knowledge outside of technocratic empiricism (Yapa 1996).

In addition, the framework’s preference for “empiricism” in the data collection process also encouraged the construction of Bishnupur’s CFUG members as rigid profit seeking economic subjects throughout the framework. This was especially clear in the framework’s use of economic jargon, and attempts to strictly define CFUG livelihood “assets” and “capital” (see Matrix 2) and construct CFUG members as “sectoral stakeholders” (see Table 6). This language left little room for data regarding, for example, the community forest’s importance as a multi-layered “sociopolitical arena” in which CFUG members “engage in cultural and political exchanges” and shape their collective identities (Ojha et al. 2009b, p. 22). And, the framework’s attempt to neatly divide livelihood assets into various forms of “capital” failed to adequately recognise that these forms of capital are embedded in dynamic socio-economic systems, and that efforts to frame them in rigid technocratic terms glosses over the ways in which patterns of hegemony permeate each category (Fine 2001, Harriss 2001). As such, the framework further encouraged the identification of adaptation options (see Box 5) constituted by developmentalist codes related to engineering and market chain development that are oblivious to local forms of power and the ways in which climate and society are fundamentally intertwined (McCarthy 2005, Moore 2012, Taylor 2015).

Building linkages with local government

The CF-CCA framework was successful, though, in facilitating linkages between local governmental bodies and the Bishnupur CFUG, in order to guarantee the selected intervention’s long-term sustainability. This was enabled by the framework’s feasibility assessment process, which encouraged the systematic identification of sub-national entities and the various forms of institutional, technical, and financial support they could offer in reference to each intervention...
topic. It bears noting, however, that this process also pre-
overkicked the participation of formally well-educated and well-
connected CFUG members. And, that this sort of linkage is perhaps more possible in Nepal than other contexts, given the
countries emphasis on decentralised governance. As noted, Nepal maintains a framework for Local Adaptation Plans of
Action, and envisions 80% of available adaptation funds flowing to the local level through local institutions. Nonethe-
less, given that government/community coordination in adaptation has been largely unsuccessful in Nepal in the past, with
donors and aid agencies often leap-frogging local govern-
ment, the CF-CCA framework was successful in its linkage of the Bishnupur CFUG with the District Forest Office, the
District Soil Conservation Office, and the District Develop-
ment Committee (see Box 5) (Khatri et al. 2013, Paudel et al.
2013a).

Still, the framework employed in Bishnupur failed to
provide a mechanism to fully consider whether such govern-
mental linkages were in the interest of target community
members.11 The framework overlooked the notion that communities living in remote locales often maintain their remote
ess as an expression of opposition, particularly to state power and developmentalist logics (Scott 2010, Shakya and Rankin 2006). For example, research from Nepal has noted the apprehension of communities to engage with
government, given prevailing power differentials, and the
government’s preference for technocratic approaches to forest
management (Ojha et al. 2009b). Further, a large body of
literature on forms and practices of resistance to the state –
especially from feminist political ecology (Rocheleau et al.
1996) and subaltern studies (Chaturvedi 2012) – has provided
vivid examples of local level opposition to state engagement
in other locales. As such, the CF-CCA framework proved to
be limited in its uncritical assumption of the positive benefits
of state partnership.

Scaling up

Finally, the implementation of the CF-CCA framework in
Bishnupur illustrated that before the framework is scaled up,
it requires revisions to account for intra-community heteroge-
neity, and the impact of macro-level politics on local vulner-
ability. Notably, the CF-CCA framework gives insufficient
treatment to intra-community power dynamics, and the com-
plexities of working with diverse populations and reaching consensus – perhaps because the framework’s development and implementation largely engaged Bishnupur’s elite community members. It does not provide systematic tools on
collective decision-making processes or strategies to engage
diverse community groups in participatory activities. In addi-
tion, the CF-CCA framework fails to account for the fact that different community members are affected differently by
climate change, and often have different adaptation priorities
and knowledge. The framework does not consider whose vulnerabilities, whose knowledge, whose assets, and whose adaptive capacities are in question (see, for example, Matrix
1, 2, and 3). In doing so, it supports the notion that communi-
ties are homogeneous, and without profound power differ-
ences (Agrawal and Gibson 1999).

While this does not entirely negate the relevance of the
CF-CCA framework and its usefulness outside of (or within)
Bishnupur in facilitating integrated adaptation, it recognises
that local politics play a significant role in the outcomes of
community adaptation initiatives (Nagoda 2015). It notes that
the framework does not fully address the ways in which intra-
community inequality, even in the context of a women-led
CFUG, can lead to elite co-option and poor adaptation out-
comes, despite the large body of literature on elite capture and
exclusion in the context of community forestry in Nepal and
beyond (Iversen et al. 2006, Larson and Ribot 2007). This is
especially important considering that the framework attempts
to address integrated, landscape level concerns, yet draws
heavily on the inputs of the CFUG. In many contexts, CFUGs
represent only a minority of the stakeholders engaged in land-
scape management and serve the interests of elites (Harper
and Tarnowski 2007). Therefore, in its current form, the
CF-CCA framework risks being another form of enclosure for
those excluded from or unable to access the decision-making
structures associated with community forestry (Graner 1997).

Furthermore, as it stands the CF-CCA framework does not
explicitly provide tools to consider how specific communities are positioned in relation to larger political-economic
contexts or how national or international factors contribute to
local climate vulnerability. In doing so, it implicitly creates a
subject (“the local community”) whose vulnerability is inher-
ent, and suggests that solutions can be found in simple tech-
nocratic fixes such as bioengineering or market integration
(Ferguson 1994). However, in Bishnupur and beyond macro-
level factors are clearly relevant to community forestry and
climate vulnerability. Sarlahi, for example, has experienced
increasing deforestation over the past several years due to
macro-drivers related to tenure, poverty and food scarcity, as
well as government-led resettlement campaigns and a paucity
of arable land in the hills (Paudel et al. 2013b). And, the Terai
region in general is a hotbed of post-civil war socio-political
unrest, in which forests play a key role in the articulation of
political affiliation and intersectional subjectivities related to
caste, gender, and ethnicity (Human Rights Watch 2015,
Nightingale 2009, Nightingale and Ojha 2013). It is unlikely
that such a framework will be able to recognise local drivers of
poverty and climate vulnerability when scaled up, let alone
provide transformative adaptation that addresses deep-rooted
and multi-scalar forms of hegemony (Ferguson 1994, Leach
et al. 2010, Tanner and Allouche 2011).

11 Further, the framework failed to explicitly provide space to consider whether local forest users might be against linkages with civil society
groups and other “adaptation service providers” (see section 5 of Table 6).
CONCLUSION

Though significantly more research in diverse contexts is needed, community forestry, as an embedded form of commoning, seems to offer a useful entry point for integrated adaptation – particularly in rural communities in the global South with long histories of engagement with the practice. Furthermore, the CF-CCA framework could be a systematic tool for grassroots adaptation actors to consider adaptation priorities and implement interventions for positive benefits across sectors. However, a critical evaluation of the framework’s implementation in Bishnupur reveals that it requires further development by practitioners and scholars, especially related to its data collection methods – which preference technocratic empiricism and employ dubious discursive constructs – and its assumptions regarding the benefits of linkages with local government. In addition, before the framework is scaled up it must provide tools that more explicitly recognise intra-community heterogeneity and power relations, and account for the influence of macro-level factors on local vulnerability.

Notably, each of these concerns relates to the framework’s failure to recognise community forestry-based adaptation as taking place in a power-laden terrain of struggle. Therefore, it will be necessary to further politicise the CF-CCA framework, so that it can engage with, and transform, dynamic issues of power and inequality (Clement 2009, Vínthagen and Johansson 2013). Such a politicised framework will recognise that community forestry-based adaptation is embedded in local and non-local relations of power that are both discursive and material, and work to provide a strategy for truly deliberative and democratic decision-making. In doing so, the framework will expand how it conceptualises “community adaptation”, so as to examine broader notions of social and economic hegemony, and reconsider the scale at which “local” adaptation interventions take place. Such an approach will do away with piecemeal, technocratic solutions and strive to use community forestry-based adaptation to mobilise emancipatory subjectivities outside of dominant development discourse and practice.

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