

AN ANALYSIS OF THE SIKKIM ACTION PLAN ON CLIMATE CHANGE

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Introduction

Sikkim has been engaged in a number of climate related initiatives since 2008. Much of the work has been supported by a Chief Minister (CM) keen to further the state's green credentials.¹ Sikkim's climate plan – drafted as an extension of its green drive – was initiated in 2010 and actively driven by senior bureaucrats who were already engaged in climate-based research and writing.² The plan, by many accounts, facilitated the commissioning of additional studies, incorporated work by civil society organizations on specific climate issues, and crucially helped scale-up programmes in the water sector using resources from existing schemes such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).

Driven by a strong state mandate on a number of development issues, the Sikkim climate plan is largely adaptation based. However, it was firmly guided by the overarching framework set by donor agencies and the Ministry of Environment and Forests (MoEF) and had limited external participation during the post-draft stages. In addition, the document is uneven in structure and detail owing to varying degrees of ownership and engagement by

bureaucrats as well as consultants in charge of different sectoral chapters.

While the Sikkim climate plan takes cognizance of the impact of climate change on hydropower generation given how changes in rainfall and river discharge could impact future production, the document ultimately steers clear of this politically sensitive topic in not offering any substantive measures to address it.

The plan was one of the earliest to be endorsed by the central government's National Steering Committee (<http://envfor.nic.in/ccd-sapcc>).

The aforementioned themes are elaborated in the following sections:

- I. Drivers for developing a state climate plan in Sikkim
- II. Framing the SAPCC
- III. Process of arriving at Sikkim's draft plan
- IV. Examining the sectoral content of the plan
- V. Mechanisms for implementation

About Sikkim

Bordered by the upper reaches of the Himalayas, covered by forests, and carved-up by glacial and rain-fed rivers, Sikkim is a bio-diverse outpost in the North East. It is the least populous state in the country and 70 per cent of its people live in rural areas.³ While it is predominantly an agrarian economy, tourism has been a major contributor to the state's Gross State Domestic Product in the last decade.⁴ The state's four economic and development targets are to produce 5000 megawatts of power; achieve 100 per cent literacy; make agriculture fully organic; and achieve the status of a "small developed country."⁵

While 47 per cent of Sikkim's geographic area is forest land, the Comptroller and Auditor General of India, in its 2008-2009 report, noted that the state's green cover and biodiversity were threatened by the development of hydro power projects that lacked adequate environmental safeguards.⁶ Despite criticism from some external quarters, Sikkim's CM of 19 years has been keen to project the state as forward thinking on environmental issues.⁷ It is an important feature in Sikkim's development trajectory that also underlies the framing and content of the State Action Plan on Climate Change (SAPCC).⁸

“Water is scarce in the Himalayas, last few years winter rains reduced, springs dried up ... adaptation is a major concern for the state.”

- Retired Official,
Government of Sikkim

I. Drivers for developing a state climate plan in Sikkim

While the initial call for states to draft a state climate plan came from the Centre, the process was driven by local factors that influenced the framework of the document as well as its outcomes.

The immediate impetus for an action plan in Sikkim was likely an ideational one. The state's prior engagement with climate change was part of an overarching strategy to appear progressive in addressing environmental issues. The Science and Technology Department was renamed 'Department of Science and Technology and Climate Change' (DST&CC) in 2009.⁹ Notable climate initiatives also included the formation of a Glacier and Climate Change Commission in early 2008 to monitor glaciers and their influence on the hydrology of the region (Table 1).¹⁰ In addition, in 2009, researchers were hired under a Senior Scientific Officer to manage a Climate Cell within the DST&CC, and focus on climate research.¹¹ Further, early that year the CM also constituted the Sikkim State Council on Climate Change, an advisory council, to provide "policy direction and institutional mechanism" to implement various climate adaptation programmes in the state.¹² Most of these initiatives in fact bear the stamp of the CM who has been in office for over 19 years. As a member of an eco-tourism based NGO put it, "This fits the CM's larger 'green Sikkim' image."¹³ It is also consistent with his aim to project Sikkim as a state, "at par with some of the small developed countries."¹⁴

The SAPCC was actively supported by two senior bureaucrats; one was at the helm of DST&CC when the draft was prepared,

and the other heads the Rural Management and Development Department (RMDD) in the state.¹⁵ They used the SAPCC platform to scale up pilot programmes in the water sector using existing funds.¹⁶ Their degree of engagement in the subject is evident in the fact that they have a number of papers on climate change, water management, and rural development to their credit as well as a book on climate change in Sikkim.¹⁷

Incentives for the SAPCC however, are not merely ideational. The state's interest in addressing climate change is equally based on concerns about climate impacts in the Himalayan ecosystem. According to the former secretary of the DST&CC "Water is scarce in the Himalayas, last few years winter rains reduced, springs dried up...adaptation is a major concern for the state."¹⁸ Water resource vulnerability is in fact a recurring concern in the draft plan. The document is peppered with details about erratic rainfall, reduction in winter precipitation, drying up of springs and a dip in agricultural production.¹⁹ Himalayan mountain springs provide the main source of water supply to 80 per cent of the state's rural population; understandably this was a crucial driver and focus area for the state.²⁰

Finally, another likely driver was the prospect of external finance for some of its on-going work such as afforestation initiatives, the organic certification project, and production of 'green' energy in the form of hydropower generation.²¹ As one official noted, "The State wants to be organic by 2015. Certification work is on-going, but if there is additional funding by [the] Centre or external agencies, then the work happens faster."²²

TABLE 1: TIMELINE OF SIKKIM'S ENGAGEMENT WITH CLIMATE CHANGE AND OTHER GREEN ISSUES LED BY THE CM

Nov 1999

Sikkim's CM, Pawan Chamling declared the Greenest CM by Centre for Science and Environment (CSE): Based on his work on banning plastics, banning grazing in high altitude pastures and forests, and a ban on commercial felling of timber.

Feb 2006

The CM launches 'State Green Mission': To scale up plantations in vacant and waste land.

Jan 2008

The State sets up a Glacier and Climate Change Commission (GCCC): To study the state of Glaciers and their impact on the hydrology of the state.

Jan 2009

The CM constitutes the Sikkim State Council on Climate Change: To provide "policy direction and institutional mechanism" to implement various climate change adaptation programmes.

July 2009

Chamling launches 'Ten minutes to Earth' initiative: where citizens of Sikkim are expected to dedicate ten minutes of their time to planting a tree.

Sept 2009

The CM attends the Governors' Global Climate Summit in Los Angeles at the invitation of California Governor Arnold Schwarzenegger.

Oct 2009

Chamling participates in the "Himalayan Chief Ministers' Conclave" in Himachal Pradesh," to discuss "Glaciers, Climate Change and Livelihoods."

Oct 2009

The Sikkim government amends business rules to make Department of Science and Technology, the Department of Science & Technology and Climate change.

Source: "Environmental Initiatives of Shri Pawan Chamling," book by Forests, Environment & Wildlife Management Department; Ten minutes to Earth initiative by DST & CC; Report of the Himalayan Chief Ministers' Conclave, Himachal Pradesh 2009 by Government of Himachal Pradesh and Leadership for Environment & Development-India.

“ We started the SAPCC on a scientific note but got no buy-in from the departments, especially when we told them that the climate was going to change that way in the next 20 years. We talked to farmers, women groups, unemployed youth, then the SAPCC came to life. People started to say women will not have access to water, the springs will dry up, Rabi crop suffer. People started realising there are some real life problems that we need to solve.”

- *Official, Government of Sikkim*

II. Framing the SAPCC

A crucial aspect of climate planning, both at the national and sub-national levels, is the manner in which plans are conceptually framed. Given that a multitude of sectoral actions have both climate and development benefits, it is worth examining how a climate plan is set apart from a development plan. The use of climate science and research is considered a crucial factor. The section examines how Sikkim frames the SAPCC from a climate lens using the following three indicators:

- The use of available climate science;
- The vulnerability assessment study and its linkages with plan outcomes;
- The relative balance of adaptation and mitigation in the document.

Science as a prerequisite

One of the recurring concerns of states that have formulated a state climate plan was the availability of, and access to relevant climate data that could in turn inform plan outcomes. Sikkim was constrained by the fact that reliable meteorological data for a fifty-year period was only available in 2 out of 17 stations – Gangtok and Tadong.²³ Much of the observed trends for the state therefore are extrapolated from these measurements. The observation is that minimum temperatures have been rising

and annual rainfall has been decreasing, however Gangtok alone records a trend of increasing rainfall, except in winters, which have become hotter and drier.²⁴ In terms of future projections, the SAPCC relies on MoEF's 2010 study for the 2030s using the PRECIS (Providing REgional Climates for Impacts Studies) model developed by the UK-based Hadley centre, for the North East. The study predicts an increase in rainfall, especially during the monsoon period for the entire region though Sikkim is expected to record a dip in precipitation in the 2030s using 1970 as the baseline.²⁵

A consultant involved in the draft plan process stated that for states like Sikkim, where the German donor agency GIZ (earlier GTZ) was engaged in supporting SAPCCs, climate scenarios were extracted based on outputs from The Indian Institute of Tropical Meteorology (IITM) and NATCOM (India's Second National Communication to the United Nations Framework Convention on Climate Change). Working groups were asked to come up with strategies and action plans based on projected impacts.²⁶

In the section on sectoral impacts however, only two sectors allude to future climate projections. The narrative on water resources is based on forecasts drawn from the National Water Mission (not the model-based MoEF study for 2030s included in the section on projections).²⁷ Similarly, impacts

on biodiversity and forests are drawn from a study by The International Centre for Integrated Mountain Development (ICIMOD) in 2010.²⁸ Impacts on other sectors in contrast, are based on observed trends not forecasts.

While the Sikkim plan – like many of the SAPCCs examined – contains a section on climate trends and projections, the data does not seem to inform sectoral actions in the plan (discussed later). The nodal agency was likely constrained by the lack of an appropriately downscaled model based-study specific to Sikkim, to improve the accuracy of current predictions.

The vulnerability assessment study and linkages with plan outcomes

The vulnerability assessment is a crucial baseline study meant to inform adaptation measures. It was the starting point of Sikkim's plan, and initial work on it preceded the formation of working groups or even the inception workshop (Table 2).

The vulnerability assessment in the SAPCC is a combination of two studies: The first by the Indian Institute of Science, Bengaluru (IISc), which conducted a vulnerability assessment of all North Eastern states; the second by the DST&CC and RMDD

which was conducted over a period of six months and was based on proxy indicators sourced from government datasets for all four districts in the state.²⁹ The study by DST&CC mapped the districts' risk of climate exposure, sensitivity of systems, and the adaptive capacity of communities. The assessment indicated that the South and West districts of Sikkim are more vulnerable than the North and East districts.³⁰

Owing to possible gaps in availability of continuous data, the proxy indicators in the DST&CC study are largely indicative and in some instances do not appear sufficiently correlated. For instance, availability of water is measured through the percentage of rain-fed farming in the region, human health is mapped on the basis of family size, and adaptive capacity of a community is based on the percentage of population that had passed class ten.³¹ Officials admitted that this was a working model and one of the recommendations of the document is to "undertake integrated multi-sectoral assessments that encompass ...diverse sectors" to re-assess and rank villages based on their vulnerability.³²

Notably, the vulnerability assessment for Sikkim is supplemented with village level consultations through Participatory Rural Appraisals (PRAs) in six villages.³³ The draft states that since there is high variation in temperature and precipitation changes as well as the adaptive capacity of people in Sikkim over small spatial scales, a district-level analysis may not provide a complete picture.³⁴ Internally it was felt that while the vulnerability assessment study was scientifically conducted, it did not get sufficient "buy in" from other departments since the "science had a lot of uncertainties."³⁵ The PRAs on the other hand offered on-ground insights that departments likely identified with, and were able to design actions for. As one official noted, "We started the SAPCC on a scientific note but got no buy-in from the departments, especially when we told them that the climate was going to change that way in the next 20 years. We talked to farmers, women groups, unemployed youth, then the SAPCC came to life. People started to say women will not have access to water, the springs will dry up, Rabi crop suffer. People started realising there are some real life problems that we need to solve."³⁶

By linking climate change to existing development and environmental concerns, the Sikkim plan essentially acts as a placeholder for sustainable development action in the state and presents an important opportunity to mainstream sustainability in development planning. But by not relying on model-based forecasts specific to Sikkim, the plan comes up short in not addressing how future climate risks could impact current development imperatives.

The vulnerability assessment study concludes that diverse development interventions are needed at the village level, since there are significant variations in the vulnerability of populations within districts.³⁷ But as discussed later in the paper, this insight does not seem to inform sectoral recommendations in the plan.

Balance of Adaptation and Mitigation

Sikkim's plan is largely an exercise in adaptation. According to officials this is predominantly an outcome of the state's developmental agenda in focusing on current climate impacts.³⁸ In fact one of the oft-constructed narratives during interviews was that Sikkim was too small to contribute to mitigation efforts.³⁹ It is worth noting however, that since GIZ's SAPCC project was tied to a larger adaptation programme in the North-East, this may have influenced the formation of an adaptation-heavy plan. As one consultant noted, "The mandate from GIZ was on adaptation, so we focussed on adaptation strategies."⁴⁰ Senior officials however state that their focus was driven primarily by local concerns and priorities.⁴¹

In terms of content, energy efficiency despite being the only mitigation-specific thrust area does not materialize into a separate chapter. In addition there are no actions to deal with climate impacts on hydropower generation despite this being a stated concern in the draft plan.

Also conspicuous by its absence in the document is a state emissions inventory. According to consultants, senior officials in DST&CC were keen to have a state-level Greenhouse gas (GHG) inventory, but after discussions with the MoEF the plan was abandoned. As one consultant notes, "the

MoEF is not encouraging it at this point even though it is in the framework since bi-laterals and multilaterals can pick up state numbers and informally push their cause [for India taking on emission cuts]."⁴²

In sum, the framing of Sikkim's climate plan was underpinned by some degree of reservation by the state in relying solely on science-based research. One of the key studies therefore involved PRAs. State officials felt that science alone would be treated as a remotely devised construct by departments and stakeholders unless it was supplemented by local perceptions and strategies to deal with climate variability. Sectoral assumptions therefore, are based on available observed data for select regions as well as centrally sponsored model-based studies not specific to Sikkim.

The SAPCC contains a vulnerability assessment study but not a GHG inventory report. According to officials this was driven by local material drivers; the fact the plan was technically supported by GIZ under its larger adaptation programme; and the broad adaptation mandate of the Central government. Consequently, the plan is predominantly adaptation focussed. While it prioritises sustainable development action, it is limited in not examining development resilience in light of future climate change.

TABLE 2: TIMELINE FOR SIKKIM'S ACTION PLAN ON CLIMATE CHANGE

Jan 2009	Chief Minister constitutes the Sikkim State Council on Climate Change to implement NAPCC missions at the state level
18 Aug 2009	Prime Minister urges all states to draft SAPCCs
Aug 2009	Department of Science and Technology renamed Department of Science and Technology and Climate change
3-6 Feb 2010	Exploratory Mission by GIZ for "Climate Change Adaptation in the North Eastern Region of India" held in Sikkim. Mission involves discussions with various government departments, the private sector and NGOs, and also a visit to a Panchayat in South Sikkim district
Mar-Sept 2010	Vulnerability assessment study carried out by DST&CC and RMDD.
14-15 May 2009	Brainstorming workshop on the preparation of the State Action Plan on Climate Change in Sikkim
19 Aug 2010	MoEF's National Consultation workshop
Mar 2011	"Final revised Sikkim SAPCC" approved by the Sikkim High-level Coordination Committee
July 2012	Plan 'endorsed' by the National Steering Committee

Source: Sikkim Climate plan, and interviews with officials in DST&CC.

“ In consultation with MoEF we have developed a framework for SAPCC which can serve as a guidance and orientation... The framework recommends to first set up a governance or steering structure... In a second step the framework suggests to identify relevant sectors which are affected by climate change.”

- Donor Agency Representative

III. Process of arriving at Sikkim's draft plan

In the development of a plan, process design dictates outcomes. It is therefore worth examining the people and institutions involved in formulating the draft plan, the steps followed, the extent and quality of external participation, and importantly how outputs generated during the process were incorporated into plans outcomes. The section provides a time-line of the Sikkim SAPCC process, the steps followed, and finally elaborates on the following themes:

- Role of donors and consultants;
- Departmental involvement;
- Extent of external participation and outcomes.

Role of donors and consultants

GIZ was the donor agency that aided Sikkim in the SAPCC process. The agency offered technical support to the state through consultants who assisted officials in formulating sector-based chapters. Notably, GIZ was involved in Sikkim's plan prior to the National Consultation workshop (a forum that brought the MoEF, states, and donor agencies together, and resulted in the formation of the Common Framework Document, a guiding template for the overarching process and structure of the SAPCC). GIZ officials therefore were instrumental in the initial stages of Sikkim's plan. They were present during the brainstorming workshop and presented the initial guidelines for the outline and design of the plan.⁴³

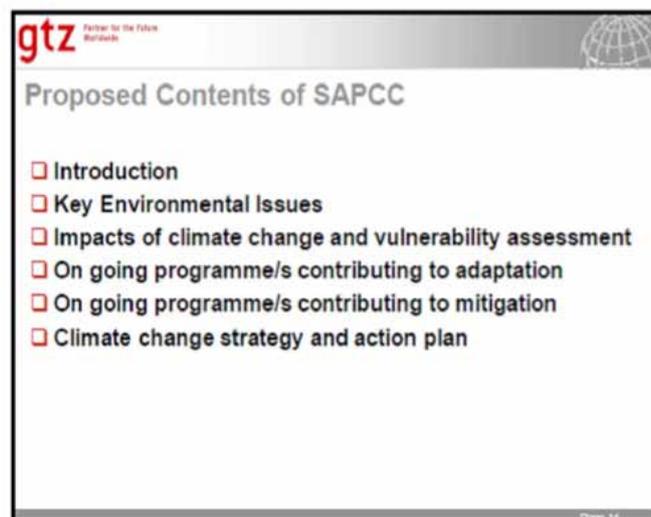
As the presentation made by GIZ during the workshop states; “In consultation with MoEF we have developed a framework for SAPCC which can serve as a guidance and orientation...The framework recommends to first set up a governance or steering structure... In a second step the framework suggests to identify relevant sectors which are affected by climate change.”⁴⁴

Figure 1 in fact indicates that GIZ also spelt out the broad break-up of the content to be included in the Sikkim plan.

During the initial brainstorming workshop, GIZ representatives along with senior department officials and technical experts also determined the sectoral break-up of the five working groups, namely ‘Water’, ‘Agriculture horticulture and livestock’, ‘Forests wildlife and eco-tourism’, ‘Energy efficiency’, and ‘Urban and rural habitats and communities’ (Figure 2). Further, GIZ brought in organisations such as IISc and ICIMOD who delineated climate impacts in the areas of water, agriculture, forests and the Himalayan ecosystem.

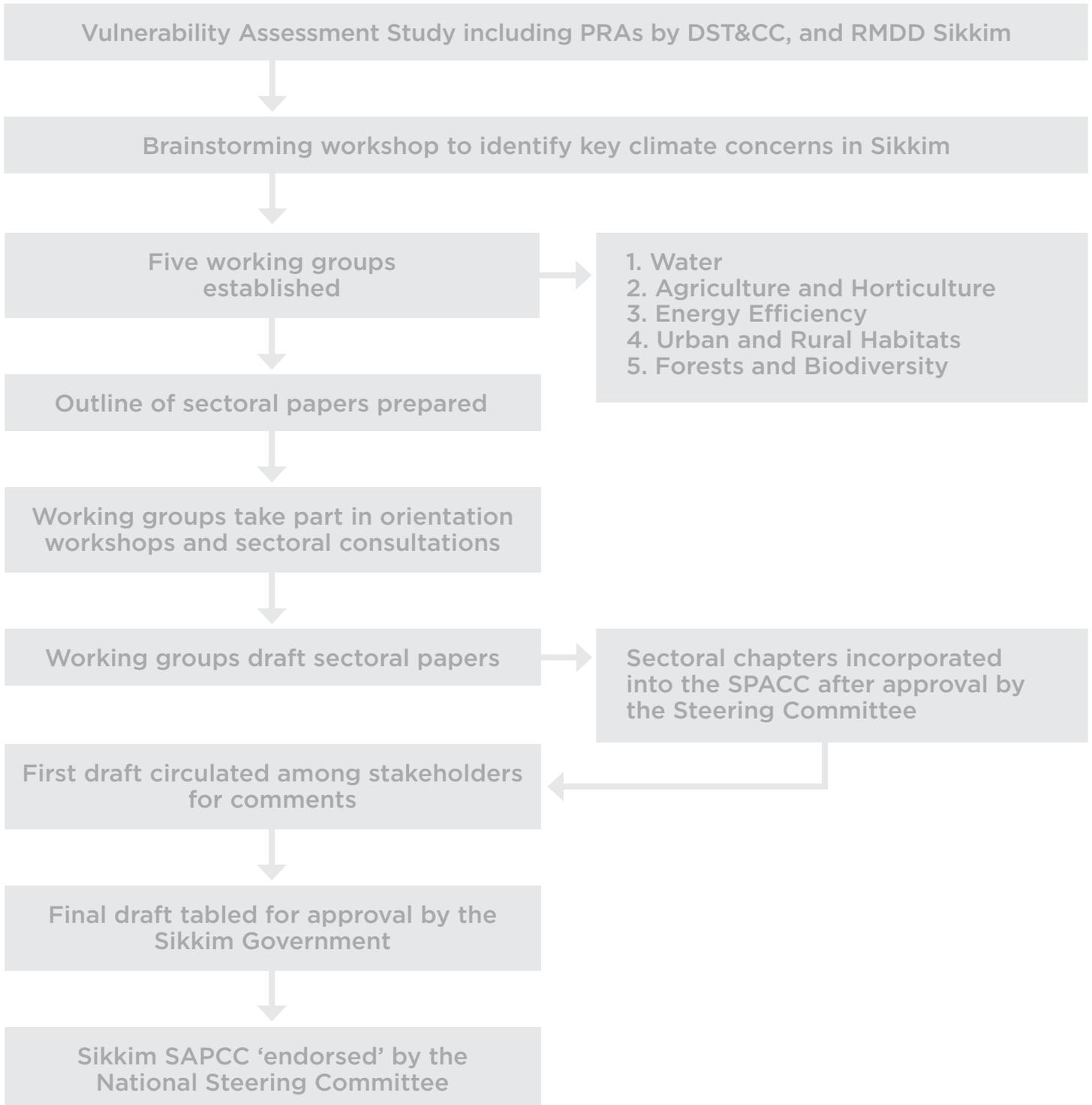
The donor agency's role therefore was crucial during the initial framing stages of the draft plan. Even their selection of experts for presentations during the workshop likely determined the plan's focus. IISc's presentation for instance makes a case for adaptation by averring that, “Mitigation and stabilisation [are] uncertain and implications on climate change will be in the long term.”⁴⁵

FIGURE 1: GIZ's outline for Sikkim's climate plan, presented during the Brainstorming workshop.⁴⁶



Source: Government of Sikkim, Brainstorming workshop.

FIGURE 2: SIKKIM SAPCC PROCESS



Consultants on their part, took on the role of sectoral experts who provided technical assistance during the process. GIZ chose Hyderabad based project management agency 'Intercooperation' that put together a consortium of three consultants who separately assisted working groups on agriculture and allied services, water and forestry, and finally energy and urban habitats.⁴⁷ They were tasked with conducting a number of "orientation and facilitation" workshops for working groups in identifying sectoral concerns and future impacts as well as adaptation strategies for that sector, though the onus of drafting the final chapter was placed on working group members.⁴⁸ Consultants were also meant to offer feedback on the reports prepared. By many accounts though, the degree of involvement of different consultants varied with the capacity and leadership of different departments involved. It also appears that apart from working with their respective working groups, consultants only collaborated amongst each other during the integration of the final report.⁴⁹ This may have contributed to some *silozation* of the working groups and resulted in some lack of uniformity between separate chapters, as evident in the final report.

Departmental involvement

Departments in Sikkim were involved in the SAPCC process though their representation in the five working groups. Apart from state officials, the working groups also included, "NGOs (non-governmental organisations), educational institutions and the private sector."⁵⁰ Since the existing version of the SAPCC (dated 2011), does not carry an annexure, it is unclear to what extent the process facilitated inter-departmental involvement. The role of the working groups was to collect information on sector based climate impacts, identify key priorities, and formulate sectoral strategies with some assistance from consultants. One notable feature of the Sikkim process is that there was much emphasis on working groups drafting their own chapters.⁵¹ While this may have fostered some degree of departmental ownership in the process, the extent of departmental involvement varied across working groups depending on departmental capacity, degree of relevance to the draft plan process, and the leadership involved.

For instance, work in the water sector progressed faster and the resultant chapter is relatively better fleshed out for two interconnected reasons: A senior bureaucrat who had worked on climate change and water resources in the past was in charge of the working group on water. In addition, conservation of water resources is one of the stated drivers of the SAPCC as it a resource concern that the state is keen to address. On the other hand, work on the forestry chapter in the SAPCC took a back seat, even though forestry is a focal area in the North East as the department was busy on other projects.⁵² The bureaucrat in charge of the water group was later asked help with the forestry chapter.⁵³

Further, a brief interview with Sikkim's Additional Chief Town Planner and Convener of the urban habitats working group revealed that she had only met her working group members twice. She stated that much of what was in the draft was development work that the department was already planning or carrying out. She was unsure if the climate tag added anything additional.⁵⁴

Finally, NGO representatives also indicated that some officials were reluctant to take on the additional burden of drafting sectoral chapters. As one stakeholder noted, "There was a sense among officials that consultants should drive this... (They said) 'we would give the ideas and they should write it... I don't have the authority to go to other officers and collect data.'"⁵⁵ Different departments and officials therefore had different degrees of engagement with the SAPCC process.

Extent of external participation and outcomes

While there were different platforms to facilitate external participation in the Sikkim process, the degree of participation, at least in the post-draft stages, was limited. At the outset RMDD organised public consultations in the form of PRAs in six villages for the vulnerability assessment study. Interactions with locals yielded information on observed climatic changes and local sectoral impacts, and likely shaped sectoral concerns in the draft. However, this opportunity for input was limited to the pre-draft stage and did not extend to offering comments on the

solutions put forth in the completed draft. In addition, according to civil society representatives, there was minimal public representation during the brainstorming workshop when the document was framed and sectoral divisions were decided.⁵⁶ During the formation of the working groups however, some NGO members were co-opted in the plan process. They were part of working groups and carried out three broad tasks; coordinating meetings between working group members, gathering inputs from various departments, and contributing to sectoral chapters on specific issues based on their existing research and expertise. According to a consultant, "One of WWF's existing programmes is on reducing fuel-wood by using LPG in cooking...so [it was] co-opted in the forestry working group."⁵⁷ While an NGO member thought it was a good opportunity for organisations to bring their field learning and organisational research to an official document, the process was hurried towards the end and much of the final focus was on departmental coordination.⁵⁸

Finally, civil society organisations were not offered a formal platform to discuss or debate the final text of the draft plan. Senior officials however indicated that since the document was put online; it was available for anybody to read or comment upon.⁵⁹

In sum, there are four notable features in Sikkim's draft plan process. First, the donor agency contributed to the initial framing of the document. GIZ presented the initial guidelines for the outline and design of the plan. Second, sectoral chapters were drafted by department-led working groups, assisted by sectoral consultants who also took on the role of experts. However, there were limited opportunities for coordination between groups. Third, despite the presence of consultants there was considerable emphasis on working groups drafting their respective sectoral chapters. Fourth, external participation was initially garnered through PRAs as part of the vulnerability assessment study, but there was no platform for civil society organisations to get involved once the draft was completed. A few representatives however were included in working groups to help with coordinating inputs, and bridge capacity deficits on specific sectoral issues.

“ There was a sense among officials that consultants should drive this... [They said] we would give the ideas and they should write it... I don't have the authority to go to other officers and collect data.”

- NGO Representative, Gangtok

IV. Examining the sectoral content of the plan

The sectoral content of the SAPCC is pertinent not just from the point of view of the strategies outlined, but also how recommendations are aligned to the framework of the plan and the process followed. The section provides an overview of the sectoral content and delves into four key aspects of the plan's recommendations:

- Unevenness in the sectoral content and scale of recommended actions;
- Links between recommendations, climate projections, and findings of the vulnerability assessment report;
- Variance in the working group composition and final sectoral chapters;
- Lack of a substantive discourse on the energy sector in Sikkim.

Unevenness in the sectoral content and scale of recommended actions

Sectoral chapters in Sikkim's climate plan typically outline existing sectoral concerns, current policies and programmes in place, as well as the institutions involved in addressing them (Table 3). The activity tables (in some sectoral chapters) go further in offering details of recommended actions, proposed activities in the short, medium, and long term along with budgets, and the institutions that could implement them.⁶⁰ Such formats are typically useful in signalling work divisions between institutions, encouraging departmental ownership, and mainstreaming climate concerns. There are however, large variations in the type of detail provided in each of the sectoral chapters. For instance the water chapter is the most comprehensive of all chapters. This was possibly because the state had already produced a report in 2010 on “Developing strategies for enhancing rural water security.”⁶¹ The transport chapter in comparison is relatively more concise.⁶²

This unevenness in fact, extends to the scale and level of specificity of recommendations. The strategies outlined in the water chapter are specific in nature. Examples include reviving dried up hill top lakes, conducting a census of small irrigation schemes every four years, undertaking “staggered contour trenches above villages” for rain water and “supplementing it” with afforestation on hill

tops.⁶³ In the agriculture sector, strategies are more at the level of objectives. They include, for example, crop diversification, Integrated Pest Management (IPM), and seed production and certification.⁶⁴ Even the final list of actions proposed offers little detail except to mention specific names of crops for cultivating indigenous varieties.⁶⁵ Recommendations under forestry include, “linking protected areas”, “disaster risk reduction and management”, and “preventing man-animal conflict”.⁶⁶ Proposed actions are equally generic such as, “connecting fragmented forests with ‘corridors’ to assist species migration.”⁶⁷

Unusually, the chapter on urban and rural habitats has some very specific suggestions; for instance decongesting roads by relocating specific bus depots, and setting up licensing norms for hotels to encourage compliance on water and energy conservation.⁶⁸ According to the Additional Chief Town Planner in the Urban Development and Housing Department, such targets were not new and were meant to address existing urban development and infrastructural concerns in the state.⁶⁹

Links between recommendations, climate projections and findings of the vulnerability assessment report

There seems to be a disconnect in most of the state action plans examined between research and process outcomes, and final plan recommendations. Moreover, there seems to be no framework in place to indicate how final actions were arrived at. As a result, plans broadly address sustainable development concerns without examining the long-term impact of climate change across sectors. The Sikkim climate plan is no exception. It is unclear how sectoral recommendations were arrived at in the plan. Moreover, none of the sectoral chapters in the draft – save forestry – outline sectoral impacts based on climate forecasts even though the document devotes a section to regional climate projections.⁷⁰

Officials in Sikkim felt that the SAPCC was better served if it was informed by peoples' perceptions of climate variability rather than science alone.⁷¹ But despite the use of

TABLE 3: OVERVIEW OF THE CONTENT IN THE SIKKIM CLIMATE PLAN

CATEGORIES	DETAILS
Chapter-wise break-up	<ol style="list-style-type: none"> 1. Introduction 2. Approach to the preparation of the Sikkim SAPCC 3. Sikkim's Vulnerability to Climate Change 4. Vulnerability Assessment of Rural Communities 5. Water Security 6. Agriculture 7. Biodiversity, Forests, Wildlife and Eco Tourism 8. Urban and Rural Habitats 9. Urban Transport
GHG Emissions inventory	No
Vulnerability Assessment	Yes Initial study by IISc. Second study by RMDD including rural communities through PRAs
Sectors covered	<ol style="list-style-type: none"> 1. Water Security 2. Agriculture 3. Biodiversity, Forests, Wildlife and Eco Tourism 4. Urban and Rural Habitats 5. Urban Transport
Typical Break-up of sectoral recommendations	<p><i>(with variations in some sectoral chapters)</i></p> <ul style="list-style-type: none"> - Strategy - Institutions involved - Current policies/ programmes in place - Action plans over short, medium and long term - Estimated budget for each action
Finance	The document offers a cost estimate for each activity but does not specify a cumulative budgetary estimate.

Source: Sikkim climate plan.

TABLE 4: Differences in the sectors allotted to working groups and the final sectoral output

WORKING GROUPS	SECTORAL CHAPTERS IN THE SAPCC
1. Water	1. Water
2. Agriculture, horticulture, and livestock	2. Agriculture, horticulture, and livestock
3. Forests, wildlife, and eco-tourism	3. Forests, wildlife, and eco-tourism
4. Energy efficiency	4. Urban and rural habitats
5. Urban and rural habitats and communities	5. Urban transportation

Source: Sikkim climate plan.

PRAs in the vulnerability assessment study, it is unclear if recommended actions in the draft plan were informed by the findings of the vulnerability assessment report.

The report for instance suggests that Sikkim prepare “village specific adaptation packages” because of the high degree of climatic variability within districts.⁷² Final sectoral recommendations however, propose village level interventions only twice, and not for any specific district, region, or village cluster. For example, the forestry chapter suggests, “Rapid assessment and Identification of high fuel wood villages in all eco regions.”⁷³ The water chapter recommends demonstration of Automatic Weather Stations in 50 villages.⁷⁴ There is no focus on areas in the South and West districts, which according to the vulnerability assessment study are more vulnerable.

Finally, a few recommendations in the Sikkim plan seem to have no direct climate links. Actions such as sanitation and solid waste management, or even decongesting core business districts under urban habitats, while being overarching development imperatives do not seem to target climate change in any obvious way.⁷⁵

Variance in the working group composition and final sectoral chapters

In examining linkages between process and content, it is worth pointing to the partial disconnect between the sectoral division

of the working groups and corresponding sectoral chapters in the draft (Table 4).

Conspicuous by its absence in the SAPCC is a chapter on energy efficiency for which a working group was created. In addition there is separate transport chapter, which was likely drafted by the group assigned to urban and rural habitats. Energy efficiency measures are instead peppered across agriculture, transport, forest, and urban chapters in areas such as energy efficient power tillers, sewage treatment plants, and street lighting.⁷⁶ The reason for not having a separate chapter on energy efficiency remains unclear. Possible explanations include the lack of departmental involvement, or even consultants who may not have delivered an adequate output in conjunction with a working group. A more likely outcome though, is that officials and other actors felt the need to focus on adaptation by limiting the discussion on energy related concerns in the document.

Addressing energy

It is evident that the Sikkim climate plan does not focus on energy in a substantive manner, even when it is linked to the state’s development and economic resilience. Apart from diluting its focus on energy efficiency, the document does not effectively tackle hydropower generation. While the draft acknowledges that hydropower generation may be rendered financially and economically unviable by climate impacts owing to future changes in river discharge, it also admits that it is a big

untapped energy potential for the state and a significant revenue-generating source at present.⁷⁷ So as the economic lynchpin of the region, it is kept out of the ambit of any adaptive action.

The one instance where energy is examined from the prospect of building development resilience is in the adoption of small-scale renewable energy solutions. For instance the forestry chapter suggests the use of renewable energy as an alternative to the use of fuel wood in forests. In addition, the urban habitats chapter suggests that all remote and high altitude monasteries in Sikkim should have access to renewable energy.

There are – to sum up – four notable trends in the sectoral content of Sikkim’s action plan. First, sector-based chapters are uneven in detail owing to varying sectoral priorities. As a result, sectoral recommendations also vary in their degree of specificity. Second, recommended actions are driven by sustainable development imperatives but do not seem to be informed by available climate projections or the findings of the vulnerability assessment report. Third, the lack of an energy efficiency chapter suggests some mismatch between final sectoral chapters and the sectors assigned to working groups. Fourth, the SAPCC largely steers clear of addressing hydropower generation despite acknowledging that climate change could impact future production, thereby prioritising current economic considerations over future development concerns.

V. Mechanisms for implementation

One of the distinguishing features of Sikkim's climate plan, as noted earlier, is that some actions under the water sector have already been implemented using available funds. However, as with any new policy plan, identifying resources, both institutional and financial, are key to ensuring its continued relevance. In addition, it is worth examining if the plan offers a mechanism or roadmap to effect implementation in a planned manner across the board, and not just for a specific sector.

Prioritisation of actions, mechanism for monitoring and evaluation, and institutional mechanisms for implementation

The Sikkim climate plan offers a sectoral break-up of proposed activities over a 5, 10 and 15 year period with an implementing agency for each activity.⁷⁸ Furthermore, all sectoral chapters also provide a list of ongoing policies and programmes for that sector.⁷⁹ While this likely provided some scope for a policy gap analysis in identifying additional climate related actions, it is unclear how strategies were arrived at and how they were sorted into different time scales (unless different periods served as targets to scale up action, such as creating 25 per cent of the springs in the first 10 years, and 75 per cent in 15 years).⁸⁰ There is no aggregated priority list of actions although it may be the case that actions listed in the short term (five year period) serve that purpose.

The plan does not carry a separate section on monitoring and evaluation of the action plan. In fact only few chapters refer to some form of overall monitoring of their stated schemes. For instance the agriculture chapter mentions, "A separate cell of Monitoring ... to be strengthened and empowered within the department for surveying climate change with pinpoint agendas."⁸¹ In the forestry chapter, under "Urban Governance and Institutional Strengthening" there is a proposed activity on "monitoring and modifying" proposed schemes.⁸²

Finally, the SAPCC does not outline an overarching institutional mechanism to take the project forward, although

since the DST&CC was the nodal agency responsible for drafting the plan, it may take responsibility for overseeing implementation. However, this role is not explicitly stated. Different agencies are tagged to different sectoral strategies, likely with a focus on mainstreaming climate activities in sectoral planning. It is however unclear if working groups or even concerned officials have met since the last draft was formulated in 2011 to discuss the future course of action on the SPACC.

An instance of innovation in implementation

Sikkim is one of the few states where a department like the RMDD has used the SAPCC to scale up projects in a specific sector, financed by an existing centrally sponsored scheme.⁸³ The RMDD has initiated work on recharging lakes and streams as well as reviving dried-up lakes on hilltops using MGNREGA funds. This is an extension of on-going work on springs as well as other pilot projects in the state. As with the rest of the SAPCC, there is some headway in the water sector because of the sector's importance in Sikkim's development trajectory.⁸⁴

Securing finances

As with many state action plans, there is little evidence of any specific methodology that was employed in arriving at budgetary allocations in the Sikkim plan. Budgets therefore are essentially estimates; some are based on comparable initiatives, and some are extrapolated from costs of expanding pilot projects. Sectors such as water and forestry have a more detailed break-up in terms of costs for individual activities. For instance in the water chapter, under the strategy of archiving and disseminating traditional water management practices, there is an action plan on introducing low cost water infiltration methods. The plan offers an estimation of the cost for doing this per site, tabulates it for 5000 sites, and presents a final figure for the initiative for the next five years.⁸⁵

The draft however, does not make a distinction between existing and

additional funds. Neither does it mention the expected source of these allocations; whether they should come from state, central or international coffers such as bilateral or multilateral agencies. Finally, it does not put forth a final amount as a cumulative requirement for all the commitments recommended under the action plan. This degree of ambiguity may blunt future efforts at securing finances for implementing the plan, unless it is carried out selectively, by specific departments, using existing funds. This is only evident in the water sector so far.

In short, the implementation mechanism outlined in Sikkim's climate plan is an indication of the unevenness of the document in being an innovator in some sectors but lagging behind in detail and intent in others. The draft plan does not carve out a separate section on monitoring evaluation or implementation of the overarching document, nor does it assign an overarching institution to take the plan forward. Within sectoral chapters however, individual departments and agencies are tagged to different strategies, allocating some institutional responsibility. Finally, while there is no indication of the sources of finance for the budgets assigned, the RMDD is already leading the way in having implemented a number of projects from the draft plan using existing central funds. It is unclear if a similar exercise is planned for other sectors.

Conclusion

Sikkim, as part of the fragile Himalayan ecosystem, has been involved in a number of climate related activities, driven by its Chief Minister of 19 years. The SAPCC was a likely extension of this overarching climate focus, guided by motivated bureaucrats with prior expertise and engagement in climate and development issues. The plan is largely adaptation based, and officials felt that a scientifically driven account of climate impacts and vulnerabilities in Sikkim would not find a buy-in without capturing public perceptions on the issue. Plan recommendations, therefore, are driven more by sustainable development imperatives than climate projections. A key material driver for Sikkim's climate plan is water availability. As a result, the chapter on water resources is the most comprehensive part of the SAPCC and is an extension of past research and fieldwork in the area. Notably, some recommendations in the water sector

have already been implemented using existing MGNREGA funds. This linkage between the SAPCC and the MGNREGA is an attempt at mainstreaming climate and sustainable development in the state's planning agenda, albeit in one sector.

The rest of the SAPCC document however is uneven in terms of specificity of sectoral recommendations and prioritised actions. The plan does not engage in energy related mitigation issues in a substantive manner. This unevenness can be attributed to varying state interests in different sectors, and varying degree of departmental and bureaucratic engagement in the climate planning exercise. Finally, despite ongoing work in climate proofing the water sector, there is no institutional mechanism in place to ensure monitoring or evaluation of the SAPCC in its entirety.

About Centre for Policy Research, Climate Initiative

The Climate Initiative seeks to generate research and analysis on the global climate negotiations, and on the links between the global climate regime and domestic laws, policies and institutions in India. It also seeks to create a platform from which scholars and activists can engage in policy and academic debate on climate change.

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Notes

1. Forests, Environment & Wildlife Management Department, Government of Sikkim, *Environmental Initiatives of Shri Pawan Chamling, Hon'ble Chief Minister of Sikkim* (Gangtok: Government of Sikkim, June 25, 2010), p. 3.
2. Sandeep Tambe and M. L. Arrawatia, "Climate Change Initiatives in Sikkim," in *Climate Change in Sikkim: Patterns, Impacts and Initiatives*, edited by M. L. Arrawatia and Sandeep Tambe (Gangtok: Government of Sikkim, 2012), pp. 368-412.
3. Government of Sikkim, "Sikkim Action Plan on Climate Change (2012-2030)," (Gangtok: Government of Sikkim, March 2011), p. 6. (<http://envfor.nic.in/downloads/public-information/Sikkim-SAPCC.pdf>).
4. Tourism Department, Government of Sikkim, "Sikkim Tourism Policy: Planting Seeds of Hope for a Greener Tomorrow," 2010.
5. Sikkim Action Plan, p. 6.
6. The Times of India, "Sikkim environment, bio-diversity in peril," April 27, 2010. (http://articles.timesofindia.indiatimes.com/2010-04-27/pollution/28117630_1_bio-diversity-river-aquatic-life).
7. Tambe and Arrawatia, Climate Change Initiatives in Sikkim.
8. The Sikkim report is part of a larger study examining climate plans in Himachal Pradesh, Karnataka, Madhya Pradesh, Odisha and Sikkim. In some states, there are multiple versions of climate plans in the public domain; this study uses the most recent version, as specified in the notes to this report. The climate plans, in general, are referred to as State Action Plans on Climate Change (SAPCC).
9. Government of Sikkim, 2009. "Notification," to rename the *Department of Science and Technology* (Gangtok: Sikkim Government Gazette, October 26, 2009).
10. Interview with Sandep Tambe, Special Secretary, Rural Management and Development Department, Government of Sikkim, July 24, 2012, Gangtok, Sikkim.
11. Interview with M. L. Arrawatia, Former Secretary, Department of Science and Technology, Government of Sikkim, July 24, 2012, Gangtok, Sikkim.
12. Tambe and Arrawatia, Climate Change Initiatives in Sikkim, p. 378.
13. Interview with R. P. Gurung, Ecotourism & Conservation Society of Sikkim, July 24, 2012, Gangtok, Sikkim.
14. Sikkim Action Plan, p. 6.
15. M L Arrawatia, currently Chairman, Sikkim Public Service Commission was former Secretary, Department of Science and Technology and Climate Change. Dr. Sandeep Tambe is the Special Secretary, Rural Management and Development Department (RMDD) in the Government of Sikkim.
16. Interview with Sandep Tambe, July 24, 2012, Gangtok, Sikkim.
17. M. L. Arrawatia and Sandeep Tambe, eds., *Climate Change in Sikkim: Patterns, Impacts and Initiatives* (Gangtok: Government of Sikkim, 2012).
18. Interview with M L. Arrawatia, July 24, 2012, Gangtok, Sikkim.
19. Sikkim Action Plan, p. 9.
20. Sikkim Action Plan, p. 33.
21. Sikkim Action Plan, p. 11.
22. Not for attribution interview with a state government official, Government of Sikkim, July 24 2012, Gangtok, Sikkim.
23. Sikkim Action Plan, p. 8.
24. Sikkim Action Plan, p. 8.
25. Sikkim Action Plan, p. 12.
26. Interview with Sumana Bhattacharya, Head – Climate Change and Sustainability, Intercooperation, India, August 6, 2012, New Delhi.
27. Sikkim Action Plan, p. 10.
28. Sikkim Action Plan, p. 9.
29. Sikkim Action Plan, p. 3.
30. Sikkim Action Plan, p. 21.
31. Sikkim Action Plan, p. 22.
32. Sikkim Action Plan, p. 30.
33. Sikkim Action Plan, p. 19.
34. The vulnerability assessment study lists perceived changes in snowfall, rain, temperature, and hail storms, and discusses how locals are already adapting to these changes. The state's village level analysis also confirms that the subtropical South and West districts are more vulnerable; Sikkim Action Plan, pp. 19 and 28.
35. Not for attribution discussion in, "State Action Plans on Climate Change in India Framing, processes, and drivers," *A report on the round table dialogue organized by the Centre for Policy, Research Climate Initiative* (New Delhi: CPR CI, April 27, 2013). (http://cdkn.org/wp-content/uploads/2013/05/SAPCC-Workshop-Report_CPR_27-April-2013_update.pdf)
36. Not for attribution discussion in "State Action Plans on Climate Change in India."
37. Sikkim Action Plan, p. 30.
38. Interview with M L. Arrawatia, July 24, 2012, Gangtok, Sikkim.

39. Interview with Sandep Tambe, July 24, 2012, Gangtok, Sikkim.
40. Telephone interview with C.K. Rao, Former Livestock Programme Coordinator, Intercooperation, India, July 17, 2012.
41. Interview with M L. Arrawatia, July 24, 2012, Gangtok, Sikkim.
42. Interview with Sumana Bhattacharya, August 6, 2012, New Delhi.
43. Department of Science & Technology and Climate Change, Government of Sikkim, 2010, "Brainstorming Workshop on preparation of State Action Plan on Climate Change on Sikkim" (Gangtok: Government of Sikkim, May 14-15, 2010). (<http://dstsikkim.gov.in/climate%20workshop.pdf>).
44. Presentation by Vera Scholz, Competence Centre for Climate Change, GIZ. "Brainstorming Workshop on preparation of State Action Plan on Climate Change on Sikkim," (Gangtok: Government of Sikkim, May 14, 2010).
45. Government of Sikkim, Brainstorming Workshop.
46. Government of Sikkim, Brainstorming Workshop.
47. Intercorporation was selected by GIZ because one of their former consultants had previously worked in Sikkim for 13 years and was familiar with local issues as well as the bureaucratic set up in the state; Interview with C.K. Rao, July 17, 2012.
48. Sikkim Action Plan, p. 4.
49. Interview with C.K. Rao, July 17, 2012.
50. Sikkim Action Plan, p. 3.
51. Interview with M L. Arrawatia, July 24, 2012, Gangtok, Sikkim.
52. Interview with Priya Shrestha, Landscape Coordinator, WWF-India Sikkim Programme Office, July 24, 2012, Gangtok, Sikkim.
53. Interview with Sandep Tambe, July 24, 2012, Gangtok, Sikkim.
54. Interview with Devika Chhetri, Additional Chief Town Planner, Urban Development & Housing Department, Government of Sikkim, July 24, 2012, Gangtok, Sikkim.
55. Not for attribution interview with a NGO representative, July 24, 2012, Gangtok, Sikkim.
56. Not for attribution interview with a NGO representative, July 24, 2012, Gangtok, Sikkim.
57. Interview with Sumana Bhattacharya, August 6, 2012, New Delhi.
58. Not for attribution interview with a NGO representative, July 24, 2012, Gangtok, Sikkim.
59. Interview with M L. Arrawatia, July 24, 2012, Gangtok, Sikkim.
60. Sikkim Action Plan, pp. 32-42.
61. Sikkim Action Plan, p. 34.
62. Actions simply list policy measures over the short, medium and long term such as a government "vehicle procurement policy" or "tourist sector norms". Budgets are aggregated for all measures and presented at the end for different time periods. The chapter is also incomplete in parts. For example, a GHG emission profile of the sector for 2007 is mentioned but unavailable in the body of the chapter; Sikkim Action Plan, pp. 149 and 154.
63. Sikkim Action Plan, pp. 42-43.
64. Sikkim Action Plan, p. 63.
65. Sikkim Action Plan, p. 70.
66. Sikkim Action Plan, pp. 106-107.
67. Sikkim Action Plan, p. 116.
68. Sikkim Action Plan, pp. 133-134.
69. Interview with Devika Chhetri, July 24, 2012, Gangtok, Sikkim.
70. The forestry chapter lists possible biodiversity impacts in the future for different climatic regions such as "landslides", or a "decline in livelihood earnings from forest products" in the topical and sub-tropical regions. There is however no detail on the source, timeline or the scenarios employed to arrive at this data; Sikkim Action Plan, p. 98.
71. Interview with Sandep Tambe, July 24, 2012, Gangtok, Sikkim.
72. Sikkim Action Plan, p. 30.
73. Sikkim Action Plan, p. 121.
74. Sikkim Action Plan, p. 46.
75. Sikkim Action Plan, p. 130.
76. Sikkim Action Plan, pp. 66, 129, and 113.
77. Sikkim Action Plan, pp. 11 and 17.
78. Sikkim Action Plan, p. 114.
79. Sikkim Action Plan, p. 127.
80. Sikkim Action Plan, p. 44.
81. Sikkim Action Plan, p. 65.
82. Sikkim Action Plan, pp. 131-132.
83. Interview with Sandep Tambe, July 24, 2012, Gangtok, Sikkim.
84. Notably, the senior bureaucrat leading work on climate change in Sikkim is also the Special Secretary at RMDD and MGNREGA and was in charge of the working group on water.
85. Sikkim Action Plan, p. 43.