

From Margins to Mainstream?

State Climate Change Planning in India

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In 2009, the Government of India requested states to develop State Action Plans on Climate Change. Based on a detailed analysis of five state climate plans, this article finds that climate plans provide an important institutional platform to mainstream concerns of environmental sustainability into development planning but fail to update ideas of sustainability to include climate resilience. There are shortcomings in approach, process, formulation of outcomes, and implementation efforts. These shortcomings are united by a common thread – a tendency to prematurely view state climate plans as vehicles for generating implementable actions rather than an opportunity to redirect development towards climate resilience. However, if state plans are viewed as the beginning of a complex process of updating sustainable development planning rather than as an end in themselves, they provide a foundation upon which climate concerns can be more effectively mainstreamed in local development planning.

For much of the last two decades, climate change has largely been considered an esoteric issue in India, to be discussed in international negotiations, but not one of much salience to domestic development imperatives. This has always been a flawed understanding, because climate change impacts can make the task of developing in a sustainable manner much harder. As the Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment report notes, "sufficiently disruptive climate change could preclude any prospect for a sustainable future" (Fleurbaey et al 2014: 5). More recently, however, there has been growing awareness of the relevance of climate change for India, both within government, and within other sectors of society, such as civil society, business and media (Dubash 2011).

The latest IPCC indicates that according to all models and all scenarios, mean and extreme precipitation in India is expected to rise during the summer monsoon, increasing the possibility of floods (Hijioka et al 2014: 17). The country is also expected to experience a steep decline in wheat yields in the Indo-Gangetic plains owing to heat stress. Further, in the east coast, "clusters of districts with poor infrastructure...are also the regions of maximum vulnerability", rendering extreme events more calamitous (ibid: 17).

In response, at least initially, to growing international clamour for domestic adoption of climate strategies among emerging economies, India prepared its National Action Plan on Climate Change (NAPCC). The initiative was ostensibly aimed at two outcomes – to adapt to climate change, and "further enhance the ecological sustainability of India's development path" (Prime Minister's Council on Climate Change 2008: 1).

In August 2009, the prime minister asked all states to develop State Action Plans on Climate Change (SAPCCs) (GoI 2009). The rationale was to decentralise action beyond the eight missions of the NAPCC, particularly given that many subjects covered – especially those like water and agriculture – are actually state subjects and tackle issues necessitating adaptation interventions. The Ministry of Environment, Forests and Climate Change, earlier called Ministry of Environment and Forests (MoEF),¹ developed a "Common Framework Document", with the assistance of some donor agencies, to guide this process, stressing that it be participatory, build capacity, develop a vulnerability assessment, and draw on experts and donors for guidance and support (MoEF 2010a). A number of states embarked on the ambitious plan formulation

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processes. As of October 2014, 28 states and union territories have completed drafts of their plans, 19 have been endorsed by the MoEF and three have been considered by the Expert Committee on Climate Change (MoEF 2014).

To what extent do these newly forged state climate plans and the underlying process of their creation shift climate change from the margins to the mainstream of India's development debate? This is an important question to ask for several reasons. First, in the light of challenges posed by climate change, a business-as-usual approach to sustainable development is likely to be increasingly ineffective. Second, state planning for climate change affords an intriguing opportunity to revisit existing development planning in ways that prompt more explicit attention to environmental sustainability. Third, and most pragmatically, SAPCCs are unlikely to be a one-off exercise; the current round of plans will have to be reviewed, updated, and improved upon in an iterative process. Given this, it is important to document the lessons of experience.

A summary response to the overarching question above is that state climate plans have been a "door opener",² as one official put it, to a more in-depth engagement with the concepts and implementation challenges of sustainable development, but they have not, as yet, provided an opening for transformative change – the "directional shift" called for in the NAPCC (Prime Minister's Council on Climate Change 2008: 7). To elaborate on this answer the paper further explores:

- What framework have states employed to climate plans and how are plans understood by the people who lead them as well as those who engage with the process?
- What is the process through which they are put together and how does this process affect the outcomes?
- What sorts of outcomes result and will these recommendations add up to a re-envisioning of sustainable development?
- And what, ultimately, are the prospects for implementation of ideas arising from state plans?

After briefly outlining the research approach and methods, the remainder of the article spells out the principal findings of the study, with the intent of contributing to ongoing policy debates and processes on climate change and development.

Approach and Methodology

The study draws on an analysis of state climate plans in five states:³ Himachal Pradesh (HP),⁴ Karnataka,⁵ Madhya Pradesh (MP),⁶ Orissa,⁷ and Sikkim.⁸ The states were primarily chosen to represent geographic spread and variability in donor organisations involved, with additional attention to agro-climate variability, size and economic prosperity. Further, only states that had completed a draft report were considered when this study was initiated in May 2012.

The report is based on interviews with officials from nodal and department ministries in each state, civil society actors, consultants and donors. The interviews are complemented by close analysis of state plans and supporting documents. The approach is primarily qualitative and interpretive. Preliminary

findings were presented and discussed with state representatives at a feedback workshop in 2013.

Framing State Climate Plans in India

Climate change planning in India, as elsewhere, has hitherto been an unexplored terrain. Without an accepted template, the initial framing of the aims and objectives of plans is extremely consequential to final outcomes. The section explores four aspects of the plans' framework: climate change as a sustainable development outcome; the inadequate use of science; balancing national direction with local concerns; and the uncertain role of mitigation in state plans.

Linking Climate Change with Sustainable Development: In

many states, climate change action plans were approached as sustainable development action plans. A low level of initial knowledge about climate change in some states, a lack of a conceptual framework with which to link sustainability and climate change, limited access to appropriate state-level climate science projections, and, in some cases, pressures on time, all led to a default approach of broad sustainability planning. Interviews with state officials suggest that while climate change is often a little understood abstraction, there is greater motivation to address concrete local issues of sustainable development, which is also likely to bring greater political support for action. Viewed thus, state climate change plans may be understood, as one state official put it, as a useful "door-opener" to consideration of long-standing sustainable development concerns, since there is a considerable overlap between sustainability and climate resilience.⁹

On the other hand, understandings of sustainable development are incomplete without taking account of future climate change impacts. For example, changes in future rainfall trends have impacts for the trajectory of hydropower development, and sea level rise carries implications for infrastructure development along the coast. Even efforts at climate mitigation may have implications for sustainable development, such as implications of biomass-based energy on land-use. Hence sustainable development planning without efficient consideration of climate risks is incomplete.

The incomplete framing of sustainable development in the context of climate change is partly due to limitations at the initiation stage of plans. As an official from MP put it, "SAPCCs [are] not climate change plans but good development plans. States were thrown into the process without capacities to understand the process or the product".¹⁰ Most states held inception workshops, but these were focused around technical presentations on climate change from experts rather than internal deliberations that allowed state officials and experts to draw links between local understandings of sustainability and the challenges posed by climate change. Even in Sikkim, where bureaucrats in charge had previously made efforts to understand the implications of climate change, and independently produced a volume on the subject, the workshop was limited to technical presentations from experts to other working group officials (Tambe and Arrawatia 2012).

Use of Science: State plans made limited use of relevant scientific knowledge on climate change, in large part because of difficulties accessing such knowledge, which is an important reason why they failed to upgrade sustainable development to include climate resilience.¹¹ While many plans carry a section on climate trends and forecasts based on available regional studies, this information was often drawn from a report by the Indian Network of Climate Change Assessment (INCCA) in 2010 that provided trends for four climate sensitive regions and sectors in India (MOEF 2010b). This is an inadequate scale for state planning. The problem of inadequate information was exacerbated by time pressure. Officials in HP and Orissa¹² for example, felt that any initial investment in climate science such as commissioning model-based climate forecasts specific to the state would delay the SAPCC process.¹³

While all states conducted a vulnerability assessment, the effectiveness of these was limited by lack of adequate regional level climate predictions and adequate scientific capability. The Orissa and Sikkim state plans, for instance, derive sectoral and region-wise climate sensitivity from current climate trends rather than future projections (Sikkim Climate Plan: 3; Orissa Climate Plan: 12). Moreover, in some cases, such as in MP and Karnataka, the vulnerability assessment was conducted as a separate project, rather than as an integral part of the climate plan (GIZ and MOEF 2012; Institute for Social and Economic Change 2011: 18).

Consequently, even where science-based information is available, there is little evidence that final plan recommendations reflect priority areas based on science. For example, in MP, which was not featured in the MOEF-based INCCA study, climate specific information was added later, after the first iteration of the report was ready but does not seem to inform plan recommendations.¹⁴ Orissa, which prepared a draft in just three months, did not carry any climate forecasts. Karnataka represents a partial exception, as the state was able to draw on climate research from the Bangalore Climate Change Initiative – Karnataka (BCCI-K), a consortium of research and scientific organisations that conducted a scientific assessment of the implications of climate change for the state. The state-led Karnataka plan, as a result, is arguably the only plan examined that has been able to draw on science and research outcomes specific to the state.

Balancing National Direction and Local Concerns: In India's federal system, there is an inevitable tension between the consistency obtained by a centrally directed approach and the gains of tailoring policy to the local context when states take the lead. Taking guidance from the MOEF, states largely followed the template of the eight missions laid out under the NAPCC (MOEF 2010a). Indeed, even the recommendations sections of some plans followed the subcategories listed under the missions (Ogra 2013).

At the same time, local concerns did play a role in shaping both the content of the plans and some additional emphasis on certain sectoral areas. For example, the Orissa Climate Plan was seen as a way to bring much needed funds to reduce transmission

and distribution losses in the state's privatised electricity sector even though this is not a major theme in the NAPCC. As one official noted, "Nothing was moving in the [energy] sector. This was an opportunity for us to impress on private sector, regulator and government...In the name of climate change, highlight that the sector needs support...we would not have got support without the climate document".¹⁵ Indeed a third of the plan budget is set aside for this purpose (Orissa Climate Plan: 107-08). In Sikkim, water issues dominate state concerns around glacial retreat, given the dependence of the state on mountain springs for water supply (Sikkim Climate Plan: 9). Consequently, this sector represents the best-developed portion of the Sikkim plan.¹⁶ The HP Climate Plan was drafted around the time the then chief minister announced a carbon neutrality target for the state (*Deccan Herald* 2012). And even though the plan does not directly commit to that goal, a third of the actions in the plan focus on mitigation (HP Climate Plan: 217, 230).

The climate plan process has, therefore, found a balance between laying out a broad framework set by the centre and leaving space for state direction. In the future, it may be advisable to tilt the balance in favour of state initiative for at least three reasons: Many climate relevant issues are state subjects; implementation chances are heightened if states can focus on issues that are politically salient locally; and experimentation at the state level is more likely to lead to creative new ideas than a fixed central diktat.

Role of Mitigation in State Climate Plans: Among some state officials, there was a clear sentiment that it was appropriate for state plans to focus on adaptation issues, one backed by the MOEF. Adaptation, it was felt, was clearly tied to development concerns, and given India's stage of development and relatively limited contribution to historical emissions, mitigation should take a back seat. As a senior official in MP said, "we would only engage in mitigation activities if it offered a win-win situation for the state's development agenda".¹⁷

However, there were some confounding factors that led to mixed signals on the relative balance of plans on adaptation and mitigation. First, the NAPCC, which served as the guiding document for state plans, includes several missions focused on mitigation (Prime Minister's Council on Climate Change 2008). Second, the common framework document issued by the MOEF explicitly states that each plan should include a greenhouse gas (GHG) inventory, which by its nature is mitigation focused (MOEF 2010a). Finally, some states had an interest in pursuing energy-related issues in their plans.

In such states where local importance was given to mitigation issues, mitigation-related actions formed a substantial (though rarely a majority) component of final SAPCC recommendations. Examples include Orissa's focus on reducing losses in the electricity system, Karnataka's efforts to restructure agricultural power tariffs, and HP's exploration of payment for ecosystem services as well as acquiring more carbon credits through the clean development mechanism (CDM) process (HP Climate Plan: 215; Karnataka Climate Plan: 165; Orissa Climate Plan: 43).

However, as Table 1 shows, while some states conducted a GHG inventory not all chose to include these in the final plan. Interviews in four states suggested that feedback from the MoEF (contrary to the guidance initially presented in the common framework document) advised against inclusion of these inventories on the grounds that it might unnecessarily expose India to international pressure. As a consultant to Sikkim and MP put it, “The MoEF is not encouraging it [inclusion of GHG inventories] at this point even though it’s in the framework since bi-laterals and multilaterals can pick up state numbers and informally push their cause [for India taking on emission cuts].”¹⁸

Table 1: Relative Focus on Adaptation and Mitigation in Prioritised Recommendations of State Plans

SAPCC	GHG Inventory	Total Final Actions	Adaptation (% of Total)	Mitigation (% of Total)	Other (% of Total)
HP “Indicative Action Plan 2012-17”	Yes	148	85 (57)	46 (31)	17 (12)
Karnataka “Priority actions and entry points”	Yes	100	66 (66)	27 (27)	7 (7)
MP “Strategies and Budget”	Yes, but not included in plan	337	207 (62)	109 (32)	21 (6)
Orissa “Key Priorities”	Yes	142	72 (47)	65 (43)	5 (10)
Sikkim “Actions” list in sector chapters	No	224	159 (71)	43 (19)	22 (10)

All proposed activities (including research and capacity building outcomes) have been categorised under mitigation or adaptation action. “Other” includes actions that could not be categorised exclusively under one or other category, often pertaining to broad sustainable development activities. The Sikkim plan lists time bound targets. Actions under the five-year target are taken as the priority list for this analysis.

Sources: HP Climate Plan, p 224; Karnataka Climate Plan, pp 25,165; MP Climate Plan, p 97; Orissa Climate Plan, p 118; Sikkim Climate Plan, pp 43-163.

While concerns about opening the door to international obligations may be understandable, these concerns are alleviated by the NAPCC emphasis on a co-benefits framework for Indian action, which places an emphasis on development first, and the fact that many states appear to have their own interests in pursuing energy-related actions in a co-benefits context (Prime Minister’s Council on Climate Change 2008: 28). Moreover, a failure to integrate mitigation comes at a cost, because energy supply and demand is a key aspect of sustainable development and because there are linkages between adaptation and mitigation that need to be part of the framework for climate plans.

The Process

The process through which a state develops its climate plan can either open doors to creative ideas or close off opportunities, empower voices outside the mainstream or silence them. Accordingly, exploring the process followed by states is an essential precursor to looking at their outcomes. The following section examines four aspects of the state plan process: local political and bureaucratic support; the role of the nodal agency and other line-departments; extent of external participation; and capacity building and external support.

Local Political and Bureaucratic Support as Plan Drivers:

Climate change plans have occasionally received high-level political support in an effort to project a green image, which has translated to bureaucratic attention. The chief ministers of some states, notably Sikkim, HP and Orissa, have been reported

as being keen to project their state as environmentally forward-thinking. As one official noted, “We wanted to make sure through these [climate initiatives] that HP had a good track record of proactiveness with respect to environment matters”.¹⁹ In Sikkim the plan was directly tied to climate concerns because of the state’s dependence on glacial springs, in HP and Orissa the motivation was to build on the state’s green credentials and receive additional finance. The Sikkim chief minister constituted a “State Council on Climate Change”, well before the SAPCC process, and also established a “Glacier and Climate Change Commission” (Tambe and Arrawaita 2012: 278). HP hosted a Climate Change Conclave and announced a climate neutral target for the state to be addressed with assistance from the World Bank (*Daily News and Analysis* 2009; Government of HP and Leadership for Environment and Development-India, 2009; *The Hindu* 2011). High levels of political attention translated to bureaucratic energy and proved helpful in mobilising bureaucrats from other departments. In the case of Sikkim and Orissa it has also led to some focus on implementation.

The Role of the Nodal Agency and Other Line-Departments:

The process of developing plans shapes whether they follow existing departmental action or result in creative integration, and also affects the degree of departmental ownership of plan outcomes. The process of formulating state plans followed one of two broad models. In Karnataka, HP, and MP, the plan was drafted by the nodal department after obtaining inputs from relevant departments. In Orissa and Sikkim, the plan was drafted by sectoral working groups formed by the nodal group. Comparing the two approaches, the nodal group-led model provided almost no scope for cross-departmental input or new ideas from within the process. In all three states though, state plans were able to draw on external ideas – the expert-led ВСС-К process in Karnataka, the peer-review group consisting of academics and chancellors from several universities in HP, and sectoral workshops in MP involving line-departments and retired government officials.²⁰

Done well, the working group-focused model can provide the basis for new ideas and breaking of silos. For example, a stakeholder commenting on the Orissa plan remarked, “It is not often that you find forest officers sitting face to face with mining officials to discuss environmental sustainability” (Mani 2010). In Orissa, representatives of the nodal agency were also strategically placed in each group to ensure progress.

However, to ensure cogency with the broader process, the plan process must be carefully designed to both foster interaction (and avoid silos) but also build ownership. This is a challenge, since there is a possible trade-off across these objectives. Ensuring interaction through cross-departmental discussion using a nodal agency to stimulate discussion rather than own the process, and allowing time for new understandings to emerge, are all important ingredients of a good process.

Extent of External Participation: In addition to cross-departmental deliberations, external input commissioned from academics and consultants, or consultation with stakeholders

from business and civil society can provide sources of creative input. In several states, the formal process was supplemented with either *ex ante* or *ex post* consultation, but these were highly variable in quality and effort, and there is only limited evidence that consultation had a tangible effect on outcome.

For example, HP set up a peer review group comprising vice chancellors of universities as well as eminent scientists to vet the draft plan. Their most significant intervention was guiding the nodal department in preparing a new district level vulnerability assessment study using climate-based variables to replace an existing environmental vulnerability assessment study.²¹ However, the process in HP failed to provide space to civil society voices. The most ambitious example of *ex ante* consultations is in MP where the nodal agency organised regional workshops in 11 agro-climatic zones, resulting in a synthesis of sector-wise concern areas and recommendations for each agro-climatic zone (MP Climate Plan: 19). However, since the main report writing proceeded in parallel there is no indication of the impact of these consultations on the final plan. In Sikkim, state officials credit participatory rural appraisals in six villages with raising their awareness of how climate variability was affecting local communities and helping to ground truth the vulnerability assessment. Officials also included some non-governmental organisation (NGO) members in their working groups.²² Orissa followed an ambitious year-long process of *ex post* review and consultation with civil society organisations, which led to some key changes in the report. The Orissa plan also contains an annexure based on this consultation, with external comments and the state's response to these comments.²³ In Karnataka, work by a coalition of academic institutes and think tanks provided a solid base of information for the Karnataka plan though the state did not facilitate public consultations (BCCI-K 2011). MP, on its part, made a concerted effort to commission local academic research, but this work did not ultimately play a big role in the final report.²⁴

There is an important time planning dimension to the state planning process. In Orissa, the first draft of the plan was prepared in just three months, facilitated by tight time management, providing little scope for external input (Orissa Climate Plan: 4). In MP, the ambitious consultation process was inadequately sequenced with the main report process to ensure cross-fertilisation (MP Climate Plan: 125-26). However, doing so would have extended the plan process considerably. To be effective, external input needs adequate time, appropriate sequencing with plan preparation processes, and the inclusion of both *ex ante* and *ex post* elements.

Capacity Building and External Support: State climate planning processes are typically housed in environment and forests or science and technology departments with limited capacity to conceptualise and develop climate plans.²⁵ In all the states studied, there was considerable concern that the state plan be locally driven; in practice, states drew on external technical ability in a variety of ways. In some cases, donor agencies were explicitly involved in the process, as in Orissa, while in other cases, donors were engaged indirectly, through

support for larger, related programmes, as in Sikkim, HP and MP. Donors, in some cases, bridged capacity shortfalls by providing technical expertise, and facilitating a conversation on climate change with knowledgeable local bureaucrats, academics and NGOs. The assistance of donors and consultants, however, failed to enhance states' long-term capacity on climate change. Most states conducted an inception workshop and/or prepared an initial scoping document with donor assistance. The impact of these efforts, however, varied. In Orissa, for example, the scoping report drafted by a UK-based academic consultant provided a list of recommended sectoral actions. The scoping report was used by working groups as a "first cut" towards drafting the plan, arguably short-circuiting local discussion of priorities (Orissa Climate Plan: 3). In Sikkim, state officials suggested that an initial scoping workshop conducted by senior academics and other experts from around India was of relatively limited use, as the plan was ultimately framed around broad climate change issues, without an explicit effort to build a conceptual bridge from local realities to climate threats.²⁶ Ultimately, the inception workshops and other consultations supported by donors showed little signs of usefully facilitating a conversation about climate change in a manner that allowed for engagement with local concerns.

Apart from these workshops, Indian consultants often took on a substantial role in plugging knowledge gaps and provided assistance in coordinating and drafting the plans. For example, local sectoral consultants assisted working groups in Sikkim, played a coordinating role in Orissa, and assisted in drafting the final reports in MP and Karnataka. Unusually, in the HP Climate Plan, no external consultants were employed (though they were involved in other environment and climate projects in the state such as the vulnerability assessment for the Environment Master Plan and the Community Led Assessment, Awareness, Advocacy and Action Programme for Environment Protection and Carbon Neutrality).²⁷ However, there is little evidence that the net effect of the process was a sustainable long-term enhancement in the capacity of state government agencies. In all the states studied, capacity for ongoing work on climate change was limited to a very small group of people.

The challenge for effective state climate planning processes is to mesh external specialised knowledge of climate change with detailed local knowledge in ways that can mainstream climate change. To do so requires building local capacity over time, both within the government and in networks of local academic and civil society institutions. In most states, the process was geared substantially more towards producing a report, than to long-term building of capacity to work on integrating climate change into development practice in a sustained way.

Outcomes

Recommendations for sectoral actions are at the heart of what the state climate plans finally communicate. A systematic understanding of these recommendations and their import are stymied by the numbers and diversity of approaches to

generating recommendations (Table 2). However, a comparison of recommendations suggests at least two broad themes discussed below.

Lack of a Systematic Framework for Formulation or Prioritisation: States diverge in the extent to which they offer broad objectives or specific actions, but no state offers a clear, consistent and well-argued set of recommendations that amounts to either a vision or an action plan. For instance, generic recommendations across plans include promotion of “integrated farming practices”, “fire management”, “river bank protection”, “native forest management”, etc (HP Climate Plan: 228; MP Climate Plan: 101; Orissa Climate Plan: 80; Sikkim Climate Plan: 43). The Sikkim state plan, which carries a recommendation as broad-based as riverbank protection, however, also offers a very specific suggestion of moving a bus depot from the capital city to a town on the outskirts, to decongest the main city centre (Sikkim Climate Plan: 134). In addition, the Karnataka Plan, which recommends “vaccination of livestock”, also suggests a specific measure such as making water use audits mandatory for industries and allied sectors (Karnataka Climate Plan: 117, 171).

One reason for this variation is the lack of upfront agreement and clarity on exactly what the plans were meant to deliver. As one consultant involved in multiple states noted: “Earlier officials said that SAPCCs need to include specific actions, now they want it to be more of a knowledge document: Let it evolve, not all of it needs to be immediately actionable”.²⁸ A clear signal from the leadership can also determine how specific the recommendations are. In Orissa, the secretary-in-charge sought clear, actionable recommendations around which to generate new programmes: “If you look at the climate plan, it has thrown up some 300 to 400 different programs. For the government as a whole, it gives a spark to new activities. It helps climate, it helps other sectors also.”²⁹

Another factor is the relatively thin information base on which recommendations rest; specific action items need detailed information. Notably, recommendations include many ideas for future research, several of which are actually prerequisites to constructing an informed climate plan (Table 2). Climate plans, therefore, are more appropriately viewed as the first step in an iterative process, rather than the launch pad for implementing policies.

The relative mix of general objectives and specific actions is also, in part, shaped by the process through which recommendations are developed – either led by nodal agencies or through sectoral working groups. Typically, states that

develop recommendations through sectoral working groups have a mix of general and specific recommendations, depending on sector dynamics in a given state.

Where a nodal agency coordinated report writing, such as in HP and MP, recommendations tend to be general, perhaps because the authors had limited detailed sectoral knowledge. As one official in HP commented, “The SAPCC is too generic compared to work being done in the forestry department. Interventions include just two paragraphs on developing a forestry action plan under the National Mission... Any nodal agency cannot bring all the wisdom together only to highlight broad problems.”³⁰ Karnataka is somewhat of an exception due to detailed inputs provided by the BCCI-K.

With both approaches – nodal agency-led or working group-led – recommendations were derived through a bottom-up process. While this approach has the potential benefit of allowing for creativity and experimentation, it also resulted in a diversity of recommendations at different scale and degrees of specificity. Only in Orissa was any sort of framework for preparing recommendations adopted, but the framework was taxonomic, and failed to provide an analytical framework for prioritisation. Most states further tried to categorise their recommendations. In each case, however, there was no basis provided or discussed for prioritisation. The approach is, perhaps, best summed up by the candid statement by an official in Karnataka that actions and their priorities were “ocularly” decided.³¹

Recognising this inadequate and unsystematic process of selection, the MOEF is asking states to develop “implementation actions”, that are a further prioritisation of recommended actions, particularly for plans that have been endorsed by the steering committee.³² However, both the states and the centre need to keep in mind that in framing climate policy, an appropriate framework to guide recommendations could limit the problem of objectives versus action items, and the linkage between the two. It could set the basis for prioritisation – perhaps using the NAPCC emphasis on a co-benefits approach – thereby making large numbers of recommendations more manageable, and facilitating more effective implementation.

The Process Did Not Facilitate a Rethinking of Development Pathways: The academic literature notes the important role of federal units as “laboratories of innovation” (Schreurs 2008). Understood thus, state plans could contribute significantly to realising the NAPCC’s call for a “directional shift in the development pathway” of India in response to climate change

Table 2: Range of Priority Actions in State Plans and Recommendations for Further Research

State and Relevant Section	Number of Recommendations	Number of Recommendations for Future Research (% of total)	Comments
HP “Indicative Action Plan 2012-2017”	287	35 (12)	Six different strategy and action lists present. No stated basis for prioritisation of the indicative action plan.
Karnataka “Priority actions and entry points”	100	21 (21)	31 priority actions (containing 100 implementation arrangements) – no stated basis for prioritisation.
MP “Strategies and Budget”	337	30 (9)	Strategies provided in each sectoral chapter. No stated basis for prioritisation of the final “strategies and budget” list.
Orissa “Sector wise Table of Key Priorities”	148	38 (26)	A six-point template created for selection and prioritisation.
Sikkim “Actions” list in sector chapters	224	50 (22)	Sectoral actions tagged to 5, 10 and 15-year time-lines. No stated basis for selection of actions.

Source: HP Climate Plan, p 224; Karnataka Climate Plan, pp 25,165; MP Climate Plan, p 97; Orissa Climate Plan, p 118; Sikkim Climate Plan, pp 43-163.

(Prime Minister's Council on Climate Change 2008: 7). The process in most states, however – organised around sectoral working groups and chapters – was not conducive to re-thinking development pathways, since it tended to reinforce existing approaches by departments. A stakeholder elaborated, "Poverty is a big issue, urbanisation, migration: NAPCCs don't capture all developmental issues. The alignment is happening only for budgetary reasons".³³

This approach may have been indirectly promoted by the centre's common framework document, which called for state plan recommendations to align with the NAPCC's various missions (MOEF 2010a). Thus, a study of the water sector, for example, revealed that in four state plans (Karnataka, MP, Sikkim and West Bengal), recommendations closely follow the objectives of the National Water Mission, leaving relatively little scope for creative reframing of the water-climate linkage (Ogra 2013). On the other hand, the common framework document also allowed states to define locally specific issues, and some states indeed did so – Karnataka included a working group on coastal issues; Orissa one on mining, and MP has a chapter on health (Karnataka Climate Plan: 89; MP Climate Plan: 109; Orissa Climate Plan: 114).

In some cases, politically sensitive but potentially transformative issues salient to climate change have simply been side-stepped. The Sikkim plan takes cognisance of the impact of climate change on hydropower, but does not offer any substantive reflections on rethinking this critically important sector for the state (Sikkim Climate Plan: 11, 17). Similarly, MP simply recites the long-standing aim of constructing large numbers of dams on the Narmada river, without actively exploring water-energy, water-urbanisation or water-agriculture linkages, all of which are salient to this proposal (MP Climate Plan: 42).

Where potentially transformational issues do emerge, they are inadequately explored in the formal process. For example, a controversial and debated statement introduced by the official in charge of the Orissa plan in its second phase calls for a cap on thermal power projects: "In the power sector I asked what is the carrying capacity of Orissa in power; the outer limit of coal-based power? I brought some scepticism into the development trajectory of the power sector".³⁴ However, this statement did not come out of deliberation, nor was it engaged within the plan process, but was promoted by one individual. In another example, in HP, the former chief minister announced a rather ambitious carbon neutrality target for the state by 2020, but the SAPCC itself does not seriously engage with this commitment.

While the state plans may not have systematically explored directional shifts, they did provide an institutional vehicle for pursuit of some innovative ideas. In many cases, these ideas could be traced back to enterprising individual bureaucrats, who saw state climate plans as an opportunity to make creative linkages. For example, Sikkim has used funds from the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) to implement hilltop water harvesting.³⁵ Orissa used the opportunity of the climate plan to seek financing for efficiency improvements in its privatised electricity sector, for which central government funds are not forthcoming.³⁶ In the

current round of plans, innovation, creativity and the potential for transformation are driven by individual initiative. In the future, the challenge will be to structure the process to systematically explore transformative change.

Implementation

In most states, the focus thus far has been on preparation of plans; discussion of implementation is largely preliminary. However, it is possible to examine the extent of preparedness for implementation, in particular, the institutional capacity for implementation, implementation mechanisms being established, and issues of finance.

Institutional Capacity for Implementation: The process of preparing state plans has contributed to the creation and entrenching of dedicated climate change institutions in all states except Karnataka (Table 3). Sikkim and MP had climate change institutions in place before they undertook their plans; HP and Orissa proposed creating such institutions in the course of developing their plans (Government of HP 2009; Government of Orissa 2011; Government of Sikkim 2009; Sikkim Climate Plan: 234). The existing capacity of these units, however, was insufficient for stimulating and monitoring implementation.

An official in Orissa noted, "We are a weak institutional sector, whether environment or climate change. Our strengths don't lie in institutional capacities."³⁷ Although in most states implementation is likely to happen through line departments rather than directly by climate change units, Table 3 suggests that dedicated climate units will likely play an important monitoring and evaluation role. The coordinating and steering role of

Table 3: Dedicated Climate Institutions in States and Mechanisms to Monitor State Climate Plans

State	Existence of Dedicated Climate Change Institutions (date of inception)	Monitoring and Evaluation Mechanisms
HP	State Centre on Climate Change (2010)	A "reporting template" to monitor implementation of the plan, which will form the basis of an annual "Implementation Status Report", to be prepared by the nodal agency and approved by the legislative assembly.
Karnataka	Environmental Management and Policy Research Institute (2002) Looks at all environment and climate-based initiatives in the state.	No
MP	Climate Change Cell, The Environmental Planning and Coordination Organisation (2009)	Cell will facilitate voluntary reporting of actions by line-departments based on an agreed set of "criteria and indicators". It will monitor and evaluate the "progress of achievement of integration of climate concerns in various developmental policies".
Orissa	Climate Change Action Plan Cell (2011)	Table of specific climate impacts and action-led targets to monitor and related programmes to evaluate in each sector.
Sikkim	Department of Science and Technology, renamed Department of Science and Technology and Climate Change in 2009.	No

Sources: HP Climate Plan, pp 234, 252; MP Climate Plan, p 122; Orissa Climate Plan, pp xvii,80.

these units for future refinements of climate plans will only increase over time, further calling for capacity enhancement.

Mainstreaming of Recommendations into the Functioning of Line Departments: There is broad convergence across state plans that implementation will have to happen through line departments. Indeed most plans in their sectoral lists mention specific departments and agencies responsible for that area of work (Karnataka Climate Plan: 165; MP Climate Plan: 97; Orissa Climate Plan: 100; Sikkim Climate Plan: 43).

However, there is no agreement on the mechanisms through which this implementation can be achieved. In Orissa, the process of working groups was explicitly aimed at creating ownership among line departments, in the anticipation that they would take up aspects of the plan. To some extent this has already occurred in Sikkim's Rural Management and Development Department, but this progress has been facilitated because the individual coordinating the plan is based in that department. Perhaps the most intriguing idea arose from MP, where the approach suggested is one of providing departments services such as advisories of progress towards goals and checklists, as a way of inducing or "nudging" states towards action. As a senior MP official describes the approach "We hope to make a checklist and send it to various departments for them to see how projects can be made more climate friendly and compatible. This would be a voluntary initiative. We would ask for their policy assessment reports but we won't comment on it".³⁸

These various indirect efforts to stimulate action arise from an acceptance that nodal agencies (typically environment departments or science and technology departments) do not have the heft to insist on action. And that sufficient financing is unlikely to be available to serve as an inducement to other line-departments. Hence, building ownership over the relevance of the climate agenda to the work of the department is likely the only viable long-term solution, albeit one that is challenging to achieve in the face of competing demands and limited capacity.

Several officials involved with the state plans also noted the possible benefits of closer synergy with the state development planning process. For true mainstreaming of climate change, it is arguably counterproductive to have a development planning process and a parallel climate planning process that typically includes a wide range of departments, but rather to find ways to integrate these. As a consultant working in Orissa noted "we need to develop a SAPCC which is not an independent entity but linked to the state planning document" (Centre for Policy Research (CPR 2013). One proposed alternative is for state planning departments rather than environment departments to house climate plans (CPR 2013). However, some officials feel that the planning departments would face even greater capacity shortfalls in climate change knowledge than environment or science and technology departments.³⁹ The second, ex post option that Bihar is experimenting with is moving the climate plan after completion to the state planning department, though the outcome of this move is yet to be ascertained.

Securing Finance for State Climate Plans: The MoEF's common framework document requires that state plans estimate, "additional resource requirements" and explore, "existing and new and additional carbon finance potential" (MoEF 2010c). However, officials across states conveyed their reluctance to include budgets for sectoral actions adding that stated numbers were estimates at best and had no technical basis: "It is a weak link for all states. If we had left it (budgetary allocations) blank, it would have given the document more academic credibility... The costs are currently indicative".⁴⁰ Unsurprisingly, there is a great degree of variability in cost estimates put forth by different states (Table 4). This spread in final numbers, along with the hesitation expressed by state officials, suggests that further thinking on approaches to costing actions, and refinement of methodology is required to come up with credible cost estimates.

Table 4: Total Budgetary Allocations in SAPCCs Compared to Annual State Budget Estimates

State	Budget for SAPCC (in Rs Crore)	State Plan Budget 2011-12 (in Rs Crore)
HP	1,560 (time period unclear)	3,300
Karnataka*	No cumulative budget	38,070
MP	4,653 (five years)	23,000
Orissa	17,000 (five years)	15,200
Sikkim	No cumulative budget	1,400

* Budget figures were not available from Karnataka at the time of writing. Sources: HP Climate Plan, p xvii, Karnataka Climate Plan; MP Climate Plan, p 122; Orissa Climate Plan, p 232; Planning Commission, State Wise/Sector Wise Approved Outlays, Revised Outlays and Actual Expenditure (2011-2012); Sikkim Climate Plan.

Notably, the context for arriving at these numbers has changed over the course of plan development. At the time the centre requested states to develop plans, the context was the promise of substantial funds under the Twelfth Five-Year Plan. Over time, it became clear that far more modest amounts would be available for states, and that this money would be tied to adaptation alone.⁴¹ As a senior MoEF official put it: "Many states feel that there will be a separate window for funding SAPCCs but we're saying draw up your requirements sectorally and project it as part of the state plan outlay. There will be a separate window for additional funding, but not very large, based on an incentive-based criteria".⁴² Consequently, even as the MoEF has set aside Rs 90 crore for SAPCCs and another Rs 100 crore on adaptation in the 2013-14 Union Budget, greater emphasis has been placed on attracting external funds such as donor agencies and the United Nations-led Adaptation Fund Board to support implementation of state plans (GoI 2014a; GoI 2014b; Adaptation Fund 2011).

Finally, some states have initiated actions without seeking additional funds, suggesting a promising indication of ownership of results and recommendations. Sikkim, for example, has deployed MGNREGA funds to implement actions in the water sector enabling some mainstreaming of climate concerns. Indeed, in interviews, some government officials indicated that finances were not the key constraint, but rather clarity on what to do and the capacity to implement actions. As one senior official noted, "[the stated budget] is not a big amount. The issue is how and where to spend it...the state's plan budget [in 2011-12] was Rs 15,000 crore, of that the state could not spend Rs 2,500 crore and it was surrendered at the end of the year.

This was supposed to have been spent on energy, water, fisheries, rural development.⁷⁴³

Conclusions

SAPCCs hold potential as an important intervention in the development process. They provide an institutional platform to mainstream concerns of environmental sustainability into development planning and, if done properly, to update ideas of sustainability to include climate resilience. This platform provides a potential opening to enterprising and committed bureaucrats, but is also an opening with which development practitioners, academics, business, and civil society at large could productively engage.

At the moment, this promise is not being adequately realised. As discussed in this study, there are shortcomings in approach, process, formulation of outcomes, and implementation efforts. These shortcomings are united by a common thread – a tendency to prematurely view state climate plans as vehicles for generating implementable actions rather than an opportunity to redirect development towards environmental sustainability and climate resilience. Thin conceptual frameworks, processes that provide no space for generating a vision of change, limited state capacity, and truncated time frames all reinforce this outcome.

While concrete actions are indeed important, these may be of limited value unless informed by a broader vision of future directions in key climate-related sectors such as agriculture, water, and energy.

However, if state plans are viewed as the beginning of a complex process rather than as an end in themselves, they provide a foundation upon which to build. Building on the analysis here, there are several specific measures that the central government, state governments, donor agencies and civil society could adopt toward this end. Conceptually, plans would be more effective if built on a robust conceptual framework linking climate resilience and sustainable development, one which is also informed by science-based and state-level predictions of climate impact. Plan processes could more usefully prioritise

longer-term transformative outcomes over short-term incremental actions as there are few existing processes that play this role. To do so, plans would need to develop a mechanism for generating fresh ideas, such as by drawing on the full range of stakeholders through adequate consultative processes, and by structuring silo-breaking interaction across departments. Organising desired outcomes around integrative themes rather than sectoral recommendations are more likely to provide the desired “directional shift” in development trajectories (Prime Minister’s Council on Climate Change 2008: 7). Mechanisms to enhance the potential for effective implementation include developing a logical system of prioritising outcomes and actions, ensuring sufficient capacity of nodal agencies to take follow up action, and experimenting with creative ways of inducing policy actions in line-ministries particularly through information and analysis tools.

Given existing shortcomings, there is a risk of shifting into the implementation phase, as the centre seems keen to do, somewhat prematurely. If state plans are to be transformational, going beyond cherry-picking existing projects and presenting them as climate projects, then it may be necessary to consider integrative approaches that cut across sectoral silos. Transformative approaches are also likely to transcend the project mode and are better formulated as initiatives or programmatic efforts. The failure to develop adequate capacity to both design programmes, induce cooperation with mainstream departments and monitor and track outcomes will also need rectification. Finally, there is a substantial opportunity for state plans to inform and provide the substance for India’s submission to the international climate process as its “intended nationally determined contribution” that is worth exploring (Hohne et al 2014).

Growing evidence of real challenges to the achievement of sustainable development objectives due to climate threats provides compelling reasons for climate change planning to join the mainstream of development policy discourse. The state plans open the door to doing so, and invite the attention of not only environmentalists, but equally if not more important, of a wide range of development practitioners.

NOTES

- 1 The Ministry of Environment and Forests was renamed Ministry of Environment, Forests and Climate Change in May 2014. For the purpose of this paper, the old acronym of MoEF is employed as many of the documents and web pages pertaining to the study refer the old name.
- 2 Interview with Felix Nitz, Former Technical Advisor, Environmental Management and Policy Research Institute (EMPRI), Government of Karnataka, 28 September 2012, Bengaluru, Karnataka.
- 3 In some cases, 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 plans, in general, are referred to as State Action Plans on Climate Change (SAPCC).
- 4 Department of Environment, Science and Technology, Government of Himachal Pradesh (HP), “State Strategy & Action Plan in Climate Change: Himachal Pradesh” (Shimla: Government of HP), 2012, <http://re.indiaenvironmentportal.org.in/files/file/HPSCCAP.pdf> Hereafter cited as HP Climate Plan.

- 5 Environmental Management and Policy Research Institute (EMPRI), Government of Karnataka and The Energy Resources Institute (TERI), “Karnataka State Action Plan on Climate Change: 1st Assessment” (Bengaluru: Government of Karnataka), 22 March 2012, <http://parisaramahiti.kar.nic.in/pubs/Karnataka-SAPCC-EMPRI-TERI-2012-03-22.pdf>, hereafter cited as Karnataka Climate Plan.
- 6 Housing and Environment Department, Government of MP, “Madhya Pradesh State Action Plan on Climate Change” (Bhopal: Government of MP), April 2012, http://www.epco.in/pdf/Draft_MP_SAPCC.pdf, hereafter cited as MP Climate Plan.
- 7 Department of Forest and Environment, Government of Orissa, “Orissa Climate Change Action Plan 2010-2015” (Bhubaneswar: Government of Orissa), 2010, <http://envfor.nic.in/downloads/public-information/Orissa-SAPCC.pdf>, hereafter cited as Orissa Climate Plan.
- 8 Government of Sikkim, “Sikkim Action Plan on Climate Change (2012-30)” (Gangtok: Government of Sikkim), March 2011, <http://envfor.nic.in/downloads/public-information/>

Sikkim-SAPCC.pdf, hereafter cited as Sikkim Climate Plan.

- 9 Interview with Felix Nitz, 28 September 2012, Bengaluru, Karnataka.
- 10 Not for attribution interview with a state official, Government of Madhya Pradesh (MP), 29 August 2012, Bhopal, Madhya Pradesh.
- 11 Interview with Lokendra Thakkar, Coordinator, Climate Change Cell, Environmental Planning and Coordination Organisation (EPCO), Government of MP, 29 August 2012, Bhopal, MP.
- 12 Not for attribution interview with a donor agency representative, 22 May 2012, Bhubaneswar, Orissa.
- 13 Interview with S S Negi, Director, Department of Environment Science Technology, Government of Himachal Pradesh, 7 February 2013, Shimla, HP.
- 14 Interview with Lokendra Thakkar, 29 August 2012, Bhopal, MP.
- 15 Interview with Pradeep Jena, Regional Director, Reserve Bank of India, Orissa, former Principal Secretary, Department of Energy, Government of Orissa, 22 May 2012, Bhubaneswar, Orissa.

- 16 Interview with Sandeep Tambe, Special Secretary, Rural Management and Development Department, Government of Sikkim, 24 July 2012, Gangtok, Sikkim.
- 17 Interview with Avani Vaish, Former Chief Secretary, Government of MP, 7 September 2012, New Delhi.
- 18 Interview with Sumana Bhattacharya, Head – Climate Change and Sustainability, Intercooperation, India, 6 August 2012, New Delhi.
- 19 Interview with Nagin Nanda, Joint Secretary, Empanelled with the Government of India, Former Director-Cum-Secretary (Environment), Department of Environment Science and Technology, Government of HP, 7 February 2013, Shimla, HP.
- 20 Interview with Felix Nitz, 28 September 2012, Bengaluru, Karnataka; Interview with Lokendra Thakkar, 29 August 2012, Bhopal, MP; Interview with Nagin Nanda, 7 February 2013, Shimla, HP.
- 21 Interview with Nagin Nanda, 7 February 2013, Shimla, HP.
- 22 Interview with Sandeep Tambe, 24 July 2012, Gangtok, Sikkim.
- 23 Interview with Aurobindo Behera, Retired, Former Principal Secretary, Department of Forest and Environment, Government of Orissa, 23 May 2012, Bhubaneswar, Orissa.
- 24 Interview with Lokendra Thakkar, 29 August 2012, Bhopal, MP.
- 25 Interview with Anshu Bharadwaj, Director, Center for Study of Science, Technology and Policy (CSTEP), 28 September 2012, Bengaluru, Karnataka.
- 26 Interview with Sandeep Tambe, 24 July 2012, Gangtok, Sikkim.
- 27 Interview with Nagin Nanda, 7 February 2013, Shimla, HP.
- 28 Interview with Arabinda Mishra, Director, Earth Sciences and Climate Change Division, TERI, 27 April 2012, New Delhi.
- 29 Interview with Upendra N Behera, Additional Chief Secretary, Government of Orissa, Former Principal Secretary, Department of Forest and Environment, Government of Orissa, 22 May 2012, Bhubaneswar, Orissa.
- 30 Not for Attribution interview with a senior official, Government of HP, 8 February 2013, Shimla, HP.
- 31 Not for Attribution interview with a senior official, Government of Karnataka (Environment and Ecology), 28 September 2012, Bengaluru, Karnataka.
- 32 Conference presentation by S Satapathy, Director, MoEF, GoI at the “India Climate Policy and Business Enclave, 2013: Curtain Raiser on States and Climate Change” (New Delhi, 17 September 2013).
- 33 Interview with Ritu Bharadwaj, India Program Manager, Institute of Industrial Productivity, former Advisor, Climate and Environment, Department of International Development (DFID), 20 April 2012, New Delhi.
- 34 Interview with Aurobindo Behera, 23 May 2012, Bhubaneswar, Orissa.
- 35 Interview with Sandeep Tambe, 24 July 2012, Gangtok, Sikkim.
- 36 Interview with Pradeep Jena, 22 May 2012, Bhubaneswar, Orissa.
- 37 Interview with Ashok Singha, MD, CTRAN Consulting, 22 May 2012, Bhubaneswar, Orissa.
- 38 Interview with Lokendra Thakkar, 29 August 2012, Bhopal, MP.
- 39 Interview with Lokendra Thakkar, 29 August 2012, Bhopal, MP.
- 40 Interview with Lokendra Thakkar, 29 August 2012, Bhopal, MP.
- 41 Conference presentation by S Satapathy (New Delhi, 17 September 2013).
- 42 Interview with R R Rashmi, Additional Secretary, Ministry of Commerce and Industry, GoI, former Joint Secretary, MoEF, GoI, 26 April 2012, New Delhi.
- 43 Not for attribution interview with retired senior official, Government of Orissa, 23 May 2012, Bhubaneswar, Orissa.

REFERENCES

Adaptation Fund, viewed on 9 October 2014 (<https://www.adaptation-fund.org>).

Bangalore Climate Change Initiative- Karnataka (BCCI-K) (2011): “Karnataka Climate Change Action Plan” (BCCI-K), Final report submitted by BCCI-K to the Government of Karnataka, Bengaluru, May.

Centre for Policy Research (CPR) Climate Initiative (2013): “State Action Plans on Climate Change in India Framing, Processes and Drivers”, Roundtable dialogue, New Delhi, 27 April. (http://cdkn.org/wp-content/uploads/2013/05/SAPCC-Workshop-Report_CPR_27-April-2013_update.pdf).

Daily News and Analysis (2009): “World Bank to Help Himachal Become Carbon-Neutral State”, 14 November, viewed on 20 November 2013 (<http://www.dnaindia.com/india/report-world-bank-to-help-himachal-become-carbon-neutral-state-1311648>).

Deccan Herald (2012): “HP to Become First Carbon-Neutral State”, 2 February, viewed on 20 November 2013 (<http://www.deccanherald.com/content/224205/hp-become-first-carbon-neutral.html>).

Dubash, N K (2011): *Handbook of Climate Change and India: Development, Politics and Governance* (New Delhi: Oxford University Press).

Fleurbaey, M, S Kartha, S Bolwig, Y L Chee, Y Chen, E Corbera, F Lecocq, W Lutz, M S Muylaert, R B Norgaard, C Okereke and A D Sagar (2014): “Sustainable Development and Equity” in *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (O Edenhofer, R Pichs-Madruga, Y Sokona, E Farahani, S Kadner, K Seyboth, A Adler, I Baum, S Brunner, P Eickemeier, B Kriemann, J Savolainen, S Schlömer, C von Stechow, T Zwickel and J C Minx (ed.)) (Cambridge: Cambridge University Press), United Kingdom and New York, NY, US, pp 1-114.

GIZ and MoEF, GoI (2012): *MoEF-GIZ Project on Climate Change Adaptation in Rural Areas of India*, viewed on 2 June 2013 (<http://www.ccarai.org>).

Government of HP, Department of Environment Science and Technology, and Leadership for Environment & Development (LEAD)-India (2009): “Himalayan Chief Ministers’ Conclave Indian Himalayas: Glaciers, Climate Change and Livelihoods”, *Lead India*, 29-30 October, viewed on 2 November 2013, <http://www.leadindia.org/page.php?pid=41>.

Government of HP, State Centre on Climate Change (2009): “Shimla Declaration”, 30 October, viewed on 2 November 2013, <http://hpccc.gov.in/shimlaDeclaration.aspx>

GoI (2009): “PM’s Address at the National Conference of Ministers of Environment & Forests”, Press Information Bureau, 18 August, viewed on 10 July 2012, <http://pib.nic.in/newsite/erelease.aspx?relid=51926>.

– (2014a): “Sustainable Development and Climate Change”, *Economic Survey, 2013-14*, New Delhi, 16 July, p 224, viewed on 17 July 2014, <http://indiabudget.nic.in/survey.asp>

– (2014b): “Budget 2014-15: Speech of Arun Jaitley”, *Union Budget*, New Delhi, 18 July, p 16, viewed on 19 July 2014, <http://indiabudget.nic.in/bspeecha.asp>

Government of Orissa (2011): “Notification”, to Constitute a Climate Change Action Plan Cell and a Monitoring and Advisory Committee, *The Odisha Gazette*, 16 December.

Government of Sikkim (2009): “Notification”, to Rename the Department of Science and Technology, *Sikkim Government Gazette*, 26 October.

Hijioka, Y, E Lin, J J Pereira, R T Corlett, X Cui, G E Insarov, R D Lasco, E Lindgren and A Surjan (2014): “Asia” in *Climate Change 2014: Impacts, Adaptation, and Vulnerability, Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (V R Barros, C B Field, D J Dokken, M D Mastrandrea, K J Mach, T E Bilir, M Chatterjee, K L Ebi, Y O Estrada, R C Genova, B Girma, E S Kissel, A N Levy, S MacCracken, P R Mastrandrea and L L White (ed.)) (Cambridge: Cambridge University Press), United Kingdom and New York, NY, US, pp 1-68.

Hohne, N, C Ellerman, L Li (2014): “Intended Nationally Determined Contributions under the UNFCCC”, Discussion Paper, Cologne, 11 June.

The Hindu (2011): “Himachal Inks Pact with World Bank to Secure Carbon Credits”, 23 May, viewed on 2 November 2013, <http://www.thehindu.com/todays-paper/tp-national/himachal-inks-pact-with-world-bank-to-secure-carbon-credits/article2041233.ece>

Institute for Social and Economic Change (ISEC) (2011): “Socio-economic Vulnerability and Adaptive Capacity Assessment” in *Karnataka Climate Change Action Plan*, BCCI-K, Ch 6, viewed on 4 August 2012, <http://www.lse.ac.uk/asiaResearchCentre/files/KarnatakaClimateChangeActionPlanFinal.pdf>

Ministry of Environment and Forests (MoEF), GoI (2010a): “Summary of Discussion National Consultation Workshop on Preparation of State Level Strategy and Action Plan on Climate Change”, MoEF, New Delhi, viewed on 10 July 2012, <http://www.moef.nic.in/downloads/others/SAPCC-workshop-summary-2010.pdf>

– (2010b): “Climate Change and India: A 4X4 Assessment: A Sectoral and Regional Analysis for 2030s”, MoEF, New Delhi, viewed on 21 July 2012, <http://gppihed.gov.in/CLIMATE%20CHANGE%20AND%20INDIA%20A%204X4%20ASSESSMENT.pdf>

– (2010c): “A Framework for Preparation of the State Level Action Plans on Climate Change”, MoEF, New Delhi.

– (2014): “State Action Plan on Climate Change”, MoEF, viewed on 20 October, <http://envfor.nic.in/ccd-sapcc>

Mani, M (2010): “The Little State That Could”, World Bank, 15 June, viewed on 11 July 2012, <http://blogs.worldbank.org/endpovertyinsouthasia/little-state-could>

Ogra, A (2013): “A Study of Climate Policy Integration in the State Action Plans on Climate Change”, background paper produced for Centre for Policy Research, New Delhi.

Prime Minister’s Council on Climate Change, Government of India (GoI) (2008): “National Action Plan on Climate Change” (New Delhi: GoI, 2008), pp 1-49, http://pmindia.nic.in/climate_change_english.pdf

Schreurs, M (2008): “Local and Subnational Climate Change Politics”, *Journal of Environment and Development*, Vol 17, December, pp 343-55.

Tambe, S and M L Arawattia (2012): *Climate Change in Sikkim: Patterns, Impacts and Initiatives* (Gangtok: Government of Sikkim).