

AN ANALYSIS OF THE ODISHA CLIMATE CHANGE ACTION PLAN

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Introduction

Odisha was the one of the first states to begin work on a Climate Change Action Plan in 2009.¹ The plan had the support of the Chief Minister (CM) and was led separately by two senior bureaucrats who put in place very different institutional practices and time-lines. As a result the climate plan seems to be formulated in two distinct phases. The first phase was characterised by tight deadlines with the aim of generating a slew of new ideas for departments to pursue.² There were some regional consultations but none in the pre-drafts stages. In the second phase, the process was reined in to accommodate greater civil society participation. Some small but crucial changes were also made to the content of the document, extending the process by over a year.

Odisha was in many ways a pioneer in drafting a climate plan as it had no framework to refer to at the time.³ The plan as a result, drew on donor agencies and consultants for support and the state did not commission any science-based research on climate change for the region. Much of the initial secondary research was carried by a donor agency as part of the Scoping Report on Climate Change in Odisha.⁴ At the behest of state officials however, the plan includes nearly as many mitigation actions as adaptation plans, driven by financial and economic considerations. The resultant document is a sizable wish list with an equally substantial financial allocation.

Notably, in the last two and half years, the state has taken up a number of 'mitigative' steps, in addition to putting in place some institutional structures to address climate change in Odisha. While these are predominantly ongoing activities, they reiterate the state's interest in addressing specific environmental and economic issues, and signal efforts at mainstreaming sustainable development in sectoral planning.

Finally, recent reports – in the aftermath of cyclone Phailin – indicate that the Odisha government has decided to implement the climate plan in its entirety without waiting for financial assistance from the central government.⁵ The Odisha climate plan, as of January 2014, has not yet been endorsed by the central government's National Steering Committee (<http://envfor.nic.in/ccd-sapcc>).

These themes are further elaborated in the following sections:

- I. Context for the preparation of Odisha's climate plan
- II. Process design
- III. Sectoral content
- IV. Mechanisms for implementation



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About Odisha

Odisha – or Orissa as it was formerly known – is the ninth largest state in India.⁶ Situated on the east coast, it has a long coastline, and a large forest cover. Five major rivers run through the state.⁷ Agro climatically, Odisha is prone to extreme weather events such as floods, droughts and cyclones.⁸ Its resilience and infrastructural capacity to cope with extreme weather events, however, is undermined by steep imbalances in its region-wise growth and economy.⁹ A 2008 study indicates that poverty reduction statistics remained stagnant over an 11 year period despite the state's per capita income increasing by 48 per cent.¹⁰ The state's Gross State Domestic Product has grown on average by eight per cent in the last decade, a significant leap compared to the 3.4 per cent average growth it clocked 20 years before that.¹¹ This has been driven by an expansion in manufacturing of steel and other metals, as well as growth in the service sector. However growth in agriculture, which engages 60 per cent of

the state's workforce, has been declining.¹² The state still fares poorly among many human development indicators and has the largest percentage of population below the poverty line.¹³

Odisha's environmental legacy is largely built around concerns over the utilisation and management of its natural resources. Recent, prominent, instances include protests and court verdicts over the bauxite mining proposal by Vedanta in the Niyamgiri hills.¹⁴ This was followed by protests over the violation of the Forest Rights Act in the integrated steel project proposed by the South Korean firm POSCO (formerly Pohang Iron and Steel Company).¹⁵ In the mid-nineties, there was also civil society dissent over power sector reforms in the state funded by multilateral agencies.¹⁶ This context – as the paper later elaborates – is relevant to the climate plan process in Odisha.

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- Donor Agency Representative

I. Context for the preparation of Odisha's climate plan

While the idea of preparing state action plans on climate change initially came from the central government, a number of local drivers influenced its early adoption and formulation in different states. These factors have also shaped the way climate plans are conceptually framed. The section first outlines drivers that influenced the Odisha action plan and then delves into its approach and framing.

Drivers

Literature on sub-national action indicates a combination of material and ideational factors that typically influence the inception and framework of a climate plan.¹⁷ In the case of Odisha, there are three such drivers:

- Political interest and motivated bureaucrats;
- Pre-existing donor engagement;
- Material factors in the form of Odisha's environment and growth concerns.

Political interest and motivated bureaucrats

Literature on sub-national climate policy often alludes to 'local champions' or committed leaders who put climate change on the local political map.¹⁸ In 2009, Odisha's CM Naveen Patniak had the additional charge of the Forest and Environment Department in the state and according to officials, was keen to project Odisha as progressive in tackling environmental issues.¹⁹ Work on the climate plan was led by the Principal Secretary at the helm of the Forest and Environment Department at the time. He was well networked with the political establishment, and as one external stakeholder recounts, was a "heavyweight in the system, so industry and agriculture officials rallied behind him and helped put the document together."²⁰ He is credited with ensuring departmental participation in the plan process, securing donor involvement, and ensuring that the first cut of the document was prepared within the allotted time frame before he moved office.²¹ The Principal Secretary who followed, shaped the plan process in a different manner – he widened and deepened public participation by placing the document in the public domain, and organised an additional workshop so civil

“Odisha is prone to cyclones, droughts, and floods, being a coastal state, and because of its geographical location. We thought because it is vulnerable, and climate change is to occur, it is better to have a plan in advance.”

- *Official, Government of Odisha*

society organisations could comment on the plan. This, by many accounts, deferred the finalisation of the plan by nearly a year. Finally, he introduced some limited but critical amendments to the document.²²

Pre-existing donor engagement

Apart from political and bureaucratic support, the climate plan also came together because of pre-existing donor windows in the state. At the time Odisha was in talks with The World Bank for a Development Policy Loan (DPL). By one account, the Forest and Environment Department requested the multi-lateral agency to also lend its assistance in formulating the climate plan. In addition, the Department for International Development (DFID) – which has an on-going engagement with Odisha in addressing issues of governance and poverty reduction – conducted an independent Scoping Report on climate change for Odisha a few months earlier, which paved the way for work on the climate plan.²³ According to the draft plan, the Scoping Report was used as a “first cut” by departments to frame sectoral concerns and recommendations.²⁴

Material factors in the form of Odisha's environment and growth concerns

There are a number of material factors that influenced the formulation of Odisha's climate plan. A key concern was the state's vulnerability to extreme weather events. A senior scientist in the Forest and Environment Department noted, “Odisha is prone to cyclones, droughts, and floods,

being a coastal state, and because of its geographical location. We thought because it is vulnerable, and climate change is to occur, it is better to have a plan in advance.”²⁵ An associated factor was the state's large-scale dependence on climate variable livelihoods such as agriculture, forestry and fisheries.²⁶

A crucial environmental concern for the state has been the generation of fly ash as a result of mining activities. The plan argues that while the state has historically relied on hydropower generation, the percentage of coal power generation is expected to exceed the former in the coming decade, making the disposal of fly ash a significant environmental concern.²⁷ Finally, the state is keen to maintain its improved rate of economic growth – a recent phenomenon given its historically weak growth performance.²⁸ The climate plan therefore considers financial benefits accruing from reduction in energy losses due to transmission and distribution as well as finance for its afforestation program. This is evident in the fact that budgetary allocations for the energy and forest sectors together account for over 65 per cent of the total plan budget.²⁹

Framing

Given significant overlaps between climate and development action, it is worth examining how a climate plan differs from other development planning in the state. The use of climate science is regarded as an important bridge, since it serves to indicate how climate change – despite attendant uncertainties – could impact prevailing development goals. The section explores

the following themes in the framework and approach of Odisha's climate plan:

- Science as a pre-requisite in Odisha's climate plan;
- Vulnerability analysis and linkages with climate science;
- The Greenhouse Gas (GHG) inventory report and confusion over its inclusion in the plan;
- Linkages between the vulnerability analysis, the GHG report, and draft outcomes;
- Balance of adaptation and mitigation action;
- The Odisha climate plan as a placeholder for sustainable development action.

Science as a pre-requisite in the Odisha plan

As stated earlier, the Odisha action plan in its first iteration did not commission any climate-based research, nor did it access available modelled data on observed and projected climate change to guide sectoral recommendations.³⁰ Participants felt that more studies would delay the process, which was tied to specific state deadlines. As one consultant noted, “In Karnataka we got together with IISc [Indian Institute of Science] and CSTEP [Center for study of Science, Technology and Policy] and said let's first have some scientific basis and then prepare the climate plan. In Odisha they said no need, we already have lot of information, we know what the issues are.”³¹ As a result, the content in the draft pertaining to climate change in Odisha is largely based on precipitation and rainfall impacts broadly

relevant to India in general. For instance, the document lists climate risks in Odisha as “High variability of rainfall”, “Drought and dry spells”, “Flash floods during rainy season,” without pin pointing any spatial variations in climatic trends.³² This was sourced from the Intergovernmental Panel on Climate Change (IPCC) 2007 report and the National Action Plan on Climate Change (NAPCC).³³ Significantly, there is no reference to any specific data on long-term climate projections in the region.

Vulnerability Analysis and linkages with climate science

The chapter on vulnerability analysis in Odisha’s climate plan provides secondary data on a number of development and environment concerns in the state; extreme events, crop productivity, desertification, indigenous communities, migrants etc. While the information provided in these sub-sections can be viewed as a general narrative on Odisha’s vulnerability, is not aggregated to provide any definitive analysis or trends. There is no analysis in the chapter to calculate the vulnerability of the state either geographically, or sectorally. Moreover, future projections on precipitation, temperature, or extreme events are absent in the section. The following are some examples of studies used as part of the vulnerability analysis chapter:

The chapter cites a 2003 study by TERI on India’s spatial vulnerability and indicates that Odisha is moderately to severely vulnerable in certain pockets. No historical or projected time frame is provided nor is vulnerability defined on any specific parameter.³⁴ Another table collates data between 1961 and 2007 by the India Meteorological Department (IMD) linking observed rainfall, *kharif* rice production, and years with extreme weather events.³⁵ There is however no analysis (such as a trend-line) to indicate how the state has fared across these indicators over time.³⁶ The chapter also uses a multi-hazard map by the Odisha Disaster Management Authority, which gives a district-wise ranking of five extreme weather events. Again, there is

no indication if this is based on observed or projected data, and for how many years. The information therefore, while pertinent to the narrative on Odisha’s vulnerability, is not linked together in a manner that can influence or inform recommendations.

The GHG inventory report and confusion over its inclusion in the plan

The GHG inventory report – a baseline study that could potentially aid the state in monitoring its low carbon development – was added after the first draft of the Odisha plan was completed. This was initially at the behest of the Ministry of Environment and Forests (MoEF) as it conformed to the guidelines included in the Common Framework Document (CFD) in 2010, a year after Odisha started work on its climate plan (Table 1). According to state officials though, the MoEF sent mixed signals about the desirability of including a GHG inventory, perhaps because doing so might appear contrary to India’s equity based stand internationally of not engaging in any mitigation activities unless supported by international finance and technology.³⁷ Senior officials in the state however intervened to keep the GHG inventory report in the draft plan. In the context of sub-national planning in a federal set-up, this is one instance where local objectives overrode central directives in shaping the framework of the plan.

In terms of its content, the GHG report follows the IPCC 2006 Tier 1 methodology. This is based largely on default emission factors.³⁸ The results indicate that thermal power generation contributes the highest percentage of GHG emissions in the state.³⁹ However, an additional section on mitigation options through forest-based conservation determines that Odisha can mitigate 45.6 million tonnes of CO₂ over the next ten years – more than half the state’s current emissions – through afforestation and avoided deforestation measures. Of these, conservation of dense forests and open forests is stated to offer the most gains.⁴⁰

Linkages between the vulnerability analysis, the GHG report, and draft outcomes

As stated earlier, the vulnerability analysis and GHG inventory chapters were added after the first cut of the draft was prepared. It is however unclear if these chapters were integrated with the rest of the document. The GHG inventory report for instance makes a case for carbon sequestration through specific activities in the forestry sector, especially conservation of dense and open forests, which by the state’s calculations are supposed to offer the bulk of the mitigation benefits.⁴¹ Final recommendations in the forestry section however, do not make any links to dense or open forests. Moreover, as mentioned earlier, the information in the vulnerability chapter while relevant, is disaggregated, making it potentially harder for departments to extract usable outputs that can inform recommendations.

Balance of mitigation and adaptation action

It appears that officials in Odisha were keen to incorporate both mitigation and adaptation actions.⁴² The Odisha Scoping Report prepared by DFID – on which the climate plan is predominantly based – was intended to be an adaptation-only exercise. The report however states that during meetings with DFID, state government officials were emphatic that the plan not be restricted to adaptation alone. In terms of simple tally, 136 actions in the climate plan pertain to adaptation and 123 are mitigation activities. Recommendations for mitigation actions typically include clean coal initiatives, promotion of small and medium hydropower plants, modal switch from road to rail for certain cargo etc. Some suggestions however, point to how the state could gain fiscally through activities like energy efficiency measures, compensation for reforestation and avoided deforestation, as well as revenue for sale of power that is exported. This reinforces the premise that financial and economic concerns were material drivers in the formulation of the climate plan. Moreover, some of these concerns have now been

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addressed through a number of initiatives that the Odisha government has taken up though different departments.⁴³

Odisha climate plan as a placeholder for sustainable development action

One of the key participants in the Odisha plan averred that the draft was different from other state planning exercises in looking beyond a standard demand plan to also examine current and future constraints on resources, as well as environmental fallouts of continued resource use.⁴⁴ A significant example is a statement in the chapter on energy that talks of “capping” thermal power generation in Odisha after examining its “carrying capacity.”⁴⁵ The plan also alludes to concerns of fly ash disposal.⁴⁶ According to stakeholders the climate plan is unique in also tackling disaster planning for the state’s river systems, not just its coasts, and suggesting inland water transport corridors for bulk freight.⁴⁷ The plan therefore is rooted in broad sustainable development concerns and offers a unique opportunity to mainstream sustainable development in state planning processes.

However, an area where the Odisha climate plan possibly falls short is not analysing how climate projections could impact current environment and development decisions. For instance there is no specific provision in the final action list of assessing current infrastructural projects in light of sea rise predictions. Further, the plan does not cite any studies to indicate how freight transport on water – which it recommends – can decrease fuel use (and thereby GHG emissions) as compared to road or rail transport. It is likely that time-limitations as well as departmental capacity on climate issues acted as constraints in aligning the plan from a climate lens.

II. Process

Since Odisha was one of the first states to work on the climate plan, there was no existing template to inform process design. The process leading to the draft plan however had many distinguishing features. The section provides a time-line of the plan formation in Odisha, the steps involved in

the process design, and finally an analysis of the following aspects of the climate plan:

- Departmental and inter-departmental involvement;
- Role of donor agencies and consultants;
- Donor and consultant ‘influence’: Perceptions and plan outcomes;
- Extent of external participation and outcomes.

Departmental and inter-departmental involvement

The Odisha Forest and Environment Department set up two groups to aid in the drafting of the climate plan. The first group was a high-level coordination committee (henceforth the steering committee), led by the Chief Secretary, with the participation of Principal Secretaries of all departments deemed relevant to climate change in Odisha. The second group involved 11 working groups typically comprising officials from a specific sector, related sectoral organisations, the nodal department, as well as officials of other connected line-departments.

The following, for example, was the composition of the energy working group.⁴⁸

Chairperson Commissioner cum Secretary Energy Department

Member Special Secretary, Forest & Environment Department

Member Under Secretary, Steel & Mines

Member Additional Secretary, Industries

Member Additional Secretary, Commerce & Transport

Member General Manager, IPICOL (Industrial Investment Promotion Corporation of Orissa Limited)

Convener Senior Environmental Engineer, State Pollution Control Board, Orissa

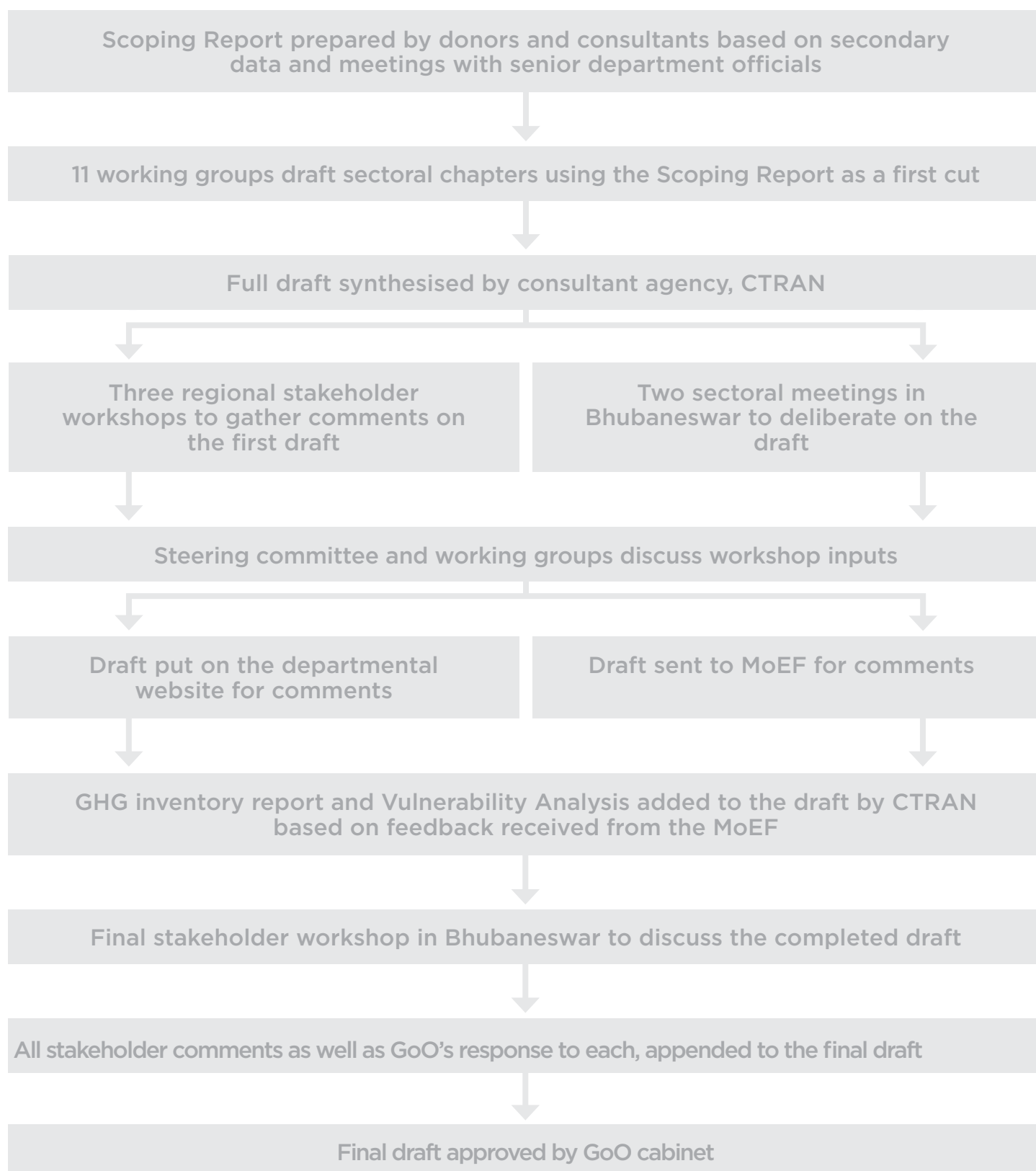
Nodal Officer Additional Secretary, Energy Department

TABLE 1: TIMELINE FOR ODISHA'S CLIMATE PLAN

18 Aug 2009	Prime Minister urges all states to draft climate plans
Nov 2009	DFID initiates scoping study on climate change in Odisha
Jan 2010	Scoping Report submitted to Government of Odisha (GoO)
Feb 2010	GoO agreement with The World Bank to assist in preparing the climate plan
Mar 2010	Steering committee and 11 sectoral working groups established : Energy, Mining, Industry, Forestry, Water, Agriculture, Coasts & Disasters, Urban, Health, Transport, Fisheries & Animal Resources
April 2010	Working groups complete sectoral chapters. Consultants prepare first draft of the plan and present to steering committee
13-24 May 2010	Regional stakeholder workshops: Berhampur, Angul and Balasore
20-29 May 2010	Sectoral meetings in Bhubaneswar
June 2010	Draft put in the public domain for comments. Plan submitted to MoEF
July 2010	Steering committee and working groups deliberate on stakeholder comments
19 Aug 2010	MoEF's National Consultation workshop
May 2011	Final draft approved by GoO cabinet
2012	Odisha climate plan "considered" by the Expert Committee on Climate Change.

Source: Odisha climate plan, and interviews with officials and stakeholders on the plan.

FIGURE 1: THE ODISHA CLIMATE PLAN PROCESS



Source: Odisha climate plan and interviews with state officials, and stakeholders on the plan.

The working groups were charged with not just brainstorming ideas but also drafting sectoral chapters to ensure some degree of departmental ownership in the draft plan process.

In fact the composition of the working groups was innovative in two respects: First, each working group was convened by a member of the nodal department.⁴⁹ What this achieved was a point person directly answerable to the nodal agency head, embedded in the concerned department, coordinating meetings with officials and converting verbal ideation into textual output. The then Principal Secretary of the Forest and Environment Department who devised this arrangement recounts, "As convenor of all the 11 teams I put officers who are directly responsible [for coordinating meetings and taking notes]... so I'm his boss, he's answerable to me, he has to show the result and put it in place quickly."⁵⁰

Second, the composition of the working groups facilitated some degree of inter-departmental participation. A stakeholder commenting on the Odisha plan remarked "It is not often that you find forest officers sitting face to face with mining officials to discuss environmental sustainability."⁵¹ However, a close examination of the climate plan reveals that the process of ensuring inter-departmental participation was not always consistent. While the energy working group for instance, included officials from the energy, steel and mines, industry, and commerce and transport departments, there seems to be no representation from the water department, even though hydropower is a stated priority in the Odisha action plan. Moreover, rural development planning is listed as a cross cutting concern in the draft, requiring the cooperation of agriculture, water, rural development, energy and industry sectors. However none of the related working groups had any representation from the rural development department. It appears therefore that the composition of each group – while allowing some cross-departmental involvement – was not always consistent.

Role of donors and consultants

Donors and consultants actively participated in the Odisha draft plan process. DFID, World Bank, and two consultants were involved

(in different instances) in preparing the Scoping Report, coordinating stakeholder consultations, as well as synthesising the final report.⁵²

A look at the time-line and process structure (Table 1 and Figure 1) indicates that once the 11 working groups were established, each group met separately with sectoral experts, consultants, and World Bank officials before drafting sector specific chapters. Both agencies also had the opportunity to present an overview on climate change to senior officials. Presentations included secondary data collated from the IPCC, local reports by the State Pollution Control Board, even the documentary on climate change by Al Gore.⁵³ There is however, some lack of clarity on whether consultants actively participated in working group dialogues, since officials were keen to project the process as primarily state driven.

Donor and consultant 'influence': Perceptions and plan outcomes

Interviews with stakeholders indicate that there were reservations by some civil society organisations about donor agencies aiding the climate plan process. According to one consultant, protests broke out in one of the regional workshops because donor representatives were present on the main dais.⁵⁴ In the chapter that includes feedback received from stakeholders, there are two comments that contextualise this concern. One broadly mentions, World Bank "influence" in the process as an issue, and another notes that past experience of external agencies on matters like power sector reforms have "not helped the state."⁵⁵ By some accounts, much of the hesitancy with donor involvement stemmed from civil society disillusionment with power sector reforms in Odisha, which were funded by The World Bank between 1996 and 2002.⁵⁶ The climate plan however responds to these concerns by stating that the Government of Odisha ultimately owns the process, which is modelled along the National Missions, and agencies only provide technical assistance, which the state is free to seek when required.⁵⁷

Civil society reservations apart, donor and consultant engagement in the Odisha plan has resulted in mixed outcomes. On the positive end, The World Bank likely bridged capacity constraints on climate

change in the state by inviting sectoral experts. In addition, consultants, based on prior interactions in the state, offered suggestions on the composition of working group members, ensuring some inter-departmental participation. Further, they developed a template to weigh climate actions on several parameters before submitting a priority list.⁵⁸ However, some concern areas persist: The Scoping Report was led entirely by DFID and CTRAN. They first presented an overview of climate change to a small group of state officials, then (based on consultations with these officials) provided the blueprint for the sectoral break-up of working groups, as well as sectoral recommendations that working groups then built on. Since a framework for sectoral action was already established before the working groups met to deliberate on the plan, it is worth asking if the groups were able to exercise independent judgement, explore issues beyond the prescribed agenda, and generate new ideas.⁵⁹

Extent of external participation and outcomes

The Odisha government placed considerable emphasis on public participation in the draft plan process. There were five sector-based workshops. Of these, two were held in Bhubaneswar and the other three were organised in Berhampur, Anugul and Balasore, and covered sectors relevant to those regions (Table 1). All five regional and sectoral presentations were conducted after the first draft of the plan was prepared. As a result, external stakeholders did not get an opportunity to participate in the pre-draft planning stages.⁶⁰ As one of the Non-Governmental Organisation (NGO) participants noted, "the response that the civil society gave were only limited to a response to the draft."⁶¹

While the first five workshops initially served as the only platform for external participation in the process, a change in the leadership at the nodal department resulted in more opportunities for civil society organisations to offer feedback on the plan. The new Principal Secretary insisted that external participation be widened taking into account general concerns by some civil society organisations who had raised concerns on the influence of donor agencies on the plan. This by

FIGURE 2: Incorporating feedback in the Odisha climate plan

ISSUE	SUGGESTIONS/COMMENTS	AGENCY	REMARKS
Linkage with National Mission	Each sector, wherever possible, should be linked to the respective Mission of the National Action Plan on Climate Change	MoEF, GOI	Covered under Para 4.1.1
Food Security	Area development plan for crops that ensure food security	R.C Dash, NIPDIT & PAG, Phulbani	National Food Security Mission is working on select crops to ensure food security
Flood mapping and flood forecasting and downscaled climate change projections modelling	Too much dependency on technical aspects will work like boomerang. So instead of relying on such high technology, rather focus should be on traditional knowledge, experience of riverside people in flood forecasting which is quite effective	Vasundhara	Keeping in view the extreme climate events likely to be exaggerated due to climate change and complexity of the issue, it is essential to go for modelling.

Source: Odisha climate plan, p. 143.

many accounts deferred the finalisation of the plan by a year. The climate plan was first placed on the department website for anyone to post comments on. It was also advertised in leading papers and the deadline for comments was further extended. Finally, another workshop was organised to allow organisations and NGOs to comment on the completed plan in the presence of senior officials.⁶²

The Odisha plan – unlike all the other climate plans examined – includes a section on stakeholder comments. The draft summarises sector specific feedback, in addition to a **59-page list in the annexure** detailing all major comments made by stakeholders in different sectors, along with the state's response to each comment. This includes details on where the suggested information was integrated or if the state differed on the comment. Moreover, the list also incorporates feedback received by the MoEF. An extract from the Annexure is provided in Figure 2.

This is a useful indicator of how the draft encompasses external feedback. It is however unclear in the state's remarks if some of these suggestions were already

framed in the draft or incorporated after receiving feedback. Some stakeholders questioned the utility of such multiple, broad-based feedback mechanisms since they cost the state substantial time and financial resources, and resulted in small changes in the final draft.⁶³ However, some changes are deeply significant such as a statement on capping thermal power generation after assessing the state's carrying capacity.⁶⁴

In short, Odisha being an early mover in drafting the climate plan sets some procedural precedents. The process was innovative in facilitating cross-departmental deliberation as well as nodal agency representation, though this was not consistently followed. The Odisha plan was also characterised by the involvement of multiple donor agencies and consultants. They were able to bridge capacity constraints and also develop a template that allowed working groups to weigh several features of a recommended activity before listing it as a priority action. A point of concern is that consultants and donors presented working groups with a ready list of sectoral recommendations through the Scoping Report, and it is likely that that limited the latter's chances

of generating ideas outside the stated agenda. In terms of external participation, the state provided multiple opportunities for stakeholders to comment on the draft plan. This was however done after the first iteration of the draft was completed, and there was limited public involvement in the pre-draft stages.

TABLE 2: OVERVIEW OF THE ODISHA CLIMATE PLAN

CATEGORIES	DETAILS
Chapter-wise break-up	<ol style="list-style-type: none"> 1. Background 2. National Action Plan on Climate Change 3. Vulnerability Assessment of Orissa 4. State Green House Gas Inventory 5. Climate change issues relevant to Orissa 6. Sectoral Issues and Programme of Key Priorities 7. Analysis and Synthesis 8. Conclusions and Recommendations
GHG Emissions inventory	<p>Prepared by a consultant agency for the Department of Forest and Environment</p> <ol style="list-style-type: none"> 1. Energy 2. Industry 3. Agriculture, forest and other land use 4. Waste
Vulnerability Assessment	Prepared by a consultant agency for the Department of Forest and Environment.
Sectors covered	<ol style="list-style-type: none"> 1. Agriculture 2. Coasts and Disasters 3. Energy 4. Fisheries and Animal Resources 5. Forestry 6. Health 7. Industry 8. Mining 9. Transport 10. Urban Planning 11. Water Resources 12. Cross cutting issues
Recommendations break-up	<ol style="list-style-type: none"> 7. Organisation 8. Budget <ul style="list-style-type: none"> - Existing - Additional - Total 9. Source of funding
Finances	Total budget: Rs. 17,000 crore between 2012 and 2017.

Source: Odisha climate plan.

III. Sectoral Content

The Odisha climate plan focuses on 142 prioritised actions submitted by each of the sectoral groups.⁶⁵ The section presents an overview of the content in the climate plan and elaborates on the following themes:

- Recommendations are objectives rather than specific actions;
- Plan outcomes are heavily influenced by the Scoping Report;
- The Odisha plan serves as a door opener for development action in certain sectors;
- The plan – but for one overarching recommendation – does not seem to address climate change in a transformative manner.

Action plan recommendations are objectives rather than specific actions

There is considerable variation in the extent of detail and information provided in each of the sectoral chapters since they were drafted by different working groups. Most actions, however, are typically broad-based, at the level of objectives rather than actions. The urban as well as the energy sectors are possible exceptions, as they offer some specific recommendations. However the dominant trend is towards generic outcomes. The following are some examples of recommendations from different sectoral chapters:

- “Developing a techno-legal regime for construction of disaster resilient housing and public infrastructure.”⁶⁶
- “Develop an operational plan for targeted reduction of [energy] losses due to pilferage and outdated systems.”⁶⁷
- “Emphasis on green fodder, pasture development and grazing.”⁶⁸
- “Increasing reforestation/afforestation activities in degraded forest areas.”⁶⁹
- “Integrating climate change considerations in the State Health policy.”⁷⁰
- “To improve urban infrastructure by making non-motorised transport feasible throughout the city.”⁷¹
- “Development of flood forecasting models.”⁷²

Given that priority actions are broad-based, the process may require additional deliberations to arrive at activities that meet these objectives.

Plan outcomes are heavily influenced by the Scoping Report

The Scoping Study was conducted by DFID, along with participation from the consulting agency CTRAN, UK based Institute of Development Studies (IDS) and senior officials across eight departments. It divides Odisha’s climate concerns along broad sectoral lines, a framework that is in common with the NAPCC. This is mirrored in the Odisha plan as well. Working groups were expected to use the Scoping Study as a basis to further deliberate on action plans. As a result, several recommendations in the priority list seem to be derived from the Scoping Report, although there are variations among sectors. For instance, while the forestry and agriculture sectors seem to rely heavily on the Scoping Report, the health sector seems to have developed recommendations more independently. In the health sector, only two out of the proposed ten recommendations are linked to suggestions in the Scoping Study. In contrast, 9 out of 14 actions listed in the forestry section of the climate plan closely mirror that of the Scoping Report, as evident in Table 3.⁷³

It is evident that while some working groups were able to go beyond the prescribed agenda and present additional thoughts on prioritised action, this was not the case with all working groups. It is worth questioning if the Scoping Report should have instead focused on providing long-term observed and projected climate trends in the state and restricted its output to presenting sectoral concern areas that the action plan could then take forward.

The Odisha climate plan as a door opener for development action in certain sectors

Literature on sub-national action often talks about how actions in local climate plans act as tools to influence other development or

policy goals.⁷⁴ In Odisha, the strategic use of the climate plan to re-open reform diversion in the energy sector is a case in point. For instance a state official commented, “Nothing was moving” in the power sector, “this was an opportunity for us to impress on private sector, regulators, and government [and] in the name of climate change highlight that the sector needs support.”⁷⁵ Another stakeholder stated that there had been little improvement in transmission and distribution (T&D) losses despite power sector reforms. Part of the reason was that Odisha had privatised its distribution companies, making them ineligible for central assistance.⁷⁶ The climate plan therefore offered the state an opportunity to access money from external agencies and give it to the private sector to improve energy efficiency including T&D losses in the state. The energy section in the draft requests assistance to the tune of Rs. 6500 crore, the highest for any sector. Of this Rs. 5500 crore is allocated to reducing T&D losses.⁷⁷ Further, the plan was also an opportunity to suggest institutional changes such as bringing the Orissa Renewable Energy Development Agency under the energy department.⁷⁸ Finally, the climate plan also addresses existing environmental concerns such as fly-ash generation and disposal as a result of increased thermal power generation. In fact, the state has already taken up a number initiatives to address fly ash utilisation such as forming a High level Committee for overseeing the utilisation of fly ash in the State, a Fly Ash Resource Centre, notification for the use of 100 per cent fly ash bricks in construction of government buildings etc.⁷⁹

Role of mitigation in the draft plan; scope for addressing transformational issues.

Of the 303 comprehensive actions in the Odisha climate plan, 123 are mitigation activities.⁸⁰ Mitigation actions tend to focus on clean coal approaches such as switching from sub-critical to super critical technology, washing coal to decrease ash content, reorganising the energy department, developing a fund that will get revenue for sale of power that is exported, and increasing reforestation, afforestation activities. In addition, the plan includes

TABLE 3:
COMPARISON OF PRIORITY ACTIONS IN THE
FORESTRY SECTOR OF THE ODISHA CLIMATE
PLAN AND RESPONSE ACTIONS IN THE
FORESTRY CHAPTER OF THE SCOPING REPORT

	Odisha Climate Plan: Key Priorities in Forests	Scoping Report: Response actions in forestry chapter
1.	Increase reforestation / afforestation activities in degraded forest areas	Increase reforestation and afforestation activities in degraded forest areas. Plan programme of intensive afforestation in one district for demonstration and then extend across the State. Assess existing and innovative sources of funding, for forest conservation, forest management, and afforestation including GOI- KAMPA, and UNFCCC REDD plus. Undertake studies on potential for traditional and new biomass energy technologies.
2.	Protect existing forest stocks to act as carbon sink with stronger conservation	Protect existing forest stocks to act as carbon sink with stronger conservation
3.	Increase planting on non-forest land and also exploring where new and increased tree planting could create barriers to storm and cyclone impacts in coastal zones	Explore where new and increased tree planting could create barriers to storm and cyclone impacts in coastal zones; Increase planting on non-forest land.
4.	Cover bald-hills with suitable species mix	
5.	Increase and protect existing mangrove cover along the coast	
6.	Assess fire management strategies	Assess fire management strategies
7.	Improved tree planting and forest management to work further in watersheds with integrated water resources management to increase water storage, reduce surface flow and soil erosion; to assess where tree planting could provide protection in flood prone areas.	Improved tree planting and forest mgt. to work further in watersheds and with IWRM to increase water storage, reduce soil erosion and improved climate reliance in agricultural areas; to assess where tree planting could provide protection in flood prone areas.
8.	Decrease people dependence on fire wood and timber and increase use of improved stoves (chullhas) and wood substitutes	
9.	Work to establish new systems to support for community users. Aim to create new marketing structures for users traditional forest products to improve incomes and livelihoods to reduce pressures on forest destruction.	Work to establish new systems of support for community users. Aim to create new marketing structures for users traditional forest products to improve incomes and livelihoods to reduce pressures on forest destruction.
10.	Undertaking studies on indigenous trees species to assess their vulnerability to climate change. Develop heat resistant genotypes in tree nurseries	Undertake studies on indigenous trees species to assess their vulnerability to climate change. Develop heat resistant genotypes in tree nurseries
11.	Assessing additional threats to biodiversity and wildlife. Forest consolidation, linking forest fragmentations, habitat development and mitigation of man-animal conflicts.	Assess additional threats to biodiversity and wildlife and see if climate change adaptation and explore whether funding from carbon sequestration funds might be accessed
13.	To obtain access to updated knowledge on climate change science and policy developments and make this available for frontline staff and forest managers and policy makers. Bring in trainers to develop modules for forest training institutes	To obtain access to updated knowledge on climate change science and policy developments and make this available for foresters, forest guards, range forest officers. Bring in trainers to develop modules for forest training institutes
14.	Capacity building of Panchayati Raj institutions / communities/JFM institutions to adapt to climate change. e.g. in the handling of NTFPs, value addition and employment generation.	
15.	Monitoring carbon stock and biodiversity at regular intervals	

Source: Odisha Climate Plan, pp.128-129; Scoping Report, pp 35-36.

“ Nothing was moving [in the power sector], this was an opportunity for us to impress on private sector, regulators, and government [and] in the name of climate change highlight that the sector needs support.”

- Official, Government of Odisha

several research and capacity building activities such as breeding studies on crops for resistance to high temperatures, flood mapping and forecasting for coasts, undertaking studies on indigenous trees and their vulnerability to climate change, and preparing a GHG profile of major industrial clusters. While the draft has many broad-based recommendations, the Department of Forest and Environment recently collated a list of 47 ‘mitigative’ measures to highlight ongoing work in the state that also correspond with some of the stated objectives in the plan.⁸¹ For instance the state has set up an ‘Orissa Environment Management Fund’ drawn from a levy on thermal power sold outside the state by Independent Power Producers. Other efforts include energy efficiency measures in over 3000 irrigation systems, establishing the Green Energy Development Corporation for development of renewable energy in Odisha, carbon footprint study of various sectors, expanding mangrove plantations, and afforesting bald hills. These activities suggest that the climate plan is a repository for existing economic and environmental imperatives in the state and significantly, demonstrate some efforts at mainstreaming sustainable development concerns in state planning.

One critically transformative statement in the Odisha climate plan is “capping” thermal power generation in Odisha after examining its “carrying capacity.”⁸² The statement was highly contested and finally found mention in the document at the behest of a senior bureaucrat. While this is based on ecological outcomes, if implemented it has obvious climate benefits. At the same time, it may be unappealing to the state’s political machinery that is keen to realise economic benefits of selling surplus coal-based thermal power.⁸³

In sum, the content in the Odisha action plan seems uneven in detail on sectoral outputs, understandably because it was drafted by different working groups. In addition, recommendations are more at the scale of objectives. Priority actions in some sectors in the climate plan closely mirror response actions in the Scoping Report. While the scoping study was meant as a first step in the draft plan process, it is evident that some working groups did not deviate from the stated agenda. Recommendations are not linked to regional model-based climate projections or trends. The content therefore focuses either on sustainable development outcomes or suggestions for sector-wise research and capacity building on climate change. In terms of the former, the plan was also framed as a tool to carry out current economic and environmental outcomes in the state. Thus a number of recent initiatives in the energy, industry, mining, forestry sectors are being projected as “mitigative” actions by the Forest and Environment department.⁸⁴

IV. Mechanisms for implementation

The ‘actionability’ of a policy plan – what distinguishes it from a knowledge document – depends largely on four factors; how actions are prioritised and financially evaluated, mechanisms to monitor and evaluate targets, and the institutional structure in place for future iterations. The Odisha climate plan is examined along these themes.

Prioritisation

According to officials and stakeholders in Odisha, the process of prioritising sectoral recommendations in the action plan involved asking different working groups to select 10 to 15 priority actions from the comprehensive list that was initially prepared, by rationalising and determining key priorities.⁸⁵ There are however large variations in the number of priority actions for each sector. It is unclear if the template intended to aid working groups in prioritising actions, was in fact used when preparing the final list.⁸⁶ Moreover, several key priorities are at the level of objectives rather than actions. What this signals is the requirement of another round of deliberations to identify specific actions to meet these objectives. The document in its current form therefore is not readily actionable.

Monitoring and Evaluation

The Odisha climate plan devotes a section to monitoring and evaluation of the document. It states that the plan has to be monitored regularly with mechanisms to receive feedback and make corrections. The plan carries a list of key impacts to be monitored in each sector as well as targets for actions suggested to address those impacts. A section of the monitoring table is reproduced in Table 4.

The plan is comprehensive in that this exercise is carried out for all the 11 sectors although not all the targets are specific: For instance suggestions include, “Building targets to provide protection measures”, “Targets for livestock protection”, “Targets for climate proofing industrial infrastructure”, “Targets for water harvesting damage.”⁸⁷

TABLE 4: Monitoring and Evaluating targets in the Odisha climate plan

AREA	IMPACTS TO MONITOR	TARGETS TO MONITOR	KEY PROGRAMS TO EVALUATE	FREQUENCY	FEEDBACK LOOP (IF ANY)
Agriculture	Changes in yields for key crops. Frequency of crop failures.	Increases in yields in watershed development program areas. Addition to areas under perennial plantation. Adoption of increased seed varieties.	Integrated watershed development program. Micro irrigation and farm ponds. Perennial plantation program.	3 years	Adjust budgets. Modify programs.

Source: Odisha climate plan, p. 80.

Finance

The total fund requirement in the Odisha plan is Rs. 17,000 crore over a period of five years. This includes both existing and additional fund requirements. While this is the highest stated amount among the five climate plans examined, it is lower than what other climate plans like Haryana have asked for.⁸⁸ A senior official noted that the cumulative amount in the draft was in fact more than the state plan budget in 2011. However, close to 17 per cent of the plan budget meant for sectors such as energy, water, fisheries and rural development, was 'surrendered' at the end of the year.⁸⁹ The concern therefore, was not one of sourcing the amount, but how and where it could be spent. It is worth noting that the climate plan calls the budgetary allocation, "a rough and ready estimate" and elsewhere places a caveat stating that the, "Emphasis is not on computing the exact requirements of funds, but on the road map."⁹⁰ Several officials communicated their hesitancy in tagging action points with cost estimates.

In terms of sources of funding, the plan considers the utilisation of state government, central government, and external funds. A news report in early 2013 mentioned that money from The Compensatory Afforestation Fund Management & Planning Authority (CAMPA) and World Bank funds available with some departments would be used to fund plan actions.⁹¹ The state has also "requested" the Ministry of External Affairs

for World Bank support for implementing four demonstration projects, three of which target "Institutional strengthening." The World Bank "in principle had agreed for such Non Lending Technical Assistance."⁹² More recently though, news reports quoted the Chief Secretary as indicating that the action plan would be implemented without waiting for central assistance.⁹³

Institutional mechanism to take the SAPCC forward

Since monitoring and evaluation is a stated focus in the climate plan, the draft suggests an institutional entity in the form of an "Orissa Climate Change Agency", housed in the Forest and Environment Department. There is however some lack of clarity on the form and existence of this body. For instance, the draft envisages that the agency would carry out an, "advisory, supervisory and co-ordinating" role and be a "single-window contact" for interacting with the central government, as well as donor agencies on all climate activities in the state.⁹⁴ In December 2011 a notification in The Odisha Gazette stated that a "Climate Change Action Plan Cell" had been constituted to carry out the same role. Apart from officials and scientists from the Forest and Environment Department, the body is expected to have a "Domain Expert/ Co-opted member" and "Representative of R&D Cell of Industrial Corporate House"

as external members.⁹⁵ During interviews conducted in May 2012 however, none of the officials connected with the plan were aware of the existence of this cell.⁹⁶

The government also notified the setting up of a Monitoring and Advisory Committee in 2011 led by the Chief Secretary. The committee's membership appears similar to the steering committee except for the inclusion of two "experts" and two NGO members. In December 2013, news reports suggested that this committee had met, likely in the aftermath of Phailin to look at work on the Odisha climate plan.⁹⁷

In sum, the climate plan sets monitoring and evaluation targets for different sectors; a structure to oversee implementation; as well as sources of finance for priority actions. On ground, the state has been implementing sustainable development action (with mitigation co-benefits) based on economic and environmental priorities. It now appears that the state is keen to implement the plan in its entirety without central financial assistance, likely driven by concerns of Phailin-like extreme weather events.

Conclusion

The Odisha Climate Change Action Plan was an early mover, developed before a Common Framework Document was put in place by the central government. There was considerable internal political and bureaucratic support for the process, with the result that the process was given a great deal of importance within the state government. The result, however, is a mixed bag: Even as the plan encompasses a long list of actions, and a relatively thin basis for implementation, on ground the government has already initiated a number of sustainable development initiatives across sectors. These efforts, however, are more a continuation of existing state priorities.⁹⁸ A few lessons are worth drawing out.

First, the individual at the top matters greatly to the process and the outcome. In Odisha, a plan was first put together speedily through tight and effective management from the top - facilitated by representatives of the Principal Secretary embedded within each working group, with an emphasis on generating new project scale activities that could be submitted for financial support. Any scope for creative dynamics emerging

from the cross-departmental construction of each working group was limited by the very short - three month - time frame for completion. With a change in leadership, the emphasis shifted entirely to a more deliberative and participatory process, one with possible use of the climate plan as a device for communication, and one focused on using climate change to ask big questions about development approaches and priorities. Elements of the latter were grafted onto the former in the final report. Second, the process evidenced a mix of both state-driven considerations and a strong role for external actors. That mitigation played a substantial role in the Odisha climate plan was driven in large part by strategic and opportunistic use of the plan to re-open long dormant discussions about electricity reform. At the same time, the broader categorisation and approach of the plan was set at the outset by a short framing discussion prepared through a donor supported process. Working groups worked within the confines of that framing, in some cases, even replicating the majority of recommendations in the framing document.

Third, as the electricity sector example suggests, the Odisha process was more tightly driven by broad sustainable development considerations than specific climate considerations. There was little investment up front in scientific knowledge of climate impacts in the state, nor of tailoring recommendations to climate-specific harms rather than broader environmental vulnerabilities. On the one hand, this is a lost opportunity to actually delve into whether and how climate change can amplify development challenges. But on the other hand, the Odisha approach can lead to productive instances of mainstreaming climate discussions into development considerations. If a climate change process leads to a more efficient electricity sector with attendant climate mitigation gains, then that is surely a positive outcome. An appropriate lesson to draw is probably that both are needed: climate focused understandings and plans, and deliberate efforts to mainstream.

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. The Centre for Policy Research has examined state climate plans in Himachal Pradesh, Karnataka, Madhya Pradesh, Sikkim and Odisha. 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.
2. Interview with Upendra N. Behera, Former Principal Secretary, Department of Forest and Environment, Government of Odisha, May 22, 2012, Bhubaneswar, Odisha.
3. Guidelines were later developed by donor agencies and endorsed by the Ministry of Environment and Forests (MoEF).
4. Marilyn Hedger and S. Vaideeswaran, "Action on Climate Change in Orissa: Scoping Report" (Brighton: Institute of Development Studies, January, 2010).
5. Phailin is a "Severe Cyclonic Storm" that hit the coasts of Odisha and north Andhra Pradesh in October 2013; The Indian Express, "What is cyclone Phailin?" October 30, 2013. (<http://archive.indianexpress.com/news/what-is-cyclone-phailin/1180881/>).
6. Orissa was renamed Odisha in 2011.
7. Directorate of Field Publicity Bhubaneswar, Government of Odisha, "Odisha at a Glance." (<http://dfp.nic.in/bhubaneswar/GeogProfile.aspx>).
8. Department of Forest and Environment, Government of Orissa, "Orissa Climate Change Action Plan: 2010-2015," (Bhubaneswar: Government of Odisha, 2010), p. 14. (<http://envfor.nic.in/downloads/public-information/Orissa-SAPCC.pdf>).
9. Business Standard, "Lopsided growth stalks Orissa's economy", February 24, 2012. (http://www.business-standard.com/article/economy-policy/lopsided-growth-stalks-orissa-s-economy-112022400003_1.html).
10. Manoj Panda, "Economic Development in Orissa: Growth Without Inclusion?" *Working Paper 25* (Mumbai: Indira Gandhi Institute for Development Research, November 2008). (<http://www.igidr.ac.in/pdf/publication/WP-2008-025.pdf>).
11. Nageshwar Patnaik, "Orissa economy undergoing structural changes: Economic Survey," *The Economic Times*, June 23, 2010. (http://articles.economictimes.indiatimes.com/2010-06-23/news/27601299_1_service-sector-growth-rate-orissa-economy).
12. Planning and Coordination Department, Government of Odisha, "Economic Survey 2012-2013" (Bhubaneswar: Government of Odisha, February 2013). (http://www.odisha.gov.in/p%26c/Download/Economic%20Survey_2012-13.pdf).
13. Planning Commission, Government of India, "Orissa Development Report" (New Delhi: Planning Commission, 2001). (http://planningcommission.gov.in/pGovernment of Odishas/statepGovernment of Odisha/index.php?state=sp_sdrorisa.htm).
14. N. C. Saxena, S. Parasuraman, Pramode Kant, Amita Baviskar, "Report of the Four Member Committee for Investigation Into the Proposal Submitted by the Orissa Mining Company for Bauxite Mining in Niyamgiri," *Submitted to Ministry of Environment and Forests, Government of India*, August 16, 2010. (http://envfor.nic.in/sites/default/files/Saxena_Vedanta-1.pdf).
15. Richard Mahapatra, "POSCO faces fresh litigation, protest," *Down To Earth*, June 15, 2011. (<http://www.downtoearth.org.in/content/posco-faces-fresh-litigation-protest>).
16. N., Sreekumar, "World Bank Led Reforms in the Indian Power Sector: A Critique," *Independent People's Tribunal on the World Bank Group in India* (Pune: Prayas Energy Group, September 2007). (<http://www.worldbanktribunal.org/docs/electricity.pdf>).
17. Atteridge and others, "Climate Policy in India: What Shapes International, National and State Policy?" *Ambio*, vol. 41 (2012), p. 68–77.
18. Miranda Schreurs, "From the Bottom Up: Local and Subnational Climate Change Politics", *Journal of Environment and Development*, vol.17 (December 2008.), pp. 343-355; Johannes Urpelainen, "Explaining the Schwarzenegger Phenomenon: Local Frontrunners in Climate Policy," *Global Environmental Politics*, vol. 9 (August 2009), pp. 82-105; Joana Setzer, "Subnational and transnational climate change governance: Evidence from state and city of Sao Paulo, Brazil," *Fifth Urban Research Symposium*, 2009; Rafael D'Almeida Martins and Leila Da Cost Ferreira, "Opportunities and constraints for local and subnational climate change policy in urban areas: insights from diverse contexts," *Int. J. Global Environmental Issues*, vol. 11 (May 2011), pp. 37-53.
19. This must be viewed in the context of the unfavourable publicity the government had attracted as a result of protests and litigation on the Vedanta and POSCO projects.
20. Interview with Muthukumar Mani, Senior Environmental Economist, The World Bank, June 6, 2012, New Delhi.
21. Not for attribution interview with a state government official, Government of Odisha, May 22, 2012, Bhubaneswar, Odisha.
22. Not for attribution interview with a consultant, May 23, 2012, Bhubaneswar, Odisha.
23. Hedger and Vaideeswaran, Scoping Report.
24. Odisha Climate Plan, p. 3.
25. Interview with Pramode Prusty, Senior Scientist, Department of Forest and Environment, May 21, 2012, Bhubaneswar, Odisha.
26. Odisha Climate Plan, p. iii.
27. Odisha Climate Plan, p. 41.
28. Planning Commission, Government of India, "Economic Growth, Structural Change and Workforce Participation," in *Orissa Development Report* (New Delhi: Government of India, November 2013). (http://planningcommission.nic.in/plans/planrel/fiveyr/10th/volume3/v3_ch3.pdf).
29. Odisha Climate Plan, p. 79.

30. The state conducted a Greenhouse Gas inventory in its next iteration.
31. Not for attribution interview with a consultant, 22 May, 2012, Bhubaneswar, Odisha; IISc or Indian Institute of Science, Bangalore is a prominent institution and deemed university based in Bengaluru that conducts science and technology research in India. CSTEP or Centre for Study of Science Technology and Policy is a non-for profit research organisation also based in Bengaluru.
32. Odisha Climate Plan, p. xi.
33. The only two reports specifically on climate change and Odisha are one on watershed development, and another on agriculture.
34. Odisha Climate Plan, p. 12.
35. Kharif Crop refers to any crop sown during the monsoon season in India.
36. Odisha Climate Plan, p. 14.
37. Not for attribution interview with a state government official, Government of Odisha, May 22, 2012, Bhubaneswar, Odisha.
38. For instance, indicators to calculate emissions from the energy sector in Odisha include solid fuel production. In terms of emissions from transport, the Odisha climate plan uses data from rail and road transport with the exclusion of airways and shipping. And finally, emissions from waste are calculated using waste and sewage generated in the domestic sector.
39. Odisha Climate Plan, p. 26.
40. Odisha Climate Plan, p. 26.
41. Odisha Climate Plan, p. 27.
42. Hedger and Vaideeswaran, Scoping Report.
43. Department of Forest and Environment , "Steps taken by the State Government to mitigate Climate Change," *email communication from department representative*, November 18, 2013.
44. Interview with Ashok Singha, CEO, CTRAN Consulting, May 22, 2012, Bhubaneshwar, Odisha.
45. Odisha Climate Plan, p. 42.
46. Odisha Climate Plan, p. lii.
47. Odisha Climate Plan, p. 100; Odisha Climate Plan, p. 37.
48. Odisha Climate Plan, p. 88.
49. Nodal agency coordinators were typically from The State Pollution Control Board or The Chilka Development Authority
50. Interview with Upendra N. Behera, May 22, 2012, Bhubaneshwar, Odisha.
51. Muthukumar Mani, "The Little State That Could," *blogs.worldbank.org*, June 15, 2010. (<http://blogs.worldbank.org/endpovertyinsouthasia/little-state-could>)
52. There were two consultants who assisted with the Odisha climate plan, CTRAN a local consultancy, as well as an independent consultant working on behalf of the World Bank. According to CTRAN, they were awarded the project because they had worked on the Scoping Report and had the benefit of being a Bhubaneswar-based agency with established contacts in the government. There were "two phases" to CTRAN's Terms of Reference (ToR); preparatory work on the draft and facilitating regional workshops. Based on CTRAN's account, the former involved the creation of working groups, identification of nodal officers, and preparation of the template. This was done in conjunction with the World Bank consultant. One of their tasks was also strategic prioritization of the action plans.
53. Not for attribution interview with a consultant, May 23, 2012, Bhubaneswar, Odisha.
54. Not for attribution interview with a consultant, May 23, 2012, Bhubaneswar, Odisha.
55. Odisha Climate Plan, pp. 96 – 97.
56. Sreekumar, "World Bank Led Reforms in the Indian Power Sector," 2007. (<http://www.worldbanktribunal.org/docs/electricity.pdf>); Department of Energy, Government of Odisha, "Notification," *on constituting independent experts to review state Power Sector Reforms*, May 30, 2001. (<http://www.orierc.org/energy.html>); Not for attribution interview with a consultant, May 23, 2012, Bhubaneswar, Odisha.
57. Odisha Climate Plan, p. 96
58. Not for attribution interview with a consultant, May 23, 2012, Bhubaneswar, Odisha.
59. In the case of the forestry sector for instance, action points closely mirror recommendations made in the Scoping Report indicating that there were limited additional inputs by the working group on the subject.
60. Each workshop, according to the draft was divided into three sessions; first, to provide the "objective of the workshop" and the "context and process" of formulating the SAPCC. Second, to present the priority actions for the sectors relevant to that region and participants. Finally, to garner feedback on the action plan. If the meeting hosted a larger number of people, it was broken up into smaller sector-based groups for discussions.
61. Telephone interview with Bimal Pandia, Regional Center for Development and Cooperation, May 30, 2012.
62. Interview with Ashok Singha, May 22, 2012, Bhubaneshwar, Odisha.
63. Not for attribution discussion in, "State Action Plan 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)

64. Odisha Climate Plan, p. 42.

65. The Odisha climate plan erroneously records its priority actions as 303, since the number actually tallies with its larger comprehensive list.

66. Odisha Climate Plan, p. 103.

67. Odisha Climate Plan, p. 107.

68. Odisha Climate Plan, p. 109.

69. Odisha Climate Plan, p. 110.

70. Odisha Climate Plan, p. 112.

71. Odisha Climate Plan, p. 116.

72. Odisha Climate Plan, p. 117.

73. Odisha Climate Plan, pp. 128 -129; Hedger and Vaideeswaran, Scoping Report, pp. 35 -36.

74. Johanna Setzer, "Subnational and transnational climate change governance: Evidence from state and city of Sao Paulo, Brazil," *Fifth Urban Research Symposium*, 2009; Qi and others, "Translating a Global Issue into Local Priority: China's local government response to climate change," *The Journal of Environment and Development*, vol.17 (issue 4) p. 379-400.

75. Not for attribution interview with a state government official, Government of Odisha, May 21, 2012, Bhubaneswar, Odisha.

76. Not for attribution interview with a state government official, Government of Odisha, May 21, 2012, Bhubaneswar, Odisha.

77. Odisha Climate Plan, pp. 107-108.

78. Interview with Muthukumar Mani, June 6, 2012, New Delhi.

79. Department of Forest and Environment, "Steps taken," *email communication*, November 18, 2013.

80. Odisha Climate Plan, p. 95.

81. Department of Forest and Environment, "Steps taken," *email communication*, November 18, 2013.

82. Odisha Climate Plan, p. 42.

83. Not for attribution interview with a stakeholder, May 23, 2012, Bhubaneswar, Odisha.

84. Department of Forest and Environment, "Steps taken," *email communication*, November 18, 2013.

85. Department of Forest and Environment, Odisha Climate Plan, pp. 3.

86. The template requires working groups to categorise each activity along seven parameters; objective, type of activity (mitigation or

adaptation), scale (state-wide, district-wide or particular area), nature of activity (research study, policy action, pre-investment study, demonstration project etc), importance of activity (high, medium, low), constraints (technology, operation or financial) and overall priority level (high, medium, low).

87. Odisha Climate Plan, p. 81.

88. The stated cumulative budget in the Odisha climate plan is higher than MP and HP. Sikkim and Karnataka do not provide a cumulative budget; Koyel Mandal, Sunanda Rathi, and Vivek Venkataramani, "Developing Financing Strategies for Implementing the State Action Plans on Climate Change," *Centre for Development Finance, Institute for Financial Management and Research (IFMR)* (Chennai: IFMR, February 2013), p. 16. (http://cdf.ifmr.ac.in/wp-content/uploads/2013/03/SAPCC-Phase-I-Report-Final_CDF_IFMR.pdf).

89. Not for attribution interview with a state government official, Government of Odisha, May 22, 2012, Bhubaneswar, Odisha.

90. Odisha Climate Plan, p. 79; Odisha Climate Plan, p. xvii.

91. Jayajit Dash "MoEF team to finalise funding for Odisha Climate Change Action Plan," *Business Standard*, January 9, 2013 (http://www.business-standard.com/article/economy-policy/moef-team-to-finalise-funding-for-odisha-climate-change-action-plan-113010900234_1.html)

92. Department of Forest and Environment, "Steps taken," *email communication*, November 18, 2013.

93. The Economic Times, "Odisha set to implement Climate Change Action Plan," December 12, 2013. (http://articles.economictimes.indiatimes.com/2013-12-12/news/45123289_1_energy-secretary-climate-change-action-plan-energy-department)

94. Odisha Climate Plan, p. 78.

95. Forest and Environment Department, "Notification," *to constitute a Climate Change Action Plan Cell and a Monitoring and Advisory Committee* (Cuttak: The Odisha Gazette, December 16, 2011). <http://orissa.gov.in/govtpress/pdf/2011/2699.pdf>

96. Interview with Dinesh Singh, Director, Environment, Department of Forest and Environment, Government of Odisha, May 21, 2012, Bhubaneswar, Odisha.

97. The Economic Times, "Odisha set to implement Climate Change Action Plan," December 12, 2013. (http://articles.economictimes.indiatimes.com/2013-12-12/news/45123289_1_energy-secretary-climate-change-action-plan-energy-department)

98. Department of Forest and Environment, "Steps taken," *email communication*, November 18, 2013.