

Strengthening disaster risk management in India: A review of five state disaster management plans



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Front cover: A family stranded at their house by floodwaters in Gangti Bishunpuri, Bihar, during the 2007 South Asian floods.

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Aditya Bahadur, Emma Lovell and Florence Pichon

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About this research project

This research is commissioned by the Climate Development Knowledge Network (CDKN) and carried out by the Overseas Development Institute (ODI), with support from the All India Disaster Mitigation Institute (AIDMI).

Research team and authors

Aditya Bahadur, Emma Lovell and Florence Pichon (all ODI)

Review

Mihir Bhatt (AIDMI), Kamal Kishore (National Disaster Management Authority), Amy Kirbyshire (CDKN), Aditi Paul (Lead India) and Emily Wilkinson (ODI)

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Foreword: Making India safe from disasters

The time has come for the policies, plans and initiatives related to disaster risk reduction to start falling into place and finding coherence in India, as the country addresses the important task of implementing robust disaster risk reduction measures to protect its vulnerable citizens and its ambitious economic growth.

Three new developments have bolstered the case for resilience-building in India. The first of these is the recent and historic judgment by the Honourable Supreme Court of India, wherein the apex court has encouraged the Government of India and the state governments to show far greater will and capability to tackle the ongoing severe drought that has affected an estimated one quarter of India's citizens – over 330 million.

The second development is the National Disaster Management Plan, recently launched by the Honourable Prime Minister of India. This is the first national-level plan in the world which is aligned to the Sendai Framework for Disaster Risk Reduction. It represents an important step in making India prepared to manage disasters and extreme climate-event risks, by balancing response and preparedness activities and strategies.

The third promising development in this direction is this document, 'Strengthening disaster risk management in India: A review of five state disaster management plans'. This report sets out a concrete roadmap for implementing resilience-building measures at the subnational level in India. Prepared by the Overseas Development Institute, the Climate and Knowledge Development Network (CDKN), the National Disaster Management Authority and five state disaster management authorities, it furthers our understanding of vulnerability and risk reduction in the Indian states of Assam, Bihar, Gujarat, Odisha and Uttarakhand.

The next step, which India is about to take, is to enhance its capacities and capabilities at the subnational level and implement the National Disaster Management Plan. CDKN's experience of working at the subnational level – which now extends over seven years – has shown that there are indeed the required capacities (trained human resources) and capabilities (skills and knowledge) at this level in India. The challenge lies in creatively organising and channelling these capabilities to achieve faster and better results in reducing risk and building resilience. This report, initiated before the National Disaster Management Plan was put out in the public domain, helps India make a big leap forward on its road to resilience and sustainable development over the next two decades.

**– Mihir Bhatt, director, All India Disaster Management Institute,
and senior advisor, CDKN**

Summary

India has suffered from many disasters in its recent history, both natural and climate-related, and these continue to cause devastation. In November 2015, floods in the southern city of Chennai, Tamil Nadu, killed over 370 people and damaged crops worth US\$190 m.¹ And in May 2016, at the time of writing this report, record temperatures of 51°C hit Phalodi, Rajasthan, during a heat wave that affected much of northern India.²

In the face of these diverse and repeated hazards, Indian authorities, from the national to the state level, have taken a series of actions to improve their management of disasters. One of the foremost policies enacted has been the development of state disaster management plans (known as SDMPs). All states in the country are required to produce these documents, which outline the preparations, risk-reduction actions and responses needed to reduce and cope with the threats specific to their region. But how effective are these plans in ensuring states are better able to prepare for, and respond to, disasters?

Our research analysed in detail the SDMPs from five very different states (in terms of climate, geography, size and location): Assam, Bihar, Gujarat, Odisha and Uttarakhand. We also held a workshop and interviews with key informants from these states. Through this process, we reviewed these five SDMPs and considered a range of questions:

- How well do they address all stages of the disaster management cycle: prevention, risk reduction and preparedness, as well as relief and response?
- Is there sufficient financing for reducing disaster risks?
- How do these states assess vulnerability?
- Is disaster risk reduction being mainstreamed across different departments in each state?
- Do the SDMPs promote gender and social inclusivity?
- Do they align with the Sendai Framework for Disaster Risk Reduction 2015–2030, the first major agreement of the post-2015 development agenda to reduce disaster risk?³

Specific conclusions for each of these issues, as well as recommendations for action, are included in each chapter; these will be of particular interest to the states reviewed, but also to other states in India, and more widely. Overall, our research found that while the SDMPs provide a good basis for coordinating disaster risk reduction and management at the state level, they would be strengthened if they:

- clarify the division of responsibility among the nodal institutions charged with managing disaster risk
- consider all stages of the disaster management cycle equally, as opposed to their current emphasis on response and relief after a disaster
- consider new and innovative models for financing risk management
- mainstream disaster risk reduction across all the relevant sectors and departments at the state level
- adequately incorporate the socioeconomic vulnerability of different groups, such as women and the very poorest people, into vulnerability assessments
- consider the additional risks that climate change will bring to vulnerable populations
- produce baseline assessments and data to track future progress in disaster risk reduction
- align more closely with the Sendai Framework.



1. Introduction

From 2002 to 2013, India was among the five countries most frequently hit by natural disasters.⁴ These included the Indian Ocean Tsunami in 2004, which caused around 11,000 deaths and affected 2.79 million people in India, and the 2013 floods in Uttarakhand, which caused 5,748 deaths and affected 4,200 villages. Before this, India's major disasters included Cyclone Paradip in 1999, which caused around 10,000 deaths. According to the World Risk Index 2014,⁵ India is in the top half of all countries at risk from natural hazards – and, more importantly, for many years it has severely lacked the capacity to cope with and adapt to these hazards.

This is one reason why India's national and state governments have taken major steps towards putting legislation, plans and policies in place to deal with disaster risk. The Disaster Management Act of 2005 provided a robust policy framework for dealing with natural hazards. Since then, many states and union territories have developed state disaster management plans (SDMPs). Furthermore, 80% of the country's districts have created district disaster management plans. Together, these policies guide the actions of several institutions, including the National Disaster Management Authority, the National Institute of Disaster Management, the Union Ministry of Home Affairs, the state disaster management authorities and the district disaster management authorities. These policies have already proven effective in helping India to deal with disasters. For example, cyclones Paradip (1999) and Phailin (2013) both battered the eastern state of Odisha.⁶ While Paradip caused approximately 10,000 deaths, Phailin led to hardly any fatalities at all, due to improvements in disaster risk management.

Despite this and other successes, however, there is room to further strengthen the policy architecture for disaster risk management in India. As the primary responsibility for dealing with disasters lies with state governments, the key operational policies that guide disaster risk management actions across the country are the SDMPs.

This report reviews the SDMPs of five diverse states: one coastal state (Odisha), one mountainous state (Uttarakhand), one semi-arid state (Gujarat), one state dominated by alluvial planes (Bihar) and one dominated by river valley systems (Assam). We begin by examining the degree to which these SDMPs balance the needs of disaster risk reduction, preparedness, response and recovery (Section 3). We then analyse the arrangements in place for financing disaster risk management (Section 4), the quality of vulnerability assessments that have informed these plans (Section 5) and the manner in which disaster risk management has been mainstreamed across the remit and initiatives of government departments (Section 6). In Section 7 we explore the degree to which gender and social inclusion are considered across the plans, and in Section 8 we examine the manner in which these plans align with the Sendai Framework for Disaster Risk Reduction 2015–2030. The report closes with our conclusions from the research.

This report aims to highlight the gaps that should be addressed when these (and other) SDMPs are revised; this should happen at regular intervals, as mandated by the Disaster Management Act 2005. These plans clearly have many strengths, but we have restricted our discussions to a critically analytical gap analysis.

Our analysis and recommendations must be read alongside other reviews of India's disaster management policy architecture, including the *Report of the Task Force: A Review of the Disaster Management Act, 2005*, led by Dr P.K. Mishra, and several reports from the United Nations Development Programme, India.



2. Approach

Six parameters for analysis were agreed upon after discussions with key disaster risk management experts and senior officials from India's National Disaster Management Authority, which oversees all aspects of the country's disaster management and disaster risk management policy, and will potentially coordinate future revisions of the SDMPs. Our analyses of these parameters form Sections 3 to 8 of this report.

Next, we analysed the selected SDMPs, using open qualitative coding, to arrive at a broad list of themes for exploration. Following this, the SDMPs were reviewed a second time and the initial set of codes was reduced using axial coding techniques.

Following this, 10 qualitative, semi-structured interviews were held with disaster management and disaster risk management officials from the five states being studied. These focused on corroborating insights, filling gaps in data and adding detail to the insights gained.

Once these interviews were complete, a workshop was held in New Delhi, India, for disaster management and disaster risk management officials from the five states, senior members of the National Disaster Management Authority and representatives from civil society organisations (CSOs) – 25 key informants in total. The aim was to validate the findings of the review and develop a set of practical next steps for improving the SDMPs.

As a result of this multi-stage process, the analysis in this report is based on robust engagement with secondary and primary data, which have been systematically analysed and thoroughly corroborated.



3. Responsibility for risk reduction, preparedness, response, recovery and resilience

Key messages

- The SDMPs demonstrate a high degree of sophistication when it comes to disaster response.
- However, there is potential for further clarity on roles and responsibilities regarding disaster risk management at the national level.
- There is a need for disaster risk reduction to be presented more prominently in the SDMPs.
- Disaster resilience is not a key feature of the plans, but a few state plans are making strides in this regard, placing a greater focus on learning and working in partnership.

3.1 National-level responsibilities

Since its enactment in 2005, India's Disaster Management Act has been heralded by state officials as catalysing a paradigm shift in disaster management, including a new multidisciplinary focus on disaster prevention and risk reduction and a move away from a relief-centric regime. The institutional framework under the Act mandated the creation of the National Disaster Management Authority and state disaster management authorities as the bodies responsible for disaster preparedness and risk reduction at the respective levels. The Ministry of Home Affairs' Disaster Management Division retained responsibility for steering the national disaster response overall. Combined, these three bodies should address the full spectrum of the disaster management cycle. Figure 1 shows the disaster management cycle as outlined in India's National Policy on Disaster Management.

Figure 1. Disaster management cycle in India



Source: National Policy on Disaster Management⁷

Ten years after the Act, however, these institutional arrangements had room for further clarity in the division of responsibilities. The Ministry of Home Affairs, which describes itself as the “nodal ministry for handling management of natural disasters”, supervises financial assistance after disasters.⁸ It also oversees the National Institute of Disaster Management, which is meant to help with capacity development, training, research and the development of a national-level information base. There is scope for greater clarity in this Institute’s role in defining the agenda for disaster research, however; the 2009 National Disaster Policy gives the National Disaster Management Authority the role of setting up a group of experts to identify research needs in disaster risk reduction in India, which overlaps with the National Institute of Disaster Management’s research-related responsibilities. Similarly, the 2009 National Disaster Policy states that the National Disaster Management Authority should define minimum standards of relief after a disaster – but this is a role that is held in part by the Ministry of Home Affairs.

This overlap between agencies is an example of why a clearer demarcation of national-level responsibilities is needed. *The Report of the Task Force: A Review of the Disaster Management Act, 2005* also highlights this lack of clarity, and suggests that one way to improve it would be to ensure that the Ministry of Home Affairs has overall responsibility for disaster response, not the National Disaster Management Authority.⁹ This would allow the latter to focus on better risk-reduction planning instead.

3.2 State-level responsibilities

There is also a need for greater clarity regarding responsibilities at the state level, especially regarding who is responsible for risk-reduction activities. Though the language in the five SDMPs reviewed covers the full disaster management cycle (Figure 1), prescriptive actions in the plans primarily deal with disaster preparedness and response. Most of the SDMPs reviewed are highly sophisticated in terms of their response plans, including detailed processes and protocols, emergency operation centres, and a breakdown of activation levels during emergency crises.

Risk-reduction activities are less prominent, and are the weakest link in the disaster management cycle across the plans. In the workshop,¹⁰ officials from the Odisha State Disaster Management Authority described the plans as “response plans rather than risk-reduction plans” because the cross-sectoral nature of risk reduction meant it was too wide an issue to be addressed within their scope. This assertion is incongruent with the Disaster Management Act 2005’s mandate that these authorities should “lay down guidelines to be followed by different ministries [. . .] for prevention of disaster or mitigation of its effects”.¹¹

This is likely to be due to political and institutional inertia in a country where disaster response was the norm for decades, combined with a lack of specific risk-reduction funding to promote investments in disaster risk-reduction activities and infrastructure. There are also political and financial disincentives for engaging in risk reduction, because delivering response and relief following a disaster is seen to yield a political dividend.¹² Key informants highlighted how the intense public and media scrutiny after disasters automatically leads to a higher priority being given to response, rather than risk reduction.

Furthermore, where risk-reduction activities are described, SDMPs do not institutionalise accountability mechanisms to ensure that departments follow these considerations in their own planning. As a result, risk-reduction activities are driven by schemes and external projects, rather than by guidelines in SDMPs. Because risk-reduction needs are location-specific, this gap is an opportunity for stronger, locally led risk-reduction planning by

communities and districts. To achieve this, it is vital for state disaster management authorities to focus on the continued capacity-building of district disaster management authorities and CSOs that are responsible for managing disaster risk. Capacity-building should support the planning and implementation of actions across the full disaster management cycle.

Thinking on resilience among the five state disaster management authorities varies, and overall there is a low baseline understanding of resilience, which is reflected in the SDMPs. Resilience is an approach to disaster risk management that considers the whole cycle and brings new components to the table, including: rights awareness and access to basic services; building and strengthening community institutions; working across scales; participation; inclusion and equity; holistic vulnerability/risk analysis; long-term and future orientation; building and promoting effective leadership; diversity; flexibility; redundancy; modularity; reflection and learning. These concepts are not explicitly included within all SDMPs, however, in which resilience is broadly seen as something additional to the disaster management cycle.

There are some exceptions to this. Gujarat revises and updates its SDMP every other year to include learning. Also, Assam's SDMP states that it takes a "resilience approach", which "brings in shared responsibility between government and institutions, communities at risk (households), business and service providers, CSOs/NGOs [non-governmental organisations] and individuals. Adopting this approach will help develop sustained behavioural change at societal level (*build social cohesion*) and demonstrate successful partnerships"¹³ An increased focus on learning, inclusion and community institutions are promising early steps for integrating resilience approaches into state disaster management planning. Annex A presents a more detailed summary of the five states' approaches to the disaster management cycle.

Recommendations

- **Clarify the division of responsibility among nodal institutions.** Currently, responsibility for research, capacity-building and setting minimum standards for disaster relief are shared between the National Disaster Management Authority, the Ministry of Home Affairs and the National Institute of Disaster Management.
- **Revise the SDMPs to include a much greater emphasis on risk reduction, rather than just preparedness and response.** Existing rules and regulations that impede the inclusion of measures for risk reduction need to be amended.
- **Build partnerships with and draw lessons from forerunner states such as Bihar and Gujarat on how to include risk reduction in plans more effectively.** It is also important to mainstream risk reduction across the key state-level development plans overseen by different government departments, not just state disaster management authorities (see Annex A for more detailed summary of state-level approaches).
- **Accountability mechanisms need to be specified.** This will ensure that departments follow disaster risk-reduction considerations in their own development planning.
- **General guidelines and broad recommendations in many SDMPs need to be refined.** They can be made into sharper prescriptions and directives.

4. Financing for disasters

Key messages

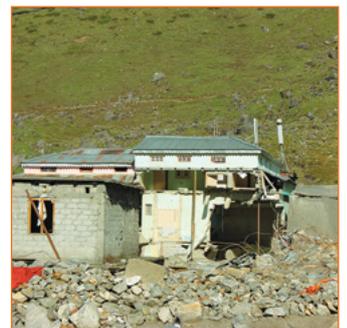
- Equal legal importance is given to financing for disaster response and risk reduction at the national level, but there are limited funds for risk reduction across states, despite legal and legislative mandates for this.
- Disaster risk management officials in some states believe that funds for disaster risk reduction should be mainstreamed within other departments; others believe that the state disaster management authorities should have exclusive funds for this. At present, risk reduction still primarily takes place through bespoke projects.
- There is scant evidence of public–private partnerships and risk-transfer mechanisms being used.

4.1 Funding arrangements for disaster response

As they stand currently, the funding arrangements for disaster management have prioritised disaster response over disaster preparedness, largely due to a lag in implementation. The Disaster Management Act 2005 mandated the creation of a National Disaster Response Fund and the establishment of two mirroring, lower-level funds: state disaster response funds and district disaster response funds. The Act also called for the creation of a National Disaster Mitigation Fund¹⁴ exclusively for the purposes of disaster risk reduction, and the establishment of state disaster management funds and district disaster management funds. In the decade since, disaster response funds have been created but disaster management funds have yet to materialise.

The five states reviewed have operational state disaster response funds, which receive 75% of their annual funding through a grant from the central government and 25% from state government contributions. Alongside these funds, each ministry is required to create a disaster management plan and allocate funding from its annual budget to cover the costs of these activities and programmes.¹⁵ In this way, the funding needs for disaster management activities are designed to be integrated within the regular budgeting of line ministries, addressed at various administrative scales, and are channelled into both risk reduction and relief-oriented funds. The implementation of these arrangements has proven slow, however, and relief and response remain the norm in terms of funds for disasters. This point was iterated earlier in the *Report of The Task Force: A Review of the Disaster Management Act, 2005*, which notes that “the relief-centric approach to the financing arrangement does not address issues of prevention, mitigation and preparedness”.¹⁶

Expenditure on risk reduction and preparedness should be built into sectoral development plans, but the SDMPs reviewed do not provide guidance for departments to budget for and plan for risk-reduction activities. As one state disaster management authority official explained: “Departments need to plan [for disaster risk management] based on . . . issues that need to be addressed, but planning is budget-centric”. Without guidance on how to prioritise and budget for disaster risk management activities, departments are unlikely to address these needs.



4.2 Risk-reduction funding

Without operational disaster management funds at the national, state or district levels, disaster risk-reduction funding is currently derived largely on a project-by-project basis (see Box 1). The establishment and operationalisation of disaster management funds, at the national and state levels, is therefore imperative – but challenging.

At the workshop held in November 2015, there was significant diversity in how state disaster management authority officials perceived this lack of operational risk-reduction funds. Some officials did not consider the absence of a risk-reduction fund to be an impediment to implementing preparedness activities, which they argued should come through regular budget allocations (i.e. sectoral development plans). Because the Disaster Management Act 2005 mandates that all relevant departments create a disaster management plan and budget accordingly for any related activities, this perspective presumes that all departments recognise the importance of disaster risk reduction and have the know-how, capacity and funding to set aside sufficient resources for preparedness and risk-reduction activities.

However, other senior officials argued that the lack of funds for disaster risk reduction is a major roadblock for putting risk-reduction plans into operation and encouraging other departments to mainstream concerns about disaster risk management. At the workshop, a representative from Assam protested that there is a strong awareness of what needs to be done to mitigate against disaster impacts. The representative explained that the Assam State Disaster Management Authority understands the percentage of schools that are vulnerable to earthquakes, but have no resources to encourage the Ministry of Education to invest into earthquake-resistant structures.

Similarly, during discussions about the role of state disaster response funds, participants explained that they have funds available to repair bridges that collapse, but are unable to use a portion of those same funds to retrofit bridges to withstand severe floods or storms before a disaster, reinforcing the priority given to funding response work.

Box 1. Project-based disaster risk reduction

Without state-level or national-level funding arrangements for disaster risk reduction, India's subnational risk-reduction activities are largely project-based. Major projects related to risk reduction in India include:¹⁷

- the National Cyclone Risk Mitigation Project
- the National Earthquake Risk Mitigation Project
- the National Flood Mitigation Project
- the National Landslide Mitigation Project
- the National Disaster Communication Network.

This project-based approach brings external funding and expertise to support disaster risk reduction for recipient states, which is essential for building capacity and investing into infrastructural needs. However, there are disadvantages to this project-based approach to reducing disaster risks. For example, reducing people's vulnerability to multiple hazards rarely fits neatly into the confines of a project cycle.¹⁸ Risks are dynamic and change with population growth, urbanisation, land-use change, climate change, and economic and political institutions. Incorporating disaster risk reduction into development planning ultimately should be led by local, state and national authorities that are committed to reducing risk in the long term and adapt their approaches according to their constituents' changing circumstances.

Officials from states without a history of major disasters said that they had less room for manoeuvre in promoting holistic disaster risk management across different departments, which did not necessarily see the value in addressing or prioritising disaster risks. These states advocated for a disaster management fund to support and fund the mainstreaming of risk-reduction activities across sectors. Bihar has made strides in investing in risk reduction and was the only state under review that has established a State Disaster Mitigation Fund. As a result, Bihar was also leading on various initiatives focused on holistic disaster management, such as spearheading meetings between states for subnational commitments to the Sendai Framework for Disaster Risk Reduction 2015–2030 (see Section 8) and improving community-level awareness of disaster risks.

Overall, there was consensus on the fact that funds for risk reduction need to be built into the budgets for different departments, but that a certain amount of funds for risk reduction should be provided to state disaster management authorities to enable them to carry out training, share information and awareness on risk reduction, and undertake demonstration projects. One method of advancing this would be to establish disaster management funds, using them across various departments to implement disaster risk-reduction activities.

4.3 Alternative sources of disaster funding

The viability of other sources of funding for disaster management is unclear from reviewing the SDMPs. Public–private partnerships are mentioned as one way to tap into alternative resources and involve the private sector in disaster management, but none of the states represented at the workshop had initiated any such partnerships, nor did their officials mention any opportunities to engage the private sector in financing risk management. Similarly, the SDMPs encourage risk-transfer mechanisms such as insurance as part of a disaster risk management approach, but interviews revealed that the uptake of insurance has not been widespread. Currently, the main avenue for alternative disaster risk-reduction funding is on a project basis (see Box 1).

There was also general acknowledgement of the manner in which CSOs and, in some cases, private sector actors play an important role in risk reduction and response at the local level, but there was a lack of clarity on the manner in which they could be financed by national or state governments to play a bigger role in disaster risk management.

These alternative approaches are potentially important for disaster risk management funding, but cannot be considered as a substitute for holistic funding arrangements that address both disaster response and risk-reduction needs at the subnational level. Overall, it is vital to ensure that actors who have a genuine stake in risk reduction in the state are engaged in discussions over the generation or programming of funds for disaster risk management, in order to ensure that contextually relevant solutions are developed.

Box 2. The allocation of funding for disaster risk reduction in the Philippines

Kellett et al. (2014)¹⁹ provide a useful review that can be used to consider the state of national financing of disaster risk reduction. Using five case studies (Costa Rica, Indonesia, Mexico, the Philippines and South Africa), they demonstrate the coherent national financing of disaster risk reduction, with “policy commitments to finance specific [disaster risk reduction] interventions and [. . .] national institutions to manage the implementation of allocated finances. In some cases, they have financed [disaster risk reduction] not only as a stand-alone activity but also as one that is integrated into development planning, which is increasingly seen as the key objective.”

The Philippines is a useful case study to compare to India, due to the similarly intricate yet complex governance structure for disaster risk management that exists at the national, provincial and local levels. The Philippines has a number of funding sources for disaster risk management, comprising both stand-alone and sector-integrated funding. These include two separate ‘stand-by’ funds that deal with disaster risk reduction and response; disaster risk-reduction allocations throughout ministry budgets and development planning, as a result of a framework developed by the National Economic and Development Authority; climate adaptation financing; immediate access to liquidity upon declaration of a state of emergency through a catastrophe deferred drawdown option from the World Bank; and financing at the local government unit level.

Kellett et al. argue that this list demonstrates that disaster risk-reduction funding in the Philippines can be found “throughout sectors and activities, with increasing integration between disaster risk and climate adaptation financing.”²⁰ These multiple approaches are held together through strong legislation and the National Disaster Risk Reduction and Management Fund. Nevertheless, there have still been challenges in terms of implementation, much like in India, due to funds being overstretched, the lack of capacity to find other funding sources, and the additional burden and needs associated with climate change. In addition, the Philippines, like India, does not to date have a system for tracking disaster risk-reduction spending within the national budget.²¹

The authors recommendations for national governments include: establishing legal mandates for sustainable disaster risk-reduction resources; clarifying and simplifying disaster risk-reduction legislation; focusing on local financing; and involving national non-government actors to a greater extent.²² They also state that:

“ . . . if there is one general principle that underpins the recommendations, it is that making and respecting financial commitments to risk reduction is essential to make progress. No quantity of good legislation or strong [disaster risk reduction] frameworks, even those that make risk reduction an issue sector by sector, will make a difference if insufficient financing is allocated to undertake the necessary measures. However, the lack of [disaster risk reduction] financing itself, and even the lack of coordination or coherence of that financing, may not be an issue of availability but rather one of prioritisation, an issue that remains to be addressed in many countries with high risk of disaster.”²³

Recommendations

- **There is an urgent need to put the National Disaster Mitigation Fund and state disaster management funds into operation.** States such as Bihar, which are leading in this regard, should share lessons on how to realise this at the state level.
- **States should have decision-making power** regarding whether state disaster management authorities control funds for risk reduction, or whether these are distributed to government departments. Either way, state disaster management authorities should have some funds for demonstration projects, awareness-raising and training.
- **Public–private partnerships should be looked at more seriously as alternative modes of financing.** Models such as the Surat Climate Change Trust,²⁴ a collaboration between the private sector and the urban local body in Surat, Gujarat, should be studied and, if suitable, replicated.
- **Risk-transfer mechanisms and insurance should be scaled up to support risk reduction.** Models such as the All India Disaster Mitigation Institute's pilot initiative on hazard-indexed risk insurance in Guwahati, Assam, should be studied and, if suitable, replicated.

5. Assessing vulnerability to disasters

Key messages

- The five SDMPs reviewed use the *Vulnerability Atlas of India*, which is useful for understanding the exposure of particular geographic areas, but less useful for understanding socioeconomic vulnerabilities.
- A lot of data needed for comprehensive vulnerability assessments are already being collected, but there is a need to layer existing scientific data with socioeconomic data for a composite analysis of how hazard exposure interacts with vulnerability.
- The SDMPs largely overlook climate change concerns; there is scope for using robust climate data or models.

5.1 The need for vulnerability assessments

Vulnerability is “the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard”.²⁵ Vulnerability assessments should combine robust information on the range of hazards in a geographic area (including information on frequency, intensity and sensitivity) with data on the socioeconomic factors that determine how different groups of people “anticipate, cope with, resist and recover” from these hazards.²⁶

Vulnerability assessments should combine: a description and analysis of present vulnerability for different groups of people (looking at specific livelihood activities, for instance); descriptions of potential vulnerabilities in the future and an analysis of causal links to those potential pathways; a comparison of vulnerability under different socioeconomic conditions; and the identification of points and options for intervention.²⁷ A robust vulnerability assessment should guide understanding of how hazards link to key social and economic outcomes, clarifying how different vulnerable groups may have different sources of vulnerability.

Across the five SDMPs reviewed, hazard risk and vulnerability assessments are informed by the *Vulnerability Atlas of India*.²⁸ This covers India’s entire landmass, with macro-level analysis of exposure to earthquakes, cyclones, wind speed and floods (although slow-onset disasters, such as drought and sea level rise, are not included). It overlays this hazard-zoning information with census data on housing types to assess the vulnerability of structures in different hazard zones. This analysis is useful but limited, as an understanding of housing structures does not reveal construction methods or building standards; during the 2001 earthquake in Gujarat, for example, modern apartment buildings were among those that collapsed.²⁹

Some states have expanded on the *Vulnerability Atlas of India* to consider a wider hazard profile. Gujarat has developed the more detailed *Gujarat Hazard Risk and Vulnerability Atlas*, which incorporates tsunamis, drought and industrial accidents in addition to the hazards covered in the national atlas.³⁰ It describes how these hazards relate to human activities in different districts, for example where areas of drought affect districts in which people have no alternative source of irrigation water, or are already overexploiting groundwater sources.



It also describes where ‘particularly vulnerable tribal groups’ are located and their primary livelihood activities, though this is not tied directly to Gujarat’s hazard profile. In turn, Gujarat’s SDMP maps out hazards on an annual calendar, giving a better picture of how these hazards overlap and may affect people simultaneously. Pulling this information together is Gujarat’s Composite Risk Index for all hazards at the a *taluka* (administrative division) level basis, which aims to support policy-makers in prioritising disaster risk management investments and related development interventions.

While the *Vulnerability Atlas of India* is an excellent tool for deriving a basic idea of settlement patterns in high-risk areas, its name conflates an assessment of hazard risks with the type of vulnerability assessments designed by social scientists. As a result, there is a lack of clarity in the SDMPs between what constitutes an indicator for hazard exposure, and indicators for vulnerability. For example, the hazard assessments in the SDMPs tell us *where* people live in unsafe housing in hazardous locations, but a comprehensive vulnerability assessment should also explain *why* people live in unsafe housing in hazardous locations. This could be due to an array of interrelated factors: poverty; land-rights issues; migration and displacement; population growth; access to employment; and environmental degradation, among others.

These data on socioeconomic factors are being collected by different government departments and uploaded onto a platform called the Open Government Data Platform India, where the datasets are made publicly available. This is an opportunity for states to layer existing scientific data – for example collected by the Geological Survey of India, the Indian Meteorological Department, the Central Water Commission and the Indian Space Research Organisation – with socioeconomic data to create a composite analysis of how hazard exposure interacts with vulnerability.

Assam is leading in this regard. Its SDMP details relevant indicators for livelihood, lifestyle and health factors that can illustrate each district’s capacity to respond to disasters. Some of these indicators demonstrate a district’s capacity to cope with and absorb disasters, such as the number of hospital beds per 10,000 people; others can be used as proxies to illustrate adaptive capacity, such as data on access to safe drinking water. To improve this vulnerability assessment further in later iterations of its SDMP, Assam could use geographic information system tools to map these data in a common platform, allowing for real-time assessments of vulnerabilities. However, representatives from all the state disaster management authorities reviewed felt that the capacity or resources to overlay various data from other departments to inform their work were currently lacking.

5.2 Climate change and vulnerability assessments

With the exception of Assam’s SDMP, which references climate studies and the State Action Plan on Climate Change, the hazard and vulnerability assessments in the SDMPs gloss over climate change concerns (although other states in India are taking action at the district level; see Box 3). Climate change may be mentioned as a complicating factor in disaster management, but downscaled climate projections are not included in any risk assessments. This is a missed opportunity: the state action plans on climate change include vulnerability assessments that cover a number of relevant parameters for the SDMPs: sensitivity, exposure and the economic impacts of climate change. Integrating these where relevant is an ‘easy win’, as it would simply require a comparison of these with the SDMP’s vulnerability assessments, and filling in the gaps to ensure that climate-related vulnerabilities are not overlooked in disaster management plans.

Box 3. Gorakhpur leads the way in mainstreaming climate change

Similar to the state level, disaster management planning at the district level is commonly understood to be primarily about post-disaster relief and reconstruction, rather than risk reduction and building resilience. Integrating climate change adaptation into disaster management planning remains a particular challenge, in part due to institutional arrangements that separate responsibility for managing disaster risks and for adapting to climate change from the departments that manage the budgets and hold the authority to implement actions.

However, in an initiative led by the Gorakhpur Environmental Action Group, evidence and technical inputs were provided to the Gorakhpur District Disaster Management Authority to build understanding of why and how to integrate climate change considerations into disaster management actions. This initiative investigated the factors that contribute to resilience and exacerbate vulnerability within this flood-prone district of Uttar Pradesh. The results were then used to identify specific policy options that could help to bridge the vertical gap between the integrated national framework on disaster risk management and local contexts, as well as the horizontal gap between sectoral development programmes to integrate disaster risk management and climate change.

These inputs acted as a catalyst. In 2013, with support from the initiative, the Gorakhpur District Disaster Management Authority facilitated a multi-sectoral planning process which led to the preparation of a new climate-smart district disaster management plan, aligned to different departments' needs, priorities and capacities. This is considered by the National Institute of Disaster Management to be a model for such plans. The process was repeated, and the plan upgraded, in 2014, this time without external support.

Gorakhpur's experience demonstrates the possibilities for integrating disaster risk management, climate change adaptation and development planning at the district level across India, and the importance of breaking down institutional barriers to do this. And the process is already being replicated. The Government of Uttar Pradesh has directed all 75 districts in the state to follow Gorakhpur's process. To aid this, the Gorakhpur Environmental Action Group, in partnership with the Institute for Social and Environmental Transition, the National Institute of Disaster Management and the Gorakhpur District Government, has produced a training module and delivered training to aid other districts in developing their own climate-smart plans.

Analysis of hazards risks in the SDMPs is primarily based on past trends, with some states (e.g. Odisha) delving into specific case studies of previous major disasters. But considering how climate change will shape future risks and intensify the scope and frequency of disasters, too much focus on past events could result in maladaptive decision-making and planning at the state and national levels. Ideally, the SDMPs should include future climate projections and observed disaster trends, combined with modelling of the potential economic losses under various climate scenarios and disaster contexts. This would allow for risk-reduction decisions regarding public infrastructure, for example, to be prioritised. Quantifying potential losses on the basis of probabilistic risk assessments can also play an important role in convincing other sectors of the value of investing in risk reduction activities, while highlighting the urgency of managing climate-related risks.

The meaningful inclusion of climate change within the SDMPs also requires states to identify patterns of where climate-related hazards, such as flooding, are intensifying. This requires robust and regularly updated data, which are most easily obtained through a modern data-collection process. India's Meteorological Department collects information on rainfall at the district level, and the Central Water Commission measures water levels and water flow, but one interviewee highlighted that these data are still recorded manually: "It is quite outdated and margins vary. [The process] needs modernising, so it is more accurate and so we can get it online to better identify patterns."

The SDMPs' treatment of climate change (or lack thereof) is attributable to institutional barriers, rather than a lack of awareness on the part of state officials. In interviews and at the November 2015 workshop, high-level officials were well informed about the role of climate change in the context of disasters. However, climate change issues fall under the remit of the Ministry of Environment, Forests and Climate Change, and thus were not considered a necessary component of risk assessments in the SDMPs. One official protested that climate change was already being managed through state action plans on climate change and including this in the hazards covered by the state disaster management authorities would duplicate efforts.

As a result, there are gaps in the inclusion of climate change into disaster risk management planning and, where it is included, it is not always backed by data on climate projections.³¹ Building on synergies between state action plans on climate change and the SDMPs is key for mainstreaming climate change concerns into disaster governance (we provide suggestions on how best to integrate climate considerations into state-level governance on disasters at the end of this section).

Some states have started to consider climate change in their SDMPs. At the time of the workshop, Bihar was undertaking a project to mainstream climate change into all 38 district-level disaster management plans, for example. This initiative did not, however, include downscaled climate projections, so it may be of limited value to district-level officials. Furthermore, including climate risks in disaster risk management plans is just the first step; complimenting this with data about climate projections is needed for a more meaningful analysis of future hazards.

5.3 Natural variability and types of events

In order to effectively support disaster risk management, it is important to assess all types of slow-onset and rapid-onset shocks, stresses and everyday risks, as well as the variability and frequency between disaster events.

However, comprehensive assessments of natural climatic variability are lacking in the five SDMPs reviewed, which tend to view hazards as static risks. Assam's SDMP is again the exception here, as it includes a section on climate variability as well as climate change, which considers the changes in temperature in the region and changes in seasonal rainfall patterns. It also highlights the impact that limited annual rainfall is having on water scarcity, while recognising that the "absence of effective irrigation systems or water harvesting practices adds to the vulnerability of the people".³² Moreover, none of the SDMPs reviewed (or the Sendai Framework for Disaster Risk Reduction 2015–2030 – see Section 8) refer to El Niño, despite the fact that this has already contributed to decreased rains during the Indian monsoon season.³³

Everyday risks, such as fires and road accidents, are mentioned in most of the SDMPs, although their scope and the detail with which they are incorporated is limited. At the same time, there is generally limited consideration given to slow-onset disasters (such as droughts). This is in contrast to shocks and extreme events, which are sharply in focus across these plans.

Recommendations

- Revised SDMPs must demonstrate a better **understanding of the social, economic and political factors that drive vulnerability**, rather than focusing solely on the hazard exposure of particular geographic areas.
- States should **include downscaled climate projections** into SDMPs, so that future and evolving risks can be taken into account; **triangulate the vulnerability assessments** in state action plans on climate change with those in SDMPs, specifically in terms of exposure, sensitivity and sectoral economic impacts; and **undertake training on climate-smart disaster management** for state and district-level authorities, focusing on practical actions that contribute to building resilience to climate extremes (drawing on the climate change risk-reduction measures recommended in state action plans on climate change, where relevant).
- Using data that are already being uploaded onto **platforms such as the Open Government Data Platform** can help to synthesise a clearer understanding of vulnerability.
- States should **solicit advice from state-level and central scientific institutions** (e.g. the Indian Institutes of Technology, think tanks and universities) on how to derive and deploy climate projections to inform disaster risk reduction, preparedness and response plans.
- States **should scale up efforts to mainstream climate change within district disaster management plans**.
- Revised SDMPs should be more **closely integrated with state climate change action plans**, especially actions concerning adaptation and resilience-building.

6. Mainstreaming disaster risk management

Key messages

- There is a consensus among state disaster management authorities on the need to mainstream disaster risk management within the initiatives and remits of all government departments.
- Most SDMPs contain a high degree of detail on sectoral and departmental responsibilities for disaster responses, but fall short of outlining pathways for mainstreaming risk reduction.
- Capacity-building on emergency response is seen as the main tool for mainstreaming disaster risk management across different sectors. There is a need to expand these mainstreaming activities so that they include all stages of the disaster management cycle.

6.1 Mainstreaming disaster response

Disaster contingency plans for all state-level departments are central to the preparedness and response aspects of the SDMPs. Our research suggests that, overall, mainstreaming disaster response across relevant departments has been strong: all of the SDMPs include disaster contingency plans that articulate various roles and responsibilities for relevant departments to address hazards, during and after emergencies. Some risk-reduction activities are also being undertaken by relevant departments, such as the example from Odisha of keeping drainage systems clear before the monsoon starts, thus allowing for the free flow of flood water.

Table 1 outlines the extent to which the five states reviewed include disaster contingency planning for all departments in their SDMPs, annual development plans, and other state-level development plans.

Table 1. Disaster contingency plans in the SDMPs and annual development plans

	Disaster contingency plans for all departments	
	Within the SDMPs	Within annual development plans and state-level plans
Assam	Assam's SDMP mentions mainstreaming in its section on roles and responsibilities for disaster management across departments. Some departments are charged with developing contingency plans, while others have very generic advice (e.g. "The Health and Family Welfare Department should provide healthcare in normal and disaster situations"). ³⁴ Overall, the advice is general and lacks specific time commitments.	Assam's Annual Development Plan was unavailable at the time of research. Disaster management is not explicitly mentioned in its Sectoral Outlay and Expenditure Plan for 2014–15.



	Disaster contingency plans for all departments	
	Within the SDMPs	Within annual development plans and state-level plans
Bihar	Bihar states that one of its objectives is to “mainstream [disaster management] concerns into the developmental planning process”. ³⁵ It is leading on disaster contingency planning, which includes office disaster management plans for all government offices across the state. Response plans are very detailed, with special emergency functions detailed for each hazard. Some <i>ex-ante</i> disaster management activities are also included.	Bihar’s Annual Development Plan has a section dedicated to disaster management, which includes early warning systems, emergency operation centres, capacity-building, awareness-generation and the provision of response equipment.
Gujarat	Gujarat’s SDMP includes highly detailed, hazard-specific disaster response and relief plans, which offer timelines for different responsibilities and outline which department(s) should be involved. For preparedness, the SDMP provides general guidelines for relevant line departments.	The Annual Development Plan has a section dedicated to disaster management, which includes a community-based disaster preparedness programme, a national cyclone risk-management project, regional emergency-response centres, and disaster-preparedness training.
Odisha	Departments have response plans, which are highly prescriptive and detailed. These include timelines for the submission of reports and for the activation of certain activities. The SDMP does not provide guidance on how to mainstream management activities across sectors, however.	The Annual Development Plan was unavailable at the time of research. There is an Annual Activities Report for 2013–14, but disaster risk activities are not included.
Uttarakhand	Uttarakhand’s SDMP frames the mainstreaming of disaster risk management primarily through the approval of projects and departmental schemes, in which all projects must undergo vulnerability and risk assessments before approval.	The Annual Development Plan was unavailable at the time of research, but the following do exist: a Sectoral Outlay and Expenditure Plan for 2014–15, the District Disaster Mitigation Fund, and the District Disaster Management Fund. In these, research and training, rehabilitation and externally funded disaster risk-reduction projects are all mentioned.

All states except Uttarakhand have detailed contingency plans for relevant ministries, with some states (e.g. Odisha) providing an extremely detailed departmental response plan for each type of hazard, including a reporting time frame for prescriptive activities. Such clear allocation of responsibilities is helpful for ministries that are involved in disaster response, rehabilitation and preparedness, although the majority of activities detailed in the SDMPs are

oriented towards emergency response, rather than the holistic mainstreaming of disaster risk management across departments or sectors.

Bihar has attempted to mainstream disaster management through its office disaster management plans, which are an innovative attempt to make disaster management central to the operation of all offices across the state. Though these plans are predominantly response-focused, they are a method for getting all offices to consider risks and are designed to create buy-in for the importance of disaster risk management. The guidelines for these plans mention disaster management (mitigation), but primarily focus on components covering contingency plans, such as safety-route mapping, early warning systems, first aid supplies, training and mock drills. While this is useful and important, it is just one component of the disaster management cycle and should not be considered as a sufficient mainstreaming exercise.

6.2 The need to build capacity for mainstreaming disaster risk management

Over the course of the interviews and the workshop, mainstreaming emerged as the best method of improving disaster risk management practices across all departments. However, during the workshop, the perceptions of what constituted 'mainstreaming' were primarily linked to disaster response, although some states have ensured that all development plans and schemes undertake disaster risk and vulnerability assessments before approval. Our research also revealed that, at present, state disaster management authorities are limited in terms of their human and financial resources, and rely on other state-level departments to take on disaster risk management in their own work in order to address the issue across other sectors. Nevertheless, as mentioned in Section 4, the SDMPs do not provide guidance for departments to budget and plan for risk-reduction activities.

Although the officials reiterated the importance of mainstreaming for disaster risk management, they do not always mainstream important issues from other departments, such as climate change, gender and social inclusion. This highlights an institutional barrier that is endemic to all departments. A study commissioned by the Climate and Development Knowledge Network (CDKN) on the inclusion of gender in climate change action plans³⁶ in India found that the National Action Plan on Climate Change failed to accommodate a gender dimension. These issues fell under different departments and thus were not integrated into planning, despite trends such as the feminisation of agriculture which mean climate-related issues are increasingly pertinent to women. Similarly, most disaster risk management plans acknowledge that vulnerabilities and capacities vary according to gender, culture, caste and disability, but provide little guidance on how to translate these differences into policy decisions (this is discussed in more detail in Section 7).

Overall, capacity-building is seen as the main tool for mainstreaming disaster risk management across different sectors and departments. All of the states reviewed have undertaken a training and needs assessment³⁷ and training is being undertaken in various ways (see Table 2). The majority of capacity-building activities are oriented towards emergency responses, but there are some exceptions. The Assam State Disaster Management Authority is planning to establish a "knowledge hub in disaster management with an aim to collaborate and connect stakeholders, share information and capture knowledge. The knowledge hub can serve as a regional hub for exchange of information and knowledge products in Disaster Management across North-East States of India. The platform can also serve as a nodal hub for interaction and responding during the time of crisis operations."³⁸

This will be a useful platform to support regional cooperation, but had not been put into operation at the time of the workshop.

Table 2. Capacity-building and training activities in the five states reviewed

State	Capacity building and training activities
Assam	<ul style="list-style-type: none"> • The Assam State Disaster Management Authority undertook a training needs assessment study in 2009, through which it identified 25 areas of training need.³⁹ It also identified key national resource institutions to develop and provide training modules based on results of the study. • Assam has run a number of sensitisation workshops for people with disabilities and older people. The Assam State Disaster Management Authority works with communities to deliver awareness-building activities, education and training, and practice through drills.⁴⁰ • It has outlined training and capacity-building roles and responsibilities for different departments, which include the provision of manuals, guidelines, plans and mock drills and simulations that are the responsibility of various departments. • The SDMP includes a section on funding for capacity-building from the Assam State Disaster Management Authority Fund. It is referred to as a capacity-building grant, for which the “Ministry of Finance has issued the guidelines for the utilization of the fund”.⁴¹ A total of 50 m Indian Rupees (5 crore) per year was allocated from 2010–15. • The SDMP states that “regular or annual exercises/emergency drills/mock drills provides the opportunity to validate the disaster management at all levels . . . [and is an] opportunity to network with all agencies and at all levels in real time”.⁴² Nevertheless, it is unclear how systematically this is completed, whether all departments or levels engage in these annual activities, and what learning is taken up following these processes.
Bihar	<ul style="list-style-type: none"> • The Bihar SDMP divides capacity-building into the second component of preparedness (the first is broken down by research, study and hazard-mapping). For each sector and each hazard, it suggests appropriate training programmes. These are primarily response focused (such as search and rescue) or infrastructure-related (including building codes, water resource management and designing disaster-resistant housing). • It mentions the importance of disaster-preparedness training at the community level. Descriptions of how this could work seem to show that this is generally through awareness-raising activities, but could also be applied through other training about early warnings, water management and roof infrastructure, depending on local needs. • Bihar places considerable emphasis on outreach through schools and ‘awareness weeks’, which are seen as low-cost methods of disseminating disaster management messages.

State	Capacity building and training activities
Gujarat	<ul style="list-style-type: none"> • The Gujarat SDMP states that training events are regularly conducted at the state level by the Gujarat State Disaster Management Authority, the Gujarat Institute of Disaster Management and the Sardar Patel Institute of Public Administration. • Training events are delivered at the district level under the Disaster Risk Management Programme. These are largely response-oriented, covering search and rescue, first responders, the management of emergency operation centres, flood rescue and 'training of trainers' to disseminate disaster-response training at the community level. • State officials mentioned the importance of mock exercises for testing preparedness, which can be hazard-specific or deal with a particular aspect of disaster risk management, such as hospital-specific training for crisis situations when regular functions may be overwhelmed. • Gujarat offers some training in disaster management, though much of this is focused on hard infrastructure, such as training for architects and engineers in safe construction.
Odisha	<ul style="list-style-type: none"> • The Odisha SDMP states that a training needs assessment workshop was organised in January 2013, which identified the training requirements of different stakeholders. NGO staff and the deputy collectors from 10 districts attended, though the SDMP does not give any indication of whether the training needed was ever implemented. • The SDMP lists all the training events that were planned for 2014–15. Of the 12 training programmes planned, eight addressed disaster-response and relief operations, and were primarily orientated around first aid.
Uttarakhand	<ul style="list-style-type: none"> • The Uttarakhand SDMP outlines that disaster management has been included within the school curriculum and is being delivered through a training programme at the college level, which includes lessons on first aid. • Following the major flooding in 2013, Uttarakhand held a 'Disaster awareness and mitigation day', during which awareness-raising programmes were organised through government departments, schools and at the community level. • Mock drills to practise what to do during a disaster have been carried out.

Recommendations

- It is vital that all departments **mainstream measures for disaster risk reduction**, rather than only focusing on their contribution to preparedness and response.
- There is a need to **expand capacity-building activities** on disaster management within departments, so that they include all stages of the disaster cycle, rather than the current emphasis on emergency response.
- States such as **Bihar and Gujarat provide useful models** for training on disaster risk reduction measures.
- To ensure disaster management is mainstreamed across all key state government departments, it is important to **ensure the participation of nodal officials** from all of them while revising SDMPs; working with **technical institutions and NGOs** to train nodal officials is also useful.

7. Promoting gender and social inclusion

Key messages

- All the SDMPs make explicit reference to considering the needs of women and marginalised groups, but women's needs are considered primarily in the context of disaster response.
- Some SDMPs include demographic data that are disaggregated by sex, age and disability, but these are not currently incorporated in vulnerability analyses.
- There is wide recognition of the need for community participation across all the SDMPs, but there is scope for greater clarity on what this means operationally.
- Social inclusion concerns are taken into account through village-level disaster management committees, which comprise representatives from marginalised groups.

7.1 The need to consider gender and disadvantaged groups

Marginalised groups are more likely to be affected by disasters; at the same time, disasters often exacerbate the vulnerabilities of these groups. In addition, marginalised groups are often excluded from disaster risk management decision-making and implementation processes, thereby further increasing their vulnerability.⁴³ This is why greater inclusion of these groups as active agents of change is important to effectively and equitably build resilience to disasters.⁴⁴ Therefore, analysing the degree to which the concerns of women and other marginalised groups are currently accommodated in the SDMPs is an important parameter.

Our research indicates that the state disaster management authorities seem to be genuinely willing and capable of taking a gender-sensitive approach to disaster risk management, but there appears to be confusion over what this entails and what constitutes a gender-sensitive approach.

7.2 Coverage within the SDMPs

Women, children and young people, older people, people with disabilities and issues of class/caste are, to varying extents, mentioned within the SDMPs. The states appear to have made significant achievements in catering to the specific needs of women, children and people over 65 years old within their disaster response planning. For example:

- Odisha makes special provisions for women and young children in cyclone shelters
- Assam provides special modules on women, children and pregnant women when designing a relief camp
- Women participate in training events (this is discussed further later in this section)
- There are some female-headed disaster risk-reduction groups at the community level.

However, most activities that aim to include women and other marginalised groups are still focused largely on disaster response. Moreover, the state disaster management authorities and the SDMPs do not systematically promote the inclusion of different gender perspectives, or explicitly address the different vulnerabilities and capacities of marginalised groups, in their



disaster planning or implementation. The *Report of the Task Force*⁴⁵ notes that protecting the interests of women, children, the disabled and the weaker sections of society needs greater prominence in future iterations of the national Disaster Management Act.

Moreover, states are not systematically collecting data disaggregated by sex, age, disability, caste, religion or other relevant socioeconomic factors, nor is there a central statistical database with information about past disasters. This makes it difficult to assess who is at risk and who has been affected. Nevertheless, some SDMPs provide non-disaster-related demographic data, such as population figures, that are disaggregated by sex, age and disability, which have been collated from the Indian census. This information is not currently incorporated into vulnerability assessments, however; this would be useful for understanding how hazard risks might affect different groups.

Coverage of these groups has other limitations.

- Disadvantaged and vulnerable groups are not homogenous; referring to poor and vulnerable women, for example, does not take into account the myriad ways in which different women prepare for, cope with and respond to disasters.
- Different castes and tribes are included within some of the SDMPs, but this inclusion is largely superficial. For instance, Odisha's plan describes 'scheduled tribes', which are disadvantaged in terms of assets, education and employment opportunities, but fails to provide specific guidance on how to address their capacities and vulnerabilities. Other states put the onus on district disaster management authorities to support these groups.
- Gender equality and social and cultural diversity are not promoted adequately within the SDMPs, and while it is important to recognise the different vulnerabilities and needs that exist within society in terms of social, economic, political or cultural marginalisation, the plans do not recognise the different strengths and capacities that different groups use to prepare for, cope with and respond to a disaster.

7.3 How to involve marginalised groups

The *Report of the Task Force*⁴⁶ underlines the importance of incorporating communities' duties, responsibilities and roles more explicitly, and community participation is highlighted in the five SDMPs reviewed. However, there is no further guidance for ensuring that marginalised groups are able to participate in decision-making processes and the implementation of disaster risk management activities. For example, the Uttarakhand SDMP states that it seeks to "bring forth maximum community participation in all disaster management related activities during every phase of the disaster management cycle"⁴⁷ but there is little clarity about what this involves, how the state aims to promote gender equality and social inclusion, who they are planning to include and how they are going to achieve this.

The same is true in Gujarat. Its website mentions pilot projects that aim to mainstream gender in disaster risk reduction through making this "inclusive of the needs and capacities of women and mak[ing] them participants of disaster management processes", but does not elaborate on how this is going to be achieved.⁴⁸ Only Odisha's SDMP explicitly refers to the need to integrate local and traditional knowledge and practices. None of the SDMPs refer to how such knowledge could contribute to the development or revision of the SDMPs or disaster risk management activities, however.

In some cases, the SDMPs mention the need to work with local NGOs, but do not explicitly promote an enabling environment for marginalised groups and grassroots organisations to

lead or participate in decision-making processes, programme design or implementation for disaster management. The SDMPs do, in some cases, highlight the inclusion of marginalised groups within village-level or community-based disaster management committees, and our research revealed that women are included within training events, workshops and leadership roles.

On the ground, however, such principles are not always sufficient. The participation of women is not equivalent to the empowerment of women. In reality, participatory village-level committees are often captured by elite groups or reflect local power dynamics, so it is difficult to verify the degree to which women are active participants in community-level disaster risk management. In addition, although there is a legal quota for including marginalised groups in such processes, this does not guarantee meaningful participation or empowerment of the most vulnerable groups – this was an issue highlighted through the research and workshop.

Moreover, opportunities for women's participation in training come mostly from being the recipients of awareness campaigns. For instance, the Assam SDMP highlights that 40% of the people who participate in training events in the state are women, but during the workshop, a representative from Assam stated that when she had discussed the option of organising gender training for other government officials, for instance on gender equality or gender mainstreaming across sectors, she was only asked to create a guideline note. She argued that guideline notes were not sufficient, because "without sensitivity training, no one would bother reading it".

All of the SDMPs made reference to the Ministry of Women and Child Development in the sections discussing roles and responsibilities during the disaster management cycle, although this was usually only in terms of post-disaster responsibilities. Uttarakhand's SDMP mentions that the Ministry of Women and Child Development is responsible for all gender and social issues, but doesn't provide any guidance on what this means in practice.

Gender-responsive budgeting (the need to include gender equality principles within financial decisions, allocation and implementation) was highlighted as an important aspect during the workshop, although it is not discussed in the SDMPs. This was adopted in India in 2005 through the Ministry of Finance and includes women-specific schemes (those which have a 100% allocation for women) and pro-women schemes (those in which at least 30% of the allocation is for women).⁴⁹ All of the states reviewed have adopted gender budgeting.⁵⁰ The review process highlighted, however, that in reality this is being included "superficially by accountants at the end of the financial year" rather than as a tool to mainstream gender in disaster planning.⁵¹

Recommendations

- The **needs of women and other marginalised groups must be considered across all types of disaster risk management activity**, rather than only response and relief activities, as is currently the case.
- Publicly available census data on **sex, age and disability need to be included** in vulnerability analyses when revising the SDMPs.
- The revised SDMPs should not only reflect the particular needs of women and other marginalised groups, but also their **ability and capacity to cope with shocks and stresses**.
- Clearer guidelines need to be issued for the **genuine participation of vulnerable communities** in processes to develop district disaster management plans
- Officials from state disaster management authorities should undertake rigorous training on **gender-responsive budgeting and gender mainstreaming**.

8. Do the SDMPs align with the Sendai Framework for Disaster Risk Reduction 2015–2030?

Key messages

- The SDMPs reviewed already address many of the Sendai Framework's objectives, but there is scope for setting much clearer targets and measuring progress against these.
- To a large extent, the state disaster management authorities only collect data after a disaster has happened; the systematic collection of data on pre-disaster conditions would help them to measure states' ability to anticipate, absorb and adapt to shocks and stresses.

A number of international policy frameworks were agreed in 2015: the Sustainable Development Goals, the Paris Agreement on climate change (agreed at the 21st Conference of the Parties) and the Sendai Framework for Disaster Risk Reduction 2015–2030. These provide countries and states with an opportunity to upgrade their policies and plans to align with these processes, and combine the development, disaster risk reduction and climate sectors, which will support efforts to eradicate poverty by 2030 in the face of growing disaster risks.⁵²

Of these, the Sendai Framework is particularly important for two reasons: India is a prominent signatory, and the union minister of state for home affairs, Shri Kiren Rijiju, was recently designated as the disaster risk reduction champion for the Asia region by the United Nations Office for Disaster Risk Reduction.⁵³ Additionally, the Sendai Framework highlights the critical importance of subnational and local governments in reducing disaster risk: the importance of local context is mentioned 72 times in a 37-page document. This is also why India's delegation to the World Conference on Disaster Risk Reduction 2015 in Sendai, Japan (where the framework was agreed), included representatives of state-level and subnational governments.

The Sendai Framework supersedes the Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters and was adopted at the Third UN World Conference in March 2015. Building on the Hyogo Framework for Action, its overarching objective is to substantially reduce disaster risk and losses in terms of lives, livelihoods and health, and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.⁵⁴ While it does not set quantitative targets, it contains four priorities for action (see Table 3). Furthermore, seven global targets have been agreed, with national targets and indicators yet to be set:

- A. Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015.
- B. Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015.
- C. Reduce direct disaster economic loss in relation to global gross domestic product by 2030.
- D. Substantially reduce disaster damage to critical infrastructure and disruption of basic



services, among them health and educational facilities, including through developing their resilience by 2030.

- E. Substantially increase the number of countries with national and local disaster risk-reduction strategies by 2020.
- F. Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030.
- G. Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

The last stage of our analysis considered the extent to which the vision, objectives and strategies outlined in the five SDMPs align with the targets and priorities for action outlined in the Sendai Framework. (Annex B provides a summary of alignment with both the Hyogo Framework Agreement and the Sendai Framework.)

8.1 Alignment with the Sendai Framework

The SDMPs reviewed address many of the Sendai Framework’s overall objectives. For example, all of the SDMPs have an overarching objective of reducing the number of people killed and affected by disasters. While the SDMPs reviewed generally reflect a limited understanding of disaster resilience, as mentioned in Section 3, some states go beyond the Sendai Framework in their stated ambitions, aiming to build resilience. Assam’s SDMP, for instance, outlines the state’s approach to disaster management, which takes a “resilience approach”, as well as a “comprehensive risk management approach”; an “all hazards approach”; and an “all agencies” approach.⁵⁵

In addition, no state appears to have yet made the link between the Sustainable Development Goals and the Sendai Framework’s priorities for action. However, a number of states in India, including Assam and Bihar, have already held consultations on aligning their plans and work with the Sendai Framework. Notably, through these consultations, the Government of Bihar is developing a 15-year Disaster Risk Reduction Roadmap.

Looking more specifically at the Sendai Framework’s components, Table 3 summarises the alignment of the SDMPs with the Sendai Framework’s four priorities for action.

Table 3. Alignment between the SDMPs and the Sendai Framework’s priorities for action

Priority for action	Alignment
1. Understanding disaster risk	Most SDMPs are informed by the <i>Vulnerability Atlas of India</i> , which is useful for understanding the exposure of particular geographic areas, but is less useful for understanding inherent socioeconomic vulnerabilities (see Section 5). In addition, while data are being collected through vulnerability assessments, there is limited use of scientific and other socioeconomic data that could provide a composite analysis of how hazard exposure interacts with vulnerability, and increase the holistic understanding of disaster risk.

Priority for action	Alignment
2. Strengthening disaster risk governance to manage disaster risk	<p>India has made great progress in setting up a governance structure to support disaster risk governance across the country, and in outlining the roles and responsibilities associated with different stakeholders. The Disaster Management Act 2005 also provided mandates that support the full disaster management cycle.</p> <p>Nevertheless, there is still a need for the full disaster management cycle to be incorporated into the disaster risk governance activities and structures outlined within the SDMPs and the state disaster management authorities, and for cross-sectoral development planning to incorporate disaster risk reduction to manage disaster risk effectively (see Section 3).</p>
3. Investing in disaster risk reduction for resilience	<p>As Section 4 highlights, funds for disaster risk management and investment in disaster risk reduction are limited across the five states reviewed, despite the mandate to do this in the Disaster Management Act 2005 (see Section 4). In addition, due to a limited understanding of resilience and the fact that resilience is seen as something additional to disaster risk reduction, activities that could contribute to building resilience are not always considered in investment planning.</p> <p>There is also still the need for better public–private partnerships, multi-sector engagement and investment across different ministries and stakeholders to support the mainstreaming of disaster risk reduction across development policy and planning.</p>
4. Enhancing disaster preparedness for effective response and to ‘build back better’ in recovery, rehabilitation and reconstruction	<p>As Section 3 reveals, while the SDMPs demonstrate a high degree of sophistication in terms of disaster response, the areas of recovery, rehabilitation and reconstruction are weaker. There is potential for disaster preparedness and risk mitigation to be articulated more clearly within the SDMPs and activities, and for a more holistic approach to be taken to disaster risk management across different scales and sectors.</p>

In terms of their approach, the five states reviewed are already contributing to these priorities to varying degrees. There are, however, areas for improvement, and national and state laws and regulations, as well as the SDMPs, need to be updated to take into account the Sendai Framework’s priorities for action, targets and means of implementation. This should “stimulate and contribute to developing the knowledge, capacities and motivation for disaster risk reduction at all levels”⁵⁶ Under each priority for action, the Sendai Framework has a section reflecting on what stakeholders at national and local levels need to do to achieve that priority. This could help states to update their SDMPs and contribute to meeting these objectives.

Setting realistic quantitative targets around disaster management is difficult, both politically and technically. On the technical side, Sendai targets are tightly focused on disaster impacts, rather than on changes in policy, land use and compliance with building codes. If a state was hit by an outlier disaster event with massive economic and human losses, evidence of achievements in implementing disaster risk reduction policy would be engulfed by the magnitude of the disaster. Quantitative indicators in a simple index do not control for the hazard profile of a location, nor the intensity of a disaster event; a state that improved disaster governance but suffered from an unusually large disaster would fare worse against targets than a state which made little progress but was unaffected.

Secondly, designing a quantitative target carries political implications. The use of quantitative metrics tends to gravitate towards rankings, encouraging states to benchmark scores against each other instead of measuring internal progress. Ranking states can be indicative of how to direct technical support or funding, but can also highlight inequalities and political differences. This, however, was not perceived as an issue at the November 2015 workshop, where state officials mentioned that having a platform to compare progress on disaster risk management would be useful and encourage collaboration and leadership.

Table 4 identifies the areas where there is an alignment between the Sendai Framework and the SDMPs reviewed; we have also made recommendations for where there could be further alignment.

Table 4. Alignment with the global targets in the Sendai Framework

Target	Explicit/implicit alignment	Recommendations
A) Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015	States are tracking the number of people killed after a disaster and can measure progress in this area. In addition, some states include similar goals within their plans: Assam has a goal under its hazard-risk management section of “minimising loss of life and injuries.” ⁵⁷	There is no shared definition as to what constitutes a disaster, particularly for slow-onset events, and how to track disaster mortality. ⁵⁸ There is a need to track changing risk, and risk of losses, through models rather than only measuring disaster impacts. Combining observed data with predictive models would enhance the monitoring and analysis of disaster mortality trends and the factors that cause mortality, which would in turn strengthen disaster management plans and reduce disaster mortality in the future. ⁵⁹ It is essential that both slow- and rapid-onset disaster events are taken into account and that data is disaggregated by sex, age, disability and culture, so that it is possible to identify who is most at risk and who has been killed by a disaster.
B) Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015	States are already collecting some data that contribute to tracking progress against this target, but there is a lack of baseline data and available data that are disaggregated by sex, age, disability and culture. This makes it difficult to analyse who is exposed and who is being affected by disasters. Some states include similar goals within their plans: Assam has a goal under the hazard risk mitigation section to “minimize loss of life and injuries.” ⁶⁰	States should set a baseline and collect data that are disaggregated by sex, age, disability and culture. This would help them monitor and analyse the number of people exposed to natural hazards, as well as those directly and indirectly affected by slow- and rapid-onset disasters. This could subsequently help to ensure that adequate resources, aid and support are provided to people in need – before, during and after a disaster.

Target	Explicit/implicit alignment	Recommendations
C) Reduce direct disaster economic loss in relation to global gross domestic product by 2030	Post-disaster needs assessments are commonly incorporated within the SDMPs and most, if not all, states collect information on how many houses have been damaged, how many villages have been affected, the crop areas that have been destroyed, and so on. This can tell us a lot about the direct economic impacts of a disaster, which is in line with Target C. However, no information on indirect secondary or tertiary losses is currently being recorded.	Economic losses from disasters are increasing as more assets are exposed to natural hazards. Collecting accurate data on disaster losses and monetising indirect losses are often a challenge, particularly at the state level. Nevertheless, it is important to view economic losses from disasters as a proportion of a state's economic growth. It is necessary to set a baseline in order to collect data against both direct and indirect economic losses in order to measure progress in this area, as well as to allow for comparisons between time periods.
D) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030	Some states are already measuring the number of houses and villages damaged by disasters. For instance, the Odisha SDMP provides examples of the potential effects of disasters on various types of infrastructure, although it does not quantify the possible impacts on these; Assam has a goal under the hazard risk management section to minimise damages and disruption to services; while Bihar collects data on losses to public and private infrastructure after every disaster. States are also already collecting some data on preparatory parameters, such as participation in mock drills, number of hospital beds, training and capacity-building in first aid and disaster response, surveys to measure evacuation behaviour, and so on.	Understanding the monetary value of damage to critical infrastructure and basic services needs to be prioritised, particularly as the exposure of these is likely to increase. ⁶¹ This could be achieved through comprehensive multi-hazard assessments of disaster risk to critical infrastructure and basic services. Baselines should be established using all available information sources at global and national levels, including observed losses and, where available, risk models and scenario analysis. This will provide an insight into the potential for a hazard to translate into a disaster. ⁶²
G) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030	The need for early warning systems is included in all of the SDMPs, but information about the availability of, and access to, multi-hazard systems, and whether these assess peoples' needs, is not included. There are also currently no baseline data available to measure progress in this area.	There has been great progress in the availability of early warning systems across India, which has helped to save lives and assets. However, access to this information is often dependent on social, economic, cultural and political processes, and ensuring it reaches the most vulnerable people is a challenge. Collecting information about the availability of multi-hazard early warning systems, and the number of people who have access to this information, would help provide a baseline of the coverage and quality of these early warning systems. It is also important to assess how this information is being communicated, and whether the early warning systems are people-centred and reflect the local context, peoples' needs in terms of climate information and early warnings, as well as current and future risks. ⁶³

The five SDMPs reviewed are predominantly overarching documents, which do not set specific targets or measure progress against these. In fact, systematic data collection among the state disaster management authorities reviewed is generally weak. Our analysis revealed that state disaster management authorities only collect data on loss and damage *after* a disaster has happened, using a post-disaster needs assessment. This means that most SDMPs are able to provide some data, which can contribute to measuring targets A, B and D. However, there is limited baseline data available to measure progress against these targets, and states are not collecting data disaggregated by sex, age, disability and ethnicity, making it difficult to understand and track who has been most heavily affected by a disaster event, whether directly or indirectly.

At present, there is no systematic data collection of pre-disaster conditions. This would help track a state's ability to anticipate, absorb and adapt to shocks and stresses.⁶⁴ Yet India has a central data system, the Open Government Data Platform India, where all different ministries can upload and access different cross-sector datasets. This is a huge resource which could be used to measure changes in vulnerabilities and capacities within different states. This resource is not currently being used effectively as the state disaster management authorities do not feel that they have the capacity, time or resources to collate or analyse these datasets. Changing this situation would help them to analyse the data that already exist and compliment the data they are collecting on disaster losses. Another step forward in measuring disaster risk could result from collaborating with technical institutions to develop risk models at regular intervals, which would provide an *ex-ante* estimate of risk and facilitate action in advance of hazards.

India's Disaster Management Act 2005 states that all SDMPs should be reviewed and updated annually.⁶⁵ While all of the SDMPs recognise that the plans should be monitored, evaluated and updated, only Gujarat has achieved this to date. The adoption of the Sendai Framework provides an opportunity for India to put in place monitoring parameters that apply to all states and transform the SDMPs into useful guidelines that can be consulted in everyday operations and updated to reflect progress. This would enable states to assess their own progress, as well as compare strengths and weaknesses against each other. This concept had considerable interest and buy-in from the state officials involved in the November 2015 workshop and could enhance learning and healthy competition between states. It could also enhance subnational cooperation, something Assam is keen to develop for states experiencing similar hazards in north-east India.

Finally, it is clear that there is a strong case for national disaster risk management institutions to take a leadership role in preparing guidelines and/or a national-level framework to support subnational governments in aligning with the Sendai Framework. These should draw on the groundwork laid by states such as Bihar in the subnational implementation of the Sendai Framework.

Recommendations

- The state disaster management authorities should hold consultations on **aligning their SDMPs with the Sendai Framework**. Previous consultations by states including Assam and Bihar provide a template that could be followed.
- Collaboration with state and central scientific institutions (e.g. Indian Institutes of Technology, think tanks, universities) would help state disaster management authorities to track changing risk and risk of losses through modelling, rather than only measuring disaster impacts.
- States that have explicitly stated their wish to align with the Sendai Framework (e.g. Bihar and Gujarat) should provide details on the **methods through which they will measure progress** towards this.
- States should **set baselines and collect data** that are disaggregated by sex, age, disability and ethnicity. This should include setting baselines for the number of people covered by early warning systems in order to track changes over time.
- The National Disaster Management Authority should **prepare guidelines and/or a framework** to support subnational governments in aligning with the Sendai Framework.

9. Conclusions

This report provides an overview of how the SDMPs from five diverse states fare against six key parameters. As a starting point, our analysis found that these SDMPs need to consider all stages of the disaster management cycle, as opposed to their current emphasis on response and relief. This is due to different factors, including the lack of clarity regarding roles, responsibilities and financing for risk-reduction activities; these issues need attention when revising the SDMPs.

While response and relief measures have been mainstreamed across government departments, there is still a need to mainstream disaster risk management. Moreover, our research found that data on hazard exposure were largely being used to identify areas that needed attention and that there was further scope to understand the inherent socioeconomic vulnerability of populations. Key to understanding this is understanding the needs of women and other marginalised groups. All the SDMPs discuss these groups, but only consider their needs in the context of response or relief, rather than understanding their place in all stages of the disaster management cycle.

Finally, our review found a reasonable degree of alignment between the SDMPs and the Sendai Framework for Disaster Risk Reduction 2015–2030. Most SDMPs are set to help measure progress towards substantially reducing global disaster mortality (target A), substantially reducing the number of affected people (target B) and substantially reducing disaster damage to critical infrastructure and the disruption of basic services (target D). That said, states need to urgently prepare baselines against which to track progress.

Overall, the SDMPs provide a credible approach to systematically tackling a variety of disasters, but integrating the findings and recommendations from this research will further improve their potential to ensure that India not only functions in the face of increasing disasters, but flourishes.

Further reading

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Annex A. Approaches to the disaster management cycle

State	Approach
Assam	<p>Assam's SDMP summarises an integrated approach to disaster management, which includes a comprehensive risk management approach; an all hazards approach; an all agencies approach; and a resilience approach. The comprehensive risk management approach focuses on five key mission areas of disaster management: preparedness; prevention; risk reduction; response; and rehabilitation.</p> <p>The plan recognises that there has been a call for a "paradigm shift in disaster management, [with a change in] focus from reactive to proactive measures i.e. from relief to prevention and mitigation of disasters".⁶⁶ Although the Assam State Disaster Management Authority has already initiated a range of activities, including on hazard response, and many of which are outlined in the SDMP and on its website,⁶⁷ interviews highlighted that the SDMP needs to include action-specific plans for risk reduction and preparedness in particular, so as to enhance progress against its objectives.</p>
Bihar	<p>Bihar's SDMPs makes a distinction between risk management and crisis management. However, as with all the SDMPs reviewed, the focus is more on crisis-management and emergency-response capabilities, rather than longer-term risk reduction. It is notable for its focus on 'building back better' as a component of rehabilitation, though whether this is simply an inclusion of terminology around disaster risk reduction, or is actually being applied at the community level, is not clear. The Bihar SDMP tends to be illustrative about disaster risk management actions rather than prescriptive and exhaustive. The underlying assumption is that many risk reduction measures will be determined locally.</p>
Gujarat	<p>The Gujarat SDMP is heavily focused on response, but it is more advanced than the other plans reviewed in terms of its inclusion of risk reduction and preparedness. The Gujarat State Disaster Management Authority website includes a section on hazard risk management studies;⁶⁸ the Authority has also developed disaster management plans for different types of hazards, which include outlining processes for the different stages of the disaster management cycle by hazard type. These recommendations are general and not prescriptive, serving as a roadmap rather than a guiding document.⁶⁹</p>
Odisha	<p>The Odisha SDMP is heavily focused on responses and emergencies. All contingency plans are extremely detailed however, outlining the nodal officers responsible for each function and how activities are to be divided between different sectors.</p>
Uttarakhand	<p>The Uttarakhand SDMP includes some useful insights into how the state understands the different terms of disaster risk reduction, management, preparedness and response; recovery, on the other hand, is barely mentioned. But while the SDMP defines the different terms and the scope of work required for different aspects of disaster management, it does not clarify how the state is going to implement these activities, nor what the challenges are for doing so. The interview respondent noted that while the SDMP is not a living document, it is being used to some extent as a guideline for people implementing actions on the ground. In terms of communication and responding to a crisis, the SDMP is extremely detailed in outlining district-wide and state-wide communication, focal points and who to contact under various states of emergency.</p>

Annex B. Acknowledgement of the Hyogo Framework and/or the Sendai Framework within the SDMPs and State Disaster Management Authority websites

Acknowledgement of the Hyogo Framework and/or the Sendai Framework within SDMPs and state disaster management authority websites		
State	SDMP	State disaster management authority website
Assam http://asdma.gov.in	<p>Under the hazard-risk management section, Assam includes a number of goals that align with targets A and B of the Sendai Framework (minimise loss of life and injuries) and target D (minimise damages and disruption to services).</p>	<p>The website does not mention the Hyogo Framework or any Sendai commitments, but Assam has held a consultation meeting to discuss how to align their work more closely with the Sendai Framework.</p>
Bihar http://bsdma.org	<p>The Government of Bihar organised a conference on disaster risk reduction to guide action towards the achievement of the Sendai targets, and adapt these to the local context. The state is developing a 15-year disaster risk reduction roadmap (see www.bcdrr.org/Declaration.aspx).</p>	<p>The Hyogo Framework is mentioned on the website (http://bsdma.org/Act-Policies.aspx), but this could be updated to include the Sendai commitments.</p>
Gujarat www.gsdma.org	<p>The SDMP explicitly includes the seven global targets, the guiding principles and the priorities for action from the Sendai Framework. However, it does not mention how progress will be tracked against these.</p>	<p>The website acknowledges, in the section on the right to information, that the SDMP for 2015 has been revised with a focus on the Sendai Framework (see http://gsdma.org/chapter-xiii.aspx).</p>
Odisha www.osdma.org	<p>The vision, objectives and strategies outlined in the SDMP are not currently closely aligned with the targets and priorities outlined in the Sendai Framework.</p>	<p>The website does not mention either of the international frameworks.</p>
Uttarakhand www.ndma.gov.in/en/uttarakhand-sdma-office	<p>The vision, objectives and strategies outlined in the SDMP are not currently closely aligned with the targets and priorities outlined in the Sendai Framework. The two areas most closely aligned are to targets D and E.</p>	<p>The website does not mention either of the international frameworks.</p>

Endnotes

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www.cdkn.org

[e: enquiries@cdkn.org](mailto:enquiries@cdkn.org)

t: +44 (0) 207 212 4111

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