



# **HANDBOOK FOR DISTRICT COLLECTORS ON**

Climate Resilient - Disaster Risk Reduction

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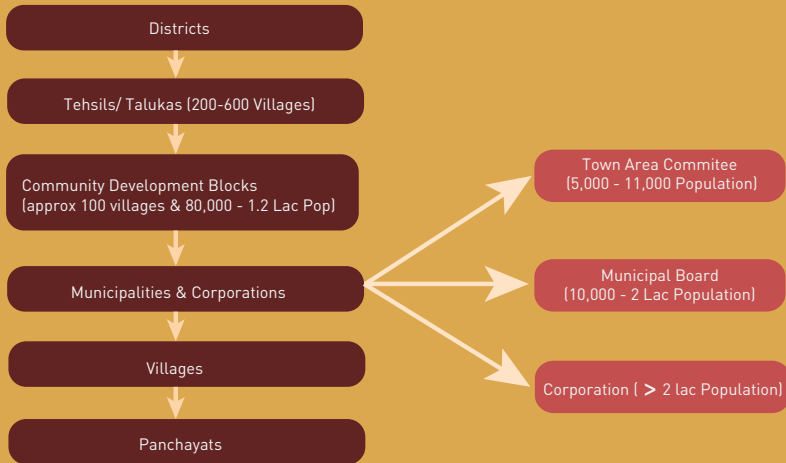
## What's in the Handbook?

- Explanation of drivers that put districts at risks
- Definition of CCA-DRR and its relevance in making disaster resilient districts
- Important considerations in integration of Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) in developmental activities
- Overview of plans and policies that will enable investment in disaster risk reduction
- CCA-DRR integration through various mitigation measures
- Self-assessment tool for implementing, monitoring and updating DRR activities

## WHO SHOULD USE THIS HANDBOOK?

- District collectors, Magistrates, Sub-national level officials, Development/Line departments and Public services who address risk factors within development planning/activities
- Officials of Urban Local Bodies and Panchayati Raj Institutions who implement the programs
- Academia, Universities, Research institutes who can help in documentation, assess past and potential hazards and related risk scenarios
- Citizen groups and civil society as a whole

### District Level



## WHY CLIMATE RESILIENT DRR?

- India faces the challenge of sustaining its rapid economic growth while dealing with the global threat of climate change and increased rate of disasters
- Some examples of recent climate related disasters: Chennai floods (2005, 2014, 2015, 2016), Bengaluru flood (2005 and 2016), Maharashtra, MP, Bihar and Assam in 2016, and the most devastating recent Gurugram floods of 2016, Uttarakhand flash floods of 2013, Bundelkhand drought, etc.
- Thus, there is a need for an integrated approach with inclusion of policy makers, planners, scientific fraternity and communities to work together to develop appropriate strategies to mainstream Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) into development plans and programs

## WHY DISTRICT COLLECTORS/ MAGISTRATES?

- The District Collector being the head of the district can guide the allocation of resources towards the protection of life and assets, restoration of productive systems and livelihoods, regaining market access, rebuilding social and human capital and physical and psychological health
- As per the Disaster Management Act 2005, he/she is the institutional head of disaster management and development at district level
- There is a tremendous potential to reduce vulnerability and risks through integration of DRR in national and state schemes through structured frameworks and operational measures which a Collector can very effectively help in proper implementation

A map of India is shown with several regions highlighted in yellow, indicating areas prone to various natural disasters. The background is a dark teal color with a repeating pattern of white icons related to sustainability and disaster relief, such as wind turbines, houses, light bulbs, and people holding hands.

about

**60%**

of the landmass is prone to earthquakes of various intensities

over

**40 MILLION**

hectares is prone to floods

about

**8%**

of the total area is prone to cyclones

**68%**

of the area is susceptible to drought

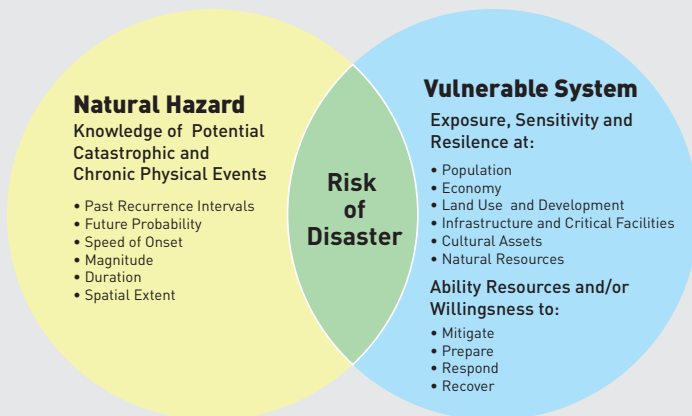
Source: [www.unisdr.org/2005/mdgs-drr/national-reports/India-report.pdf](http://www.unisdr.org/2005/mdgs-drr/national-reports/India-report.pdf)



## This Handbook

has been developed for authorities at the district level and other local governments for a practical guide on the “Essentials of Making Districts Climate Resilient” and to help and implement risk reduction initiatives at sub national level that will further help in achieving the goals of United Nations Sustainable Development Goals, Sendai Framework for Disaster Risk Reduction and targets of Paris Climate Agreement to which India is also a party and committed to Sustainable Development. Lessons of CDKN supported studies implemented by GEAG, ISET and lessons drawn in technical cooperation with NIDM experts have been utilized in developing the disaster framework for district and sub-district/local level to assist the District Collector-cum- District Magistrate to guide, oversee and ensure the implementation of disaster risk management at all levels in a district area.

All over the world, the frequency and the severity of disasters, caused by climate related events have been increasing. India too is vulnerable to a large number of natural as well as man-made disasters, in varying degrees, on account of its unique geo-climatic and socio-economic conditions. When a district is hit by flood, drought, landslide, earthquake, cyclones and other related hazards, district officials and planners need right information, resources and tools to combat the disastrous consequences. Such information/tools can only be a result of preparedness initiatives. District officials also need to mainstream these climate resilient initiatives into various developmental schemes that are regularly implemented.



**FIGURE 1:**  
 Natural hazard and vulnerability



## HAZARD AND DISASTERS: VULNERABILITY AND MAINSTREAMING MATTERS

Natural hazards by themselves do not cause disaster. It is the combination of an exposed, vulnerable and ill prepared population or community with a hazard event that results in a disaster. Climate change is known to aggravate disaster risks in two ways; firstly through the likely increase in weather and climate hazards by altering climatic patterns extreme events, and secondly through increase in the factors contributing to community vulnerability to natural hazards, particularly by affecting ecosystem structure and services, reductions in water and food availability, loss of infrastructure and changes to livelihoods; thereby affecting their social and economic resilience.

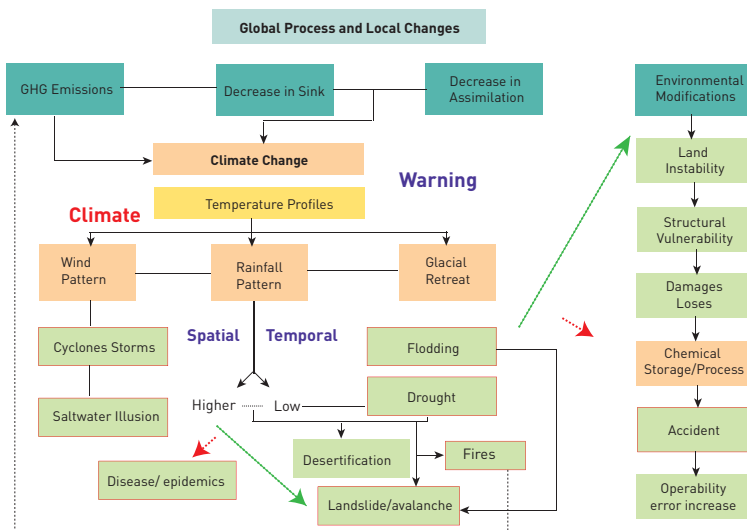
## ADDRESSING CLIMATE RISKS: WHY?

Over the past decades, it has been observed that certain hazards occur in a few regions, which was not the case in the past. One of the striking features observed is that many areas which were not conventionally “flood prone” are now facing devastating floods, some examples being the Chennai floods (2005, 2014, 2015, 2016), Mumbai floods (2005 onwards), Bengaluru floods (2005 and 2016), Kashmir flood (2014) and the more recent devastating Gurugram floods of 2016. Thane Cyclone, El Nino events, Uttarakhand Cloud Burst and flash flood of 2013, recurrent Bihar floods, excessive rainfall in the month of March in Uttar Pradesh in 2015, Bundelkhand drought, Heat wave of 2015-16, Forest fire 2016; all these have raised serious concerns on the preparedness and response, as well as the inability to address root causes of impacts at local levels. Recent studies show the concentration of extreme rainfall in India, which is evident by the changed rainfall central pattern in many districts of Madhya Pradesh in recent years. Such disastrous events now occur almost regularly, not only bring misery to numerous people more frequently, but also result in an outbreak of serious epidemics such as, malaria and cholera, besides causing serious ecological and economic challenges. Even as the community at large is trying to cope with these recurrent occurrences, the economic and social costs continue to mount year after year. Thus, there is an urgent and strong need to have an integrated approach with involvement of policy makers, planners, scientific fraternity and communities to

work together to develop appropriate strategies to mainstream Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) into development planning process.

## RECOGNIZING DISASTER-DEVELOPMENT-CLIMATE NEXUS

In our administration system, disaster management comes under Revenue and Relief Administration whereas climate risk and related subjects comes under the jurisdiction of the Ministry of Environment, Forest and Climate Change and the concerned State Department of Environment. The Disaster Management Act, 2005 and Disaster Management policy 2009, envisages disaster risk reduction instead of conventional relief centric approach, which was followed by state departments in the past. Now, it is mandated that every department must prepare a departmental level DM plan and allocate a specific budget for DM (preparedness and risk mitigation, both). CCA and DRR approaches are integrated to some extent at national level; Through India’s commitment to Hyogo Framework for Action, 2005-15, Sendai Framework 2015-2030, the National Action Plan on Climate Change (NAPCC, 2008), and other ministerial level programs. Furthermore, an



**FIGURE 2:** Environment, climate change and disasters-schematic work (Source: Gupta et al., 2014a)

array of sectoral departments such as Water Supply, Health, Agriculture, Rural Development and Urban Development, Housing, Forests, Environment, Irrigation/Water Resources, do undertake activities that influence climate and disaster resilience. However, when the overall implementation of such projects and schemes is observed at the state or district level, it is seen that low horizontal & vertical coordination exists between departments, especially on integration of DRR and CCA concerns into their sectoral programs. These gaps undermine the ability to translate concepts and DRR or CCA policies into execution/action on the ground.

The year 2015 was a landmark year for the United Nations and Global Development Agenda. The convergence of interests and global concerns for sustainable development, disaster risk reduction and climate change has led to the formation of a new roadmap for a sustainable and safe world together; The Sendai framework for disaster risk reduction, The Sustainable Development Goals and The Paris Climate Agreement. These agreements of global significance provide opportunities to build coherence across different but overlapping policy areas. A brief about the goals of these three significant frameworks is mentioned below:

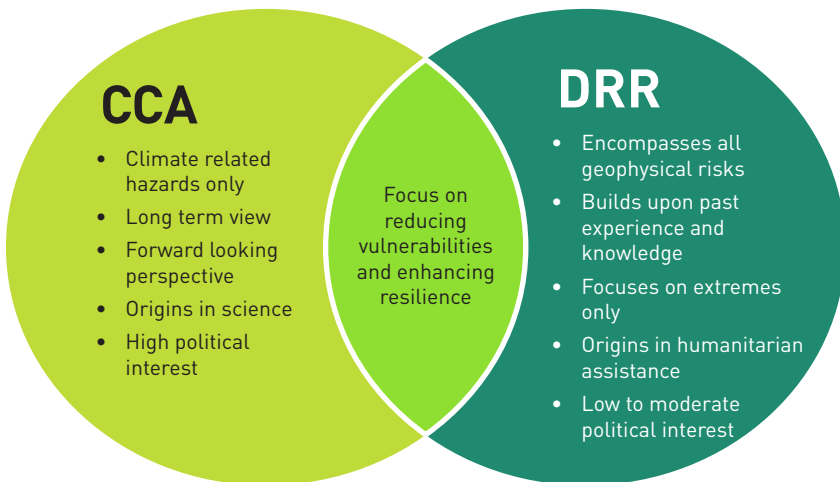
Environment, disaster and development are inextricably linked and have to be dealt proactively and in an integrated manner to reduce the risk (of disasters or losses) and to harness the maximum benefits of development for society and economy, is the basis of sustainable development. Thus, Disaster Risk Management (DRM) has two major facets – One: The disaster reduction which builds on preventive and mitigation actions, largely converges with environmental action and utilizes Climate Change Adaptation as key means, and Two: Proactively planned and tested Disaster Response Coordination Plan. Both the Facets of DRM concern to avoid or minimize environmental compromises, and maximizes resilience of communities and governance to climatic risks.

**TABLE 1: GLOBAL FRAMEWORK AND INDIA'S COMMITMENT**

Global framework / Goals/ Agreement	Thrust point	India's Stand
<b>Sendai Framework for Disaster Risk Reduction, 2015-2030</b>	It is a non-binding voluntary agreement for 15 years which recognizes the responsibility of countries for DRR and the shared responsibility with their local government, private sector and other stakeholders. SFDRR improves on HFA by identifying the gaps, good lessons learned and future challenges.	India is a signatory to SFDRR and is attempting to comply with it on a voluntary basis. The recently released <b>National Disaster Management Plan of India (NDMP)</b> , 2016, incorporates the approach articulated in Sendai Framework to achieve substantial reduction in disaster risk and losses in lives, livelihoods, and health and in the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries.
<b>Sustainable Development Goals (SDGs)</b>	It includes 17 global SDGs with 169 targets. Twenty five targets of the new SDG Framework are directly or indirectly related to DRR in 10 of these 17 SDGs. The agenda identifies and asserts the immediate need to reduce climate & disaster risk, and emphasizes resilience building of communities and nations to achieve the SDGs.	Explicit references for DRR, CCA and resilience can be observed in goals and targets specially related to poverty, hunger, healthy lives, building resilient infrastructure, education, sustainable management of water, climate change, resilient and smart cities.
<b>Paris Climate Agreement, 2015</b>	Paris Agreement is legally binding to all the parties unless specifically excluded. It contains all greenhouse gas emissions from all sectors and human activities, sources and sinks. The agreement will bring about a process of maintaining a balance between mitigation and adaptation. In future approaches of climate adaptation, the loss and damage caused by disasters will be better incorporated to accomplish the goal of climate resilience. The preamble of agreement mentions about the adoption of Sendai Framework for Disaster Risk Reduction.	India ratified the agreement on 2 <sup>nd</sup> October, 2016.

# PARADIGM SHIFT IN DISASTER MANAGEMENT: NEED AND MAINSTREAMING

In India, the DM framework at the implementation level still focuses primarily on disaster preparedness and response. Aspects of climate change mitigation/adaptation as part of disaster management framework are not recognized in the DM Act, although the DM Act defines ‘damage or loss to environment’ as ‘disaster’, lays key emphasis on prevention-mitigation and capacity building, and refers to ‘sustainability’, ‘land-use’ and ‘environment’ in context of planning DM measures. However, there is no specific provision for assessing environmental damage/restoration of environment after disasters, despite the fact that the environment is always at stake during relief, recovery and reconstruction process. This actually leads to rebuilding risk and results in aggravated or new disaster risks for the future. MoEF&CC is the nodal Ministry designated for chemical disasters and (now also for) forest fires. The Environmental Protection Act 1986 (EPA) covers issues and aspects related to various climate related hazards and factors of environmental vulnerability in indirect ways, although a visible emphasis in terms of DRR in climate change context is lacking. Disasters and resultant environmental damages are addressed inadequately and remain unclear even in the recent environmental laws in the country. However, Wetlands Rules, 2010 and Coastal Regulation Zone (CRZ) notifications have specific provisions for hazard mapping



**FIGURE 3:** Diagram showing interaction of CCA and DRR (Source: Gupta et al., 2014b)

and risk assessment. The Forest Policy has effectively touched upon the issues related to various hydro-climatic disasters, whereas the National Environmental Policy 2006 (NEP) clearly relates with other policies related to natural resources, viz. water, agriculture, urban sanitation, forests, etc. and offers a framework for mainstreaming DRR and CCA together into various actions of development, welfare and infrastructure development. Management of climate related risks, including improved understanding and alleviation of the vulnerabilities to extreme events, is imperative to minimize the adverse impacts on human health, society and the environment under the current and future climates. It is also an area where climate change adaptation (CCA) and disaster risk reduction (DRR) overlap. The conceptual and practical similarities and differences of DRR and CCA have been the subject of several studies. These have found that whilst there are some political and physical distinctions between the scopes of each field, there is a key area of similarity – a focus on vulnerability reduction and the enhancement of resilience.

## ROLE OF DISTRICT COLLECTOR IN DISASTER 'RISK' MANAGEMENT

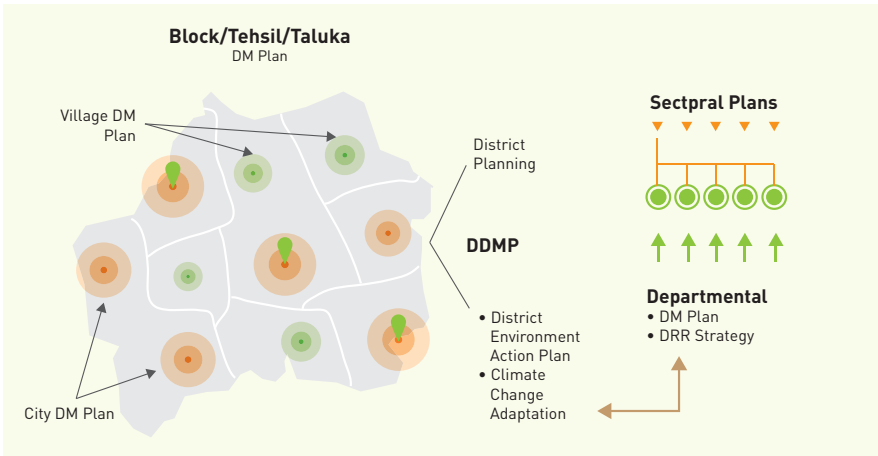
As per Section 31 of the Disaster Management Act 2005, it is mandatory to have a District Disaster Management Plan which shall include Hazard Vulnerability Capacity and Risk Assessment (HRVCA) that includes prevention, mitigation, preparedness measures, response plans and other measures proposed. At the district level, the District Disaster Management Authority is the apex body to deal with all kinds of disasters, whereas the District Collector (DC) is nominated as the Response Officer (RO). The following roles are assigned to the DC for disaster management:

- Ensure prevention, mitigation and preparedness activities are carried out in accordance with appropriate guidelines
- Provide inputs to State Disaster Management Authority relating to various aspects of disaster management that include early warnings, status of preparedness etc.
- Ensure that relevant officials in the district possess the knowledge to deal with disaster management issues
- Develop an appropriate relief implementation strategy for the district, taking into account the unique circumstances of the district and prevailing gaps in its institutional capacity and resources

- Facilitate and coordinate with the local govt. bodies to ensure pre disaster management activities in the district are carried out optimally
- Facilitate community training, awareness programs and the installation of emergency facilities with the support of local administration, NGOs and the private sector
- Establish adequate interdepartmental coordination on issues related to disaster management
- Involve community in the planning and development process
- Ensure that local authorities including municipal corporation, gram panchayats etc. in the district are involved in developing their own mitigation strategies
- Revisit or re assess contingency plans related to disaster management
- Ensure that proper communication systems are in place and contingency plans maximize the involvement of local agencies

### Prime Minister’s Agenda 10 on Disaster Risk Management

- All development sectors must imbibe the principles of disaster risk management
- Work towards risk coverage for all
- Encourage greater participation and leadership of women in disaster risk management
- Invest in risk mapping globally
- Leverage technology to enhance the efficiency of disaster risk management efforts
- Develop a network of Universities to work on disaster issues
- Utilize the opportunities provided by social media and mobile technologies
- Built local capacities and initiatives
- Ensure the opportunity to learn from a disaster is not wasted
- Bring about greater cohesion in international disaster response



**FIGURE 4:** Disaster Resilience based planning framework in a district and at sub-district / local level

## PATHWAYS AND APPROACHES: LESSONS FROM PIONEER DISTRICTS OF INDIA

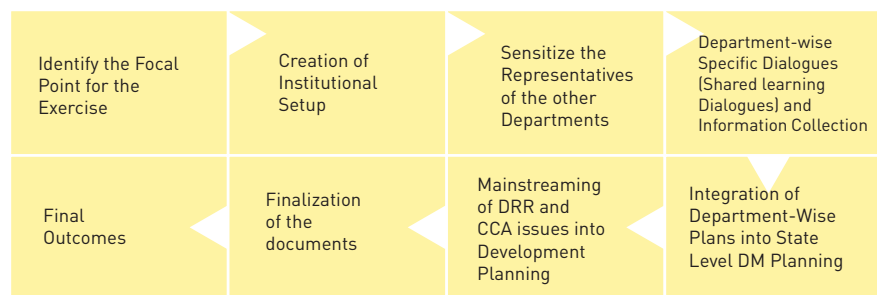
There are several tools and methods through which DRR and CCA measures can be integrated to reduce the risk of natural disasters. These are legal and policy framework, developmental plans and schemes, environmental and natural resources laws, policy planning instruments like Strategic Environment Assessment, Environment Impact Assessment, Life Cycle Assessment, Environmental Auditing etc. Gorakhpur (Uttar Pradesh), Puri (Odisha) and Almora (Uttarakhand) are among the few districts in India that have initiated the process of Integrating CCA into DRR through various development schemes and plans; and have developed their Climate Resilient District Disaster Management Plan.

**TABLE 2:** Approach for Integration of DRR and CCA issue in Development Planning at Sub-National level: A Comparative analysis

State	Uttar Pradesh	Odisha	Uttarakhand
District	Gorakhpur	Puri ( Coastal)	Almora ( Hills)
Hazards	Riverine flood	Multi-hazards: Deltaic floods, drought, cyclones, storm surges	Multi-hazard: Flash floods, landslides, water scarcity, hail storm, forest fires etc
Lead Agency	DDMA-Gorakhpur	OSDMA-Odisha	DDMA-Almora
Nodal Officer	ADM-FR	Collector and District Magistrate	District Magistrate
Research Institutes/ agencies	GEAG-ISET-NIDM	Gol-UNDP, GEAG-ISET-NIDM	GEAG-ISET-NIDM
Institutional analysis process	Shared learning dialogues (SLD), workshops, policy roundtables, interactive learning sessions, mapping of key systems (departments/ themes)	Shared learning dialogues (SLD), Community Consultation, workshops, policy roundtables, interactive learning sessions	Shared learning dialogues (SLD), workshops, policy roundtables, interactive learning sessions
Climate change component	Trend analysis, Future climate scenario, Hazards Analysis of major past hazards	Historical analysis of rainfall and cyclones	Trend analysis, Future climate scenario, Hazards Analysis of major past hazards



State	Uttar Pradesh	Odisha	Uttarakhand
DRR component as per Sendai Framework		Included the four priorities of actions: Understanding risks, strengthening governance, investing and enhancing disaster preparedness	Included the four priorities of actions: Understanding risks, strengthening governance, investing and enhancing disaster preparedness
Point of integration	<b>Schemes for DRR and CCA:</b> <ul style="list-style-type: none"> <li>Schemes from central and state government with DRR linkages are mentioned</li> <li>Possible actions under each scheme are mentioned</li> </ul>	<b>Risk Reduction Plan of DDMP-Climate change action plan:</b> <ul style="list-style-type: none"> <li>Climate induced disasters are listed with department specific impacts and existing coping mechanisms</li> </ul> <b>Schemes for DRR and CCA:</b> <ul style="list-style-type: none"> <li>Schemes from central and state government with DRR linkages are mentioned</li> <li>Possible actions under each scheme are mentioned</li> </ul>	<b>Schemes for DRR and CCA:</b> <ul style="list-style-type: none"> <li>Schemes from central and state government with DRR linkages are mentioned</li> <li>Possible actions under each scheme are mentioned</li> </ul>

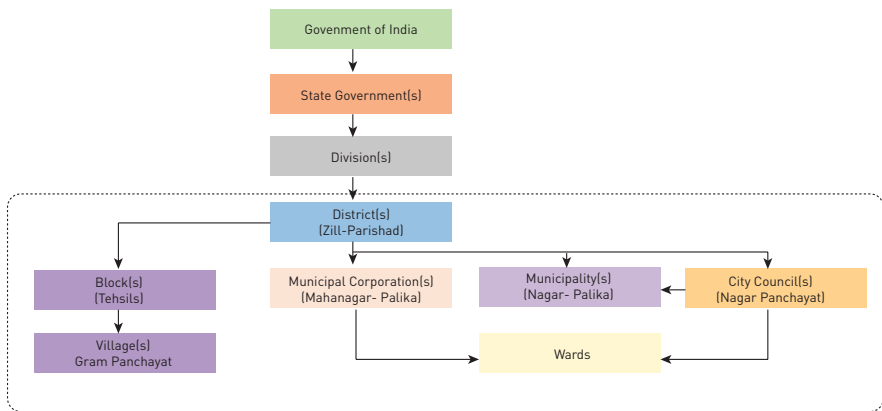


**FIGURE 5:** Essential steps for Integration of CCA and DRR issue into developmental plans and schemes at sub-national level

# DDMP AS A TOOL FOR NAPCC AND SAPCC IMPLEMENTATION

According to the NAPCC guidelines, States should have disaster specific vulnerability assessment and sectoral assessment at state & district level for preparing contingency plans. The HRVA of a DDMP is the most useful section in this context. This section based on the analysis of “situation” in a district helps to prioritize hazards & risks and defines the training, equipment & exercise requirements. It determines what hazards can occur in a district, how vulnerable is the district to each hazard and all other essential information at district level. The risk analysis quantifies the risk and enables a district to focus on those hazards that pose a higher threat to life, property and environment.

**Administrative structure of India**

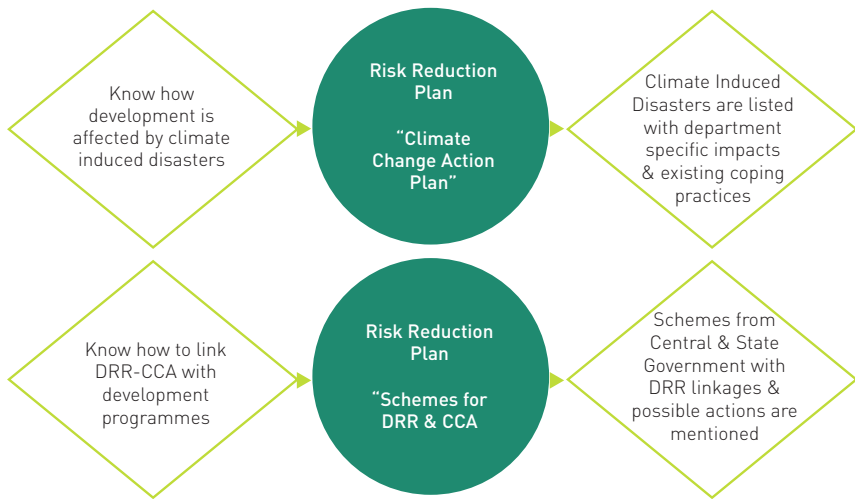


**FIGURE 6:** Planning and Review Intervention Units for Climate Resilience and Disaster Risk Management under an Administrative District and linkage with State Level Planning Process and National Policies

**Direct Linkage:** - The objective of DDMP-“To mitigate impact of natural, human-induced and man-made disasters through effective and planned coordination of prevention, risk mitigation, preparedness and dealing with disaster situations at District, Block, Panchayat, Village and Urban Local Bodies” is directly related to the mitigation measures in SAPCC. We have observed that the SAPCCs generally maintain a balance between proposed adaptation (to impact of climate change)

and mitigation (i.e., reduction in GHG emission and enhancing GHG sink potential) measures. If all the lower administrative levels of a state have plans like the Puri DDMP, with an objective to mitigate disasters, man-made, natural or climate-induced, then it will directly cater to the implementation of various sectoral needs pertaining to mitigation of climate change & related disasters.

**Indirect Linkage:** - The post-disaster strategy “Assessment & Enumeration of Damage or Losses” will indirectly cater to envisaging various adaptation measures which are proposed in SAPCC. During the process of damage-loss assessment following a disaster, not only is the structural damage analyzed, but the gaps in preparedness are also assessed. A lot of information is generated leading to knowledge on vulnerability attributes and weaknesses. This ensures that people will be prepared for further future situations and likely incidences by taking proper adaptation measures.



**FIGURE 7:** Diagram showing process for inclusion of DRR in SAPCC

## MODEL FOR INTEGRATION

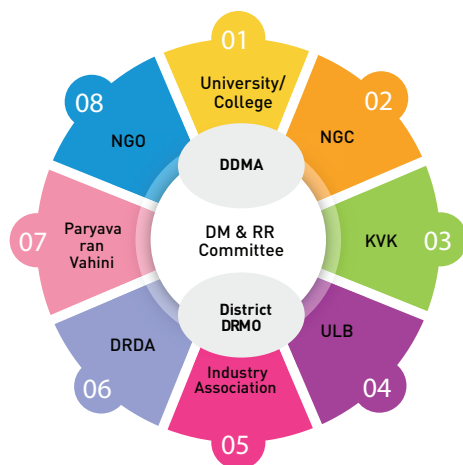
Mainstreaming Disaster Risk Reduction concerns in development planning can guide allocation of resources towards the protection of life and assets, restoration of productive systems and livelihoods, regaining market access, rebuilding social and human capital and physical and psychological health. Development plans therefore take on a critical role in disaster risk management. The process of mainstreaming DRR into development planning needs to have appropriate tools and methodologies along with political commitment, public understanding, scientific knowledge and expertise. National and state level development schemes play a crucial role for the socio-economic development of the community. These schemes target huge population every year with large amount of funds for their implementation. Thus, there is a tremendous potential for reducing vulnerability & risks through integration of DRR in national and state schemes through structured framework and operational measures. Some key measures at policy level and delivery mechanism that can be incorporated in these national and state schemes are tabulated below:

**TABLE 3:** Sector wise National and State Schemes (Indicative List, not exhaustive)

Sector	National/ state schemes	Point of integration
Housing	Indira Awaas Yojna Rajiv Awas Yojna	<ul style="list-style-type: none"> <li>• Safety audit of existing housing stock</li> <li>• Establish Technology Demonstration Units for public education and awareness</li> <li>• Certification of masons and creating database of master trainers</li> <li>• Strengthen compliance and enforcement procedures of local building laws in hazard prone areas</li> <li>• Add construction elements for special needs groups in design and planning of all public buildings and mass housing projects</li> </ul>

Sector	National/ state schemes	Point of integration
Agriculture	<p>National Mission for Sustainable Agriculture</p> <p>National Water Mission</p> <p>MGNREGA</p> <p>National Rural Livelihood Project</p> <p>Special Package for Drought Mitigation Strategies</p> <p>National Watershed Development Project for Rain-fed Areas</p> <p>Pradhan Mantri Fasal Bima Sinchai Yojna</p> <p>Soil Health Card Scheme</p> <p>Rashtriya Krishi Vikas Yojna</p> <p>Traditional Farming Improvement Scheme</p>	<ul style="list-style-type: none"> <li>• Construction of irrigation channels, minor and major irrigation systems</li> <li>• Improve efficiency of irrigation system by introducing sprinkler and drip irrigation systems.</li> <li>• Renovate traditional water management systems</li> <li>• Promote rainwater harvesting structure</li> <li>• Strengthen/construct embankments, flood walls and flood levees</li> <li>• Drainage improvement/management in order to avoid congestion.</li> <li>• Crop improvement</li> <li>• Micro irrigation technology</li> <li>• Crop risk transfer through insurance based measures</li> <li>• Application of fertilizer based on soil test values, thus increasing fertilizer use efficiency and decreasing soil and ground water pollution</li> <li>• Encourage traditional practices and local knowledge for risk mitigation.</li> </ul>
Urban Development	<p>Swachh Bharat Mission (Urban)</p> <p>Atal Mission for Rejuvenation of Urban Transformation</p> <p>Urban and regional development plans formulation and implementation guidelines</p> <p>National Mission on Sustainable Habitat</p> <p>Smart Cities Mission</p>	<ul style="list-style-type: none"> <li>• Clean streets, roads and other infrastructure of cities and towns</li> <li>• Improve the basic services to the household including water supply</li> <li>• Rainwater harvesting, conservation of urban water bodies, green and open spaces, water supply system, waste water management system</li> <li>• Improve energy efficiency, strategic plan for new and renewable energy, alternate sources of energy to meet the city demand</li> <li>• Smart grid to check electricity losses and other sustainability issues</li> <li>• Improve ability of habitats to adapt to climate change by improving resilience of infrastructure, community based disaster management and measures for improving advance warning systems for extreme weather events</li> <li>• Maintain peri-urban spaces and related ecosystems.</li> </ul>

Sector	National/ state schemes	Point of integration
Water and sanitation	National Rural Drinking Water Program	<ul style="list-style-type: none"> <li>Flood mitigation- retaining wall, strengthening embankments etc.</li> <li>Groundwater management, raising hand pumps, water back-ups etc.</li> </ul>
	Total Sanitation campaign	<ul style="list-style-type: none"> <li>Rainwater Harvesting</li> <li>Water recharge and conservation</li> <li>Safe drinking water</li> <li>Drainage system</li> <li>Construction of toilets</li> </ul>
Employment	Pradhan Mantri Gramodaya Yojna	<ul style="list-style-type: none"> <li>Prioritizing and taking up works for flood control &amp; drought proofing</li> </ul>
	Mahatma Gandhi National Rural Employment Guarantee Scheme	<ul style="list-style-type: none"> <li>Land development including plantation</li> <li>Renovation of water bodies</li> </ul>
Natural Resources Management	Integrated watershed Management Program	<ul style="list-style-type: none"> <li>Revival of traditional water harvesting structures including treatment of catchment areas</li> </ul>
Health	National Rural Health Mission	<ul style="list-style-type: none"> <li>Develop emergency plans and conduct mock drill in hospitals</li> </ul>
	National Food Security Mission	<ul style="list-style-type: none"> <li>Develop projects on community monitoring and reporting in major health and food security schemes</li> </ul>
Education	Sarva Shiksha Abhiyan	<ul style="list-style-type: none"> <li>Upgradation of infrastructure for DRR</li> <li>Special needs of vulnerable groups including disabled children in design of school building, amenities and learning processes</li> <li>Development and dissemination of learning material on risk awareness, preparedness and preventive measures in school</li> <li>Curricula and integration of DRR modules in the regular training course of the "Teachers Training Institutes"</li> <li>Training in life saving skills such as first aid, search and rescue, swimming to school children, teachers and education administrators</li> <li>Prepare disaster preparedness plans and conducts mock drills through School Management Committees (SMC)</li> </ul>
	Mid-day meal Scheme	<ul style="list-style-type: none"> <li>Provide food at the time of disaster</li> </ul>
Energy	National Solar Mission	<ul style="list-style-type: none"> <li>Promote renewable energy program in the district</li> </ul>
	Promotion of CFL	<ul style="list-style-type: none"> <li>Promotion of solar lights &amp; other renewable based energy products</li> </ul>
	Waste to energy program	<ul style="list-style-type: none"> <li>Encourage use of solar pumps, solar heaters, smart-grid metering system</li> </ul>



**FIGURE 8:** District level disaster risk management capacity building institutional framework suggested by the National HR Plan 2012.

## IMPLEMENTATION, MONITORING AND UPDATING OF DRR ACTIVITIES

The District Commissioner must ensure the planning, coordination, monitoring and implementation of DRR activities. It can be done in the form of a checklist provided below:

**TABLE 4:** Checklist for planning, implementation and coordination

SFDRR priorities	Activities	Details	Y/N	Remarks
Understanding the disaster risks	<b>Planning (Mitigation and preparedness)</b>	Plan and prepare in close consultation with various line departments at district level		
		Maintain coordination and prepare department wise plan		
		Establish regular communication and share information between research team and district level departments		
		Define roles and responsibilities of line departments during various facets of disasters as per Incident Response System		

SFDRR priorities	Activities	Details	Y/N	Remarks
Strengthening disaster risk governance	<b>Implementation</b>	Identify & implement schemes of Central/ State Government based on the parameters of mitigation, relief and rehabilitation		
		All departmental heads at the district level identify the suitable and relevant schemes which can be used in disaster risk		
Investing in disaster risk reduction for resilience	<b>Monitoring</b>	Monitor the functioning and adequacy of the resources present in the district, every six months		
		Monitor the training of officers of the frontline departments as per their requirements; For example training on Ecosystem based disaster risk reduction		
		Audit reports of various departments such as Environment, Irrigation (regarding canals) and Labor (Industrial Safety & Health) Departments		
Enhancing disaster preparedness for effective response	<b>Review and update</b>	Valuable inputs from actual disasters		
		Lessons learnt from trainings		
		Changes in disaster profile of district Increase in intensities, types and patterns of disasters		
		Changes in regulatory requirements		
		Updation of databases using GIS		
		Technological developments/ innovations in identifying potential hazards or mitigating them		
Understanding the bottlenecks for addressing the impacts/damages/losses				



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