Chapter - I

Disaster management and Audit framework

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Disaster is defined[1] as a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to/or degradation of environment and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area. While natural disasters result from geographical phenomena and include floods due to heavy rainfall, drought, earthquake *etc*., the human-made disasters result from human errors which include fires, industrial explosions, structural failures, *etc*. While landslides can be both natural and human induced, floods can also be attributable to human interventions like unauthorized land use conversions, encroachments to water bodies, clogging of stormwater drains, *etc*.

Disaster risk arises when hazards interact with physical, social, economic and environmental vulnerabilities. Despite the growing understanding and acceptance of the importance of disaster risk reduction and increased disaster response capacities, disasters continue to pose a global challenge.

1.1 Disaster Management

Disaster Management (DM) means a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for:

- preparedness to deal with any disaster and capacity-building thereon.
- mitigation or reduction of risk of any disaster or its severity or consequences.
- prompt response to any threatening disaster situation or disaster and assessing the severity or magnitude of effects of any disaster.
- evacuation, rescue and relief followed by rehabilitation and reconstruction.

The Disaster Management cycle is depicted in the **Chart 1.1** below.

Chart 1.1: Disaster Management cycle

Source: Karnataka State Disaster Management Plan 2021-22

[1] The Disaster Management Act, 2005.

An effective disaster risk management contributes to sustainable development.

1.2 Disaster Risk Reduction - Strategies and Frameworks

Disaster risk is increasingly of global concern and its impact and actions in one region can have an impact on risks in another, and *vice versa*.

The Sustainable Development Goals (SDGs) are a universal call for action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. Based on NITI Aayog's mapping framework, the Government of Karnataka had aligned its policies and programmes with SDGs and targets. The SDGs related to disaster management primarily fall under SDG 11: "Sustainable Cities and Communities" and SDG 13: "Climate Action". While disaster management is not a standalone SDG, it is closely interconnected with these goals and several others, as disasters can have significant social, economic, and environmental impacts. There are 25 targets related to Disaster Risk Reduction (DRR) in 10 of the 17 SDGs, firmly establishing the role of DRR as a core development strategy.

As part of the National Framework, the High-Power Committee on Disaster Management, constituted by the Government of India (GoI) in 1999 had notified 31 various disasters categorised into five major groups *viz.,* Water and Climate related, Geological related, Biological related disasters, Chemical/Industrial/ Nuclear related and accident-related disasters.

The GoI enacted (December 2005) the Disaster Management Act, 2005 (DM Act) which provided for establishment of National Disaster Management Authority (NDMA) and State Disaster Management Authorities. This was expected to usher in a paradigm shift in disaster management from an earlier relief-centric approach to a proactive regime that lays greater emphasis on preparedness, prevention and mitigation.

The NDMA brought out (2009) the National Policy on Disaster Management with a vision to build a safe and disaster resilient India by developing a holistic, proactive, multi-disaster and technology-driven strategy through a culture of prevention, mitigation, preparedness and response.

Accordingly, the Government of Karnataka published (2020) the State Policy on Disaster Management.

1.3 Disaster profile of the State

The State of Karnataka is one of the disaster-prone States in India owing to its geo-environmental diversity and vulnerability. It is situated on a plateau where the western and eastern ghat ranges converge in the western part of the Deccan peninsular region of India. While the State is highly prone to hazards such as drought, flood, landslides, *etc*., it is also affected by other hazards such as cyclones, lightning, and earthquakes.

The major disaster profile of the State in the past decade is shown in **Table 1.1**.

Table 1.1: Major disaster profile of the State

Disaster	Affected	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
		(in numbers)											
Drought	Districts	28	28	9	27	30	-	30	18	-	-	-	31
	Taluks	157	125	34	136	164	-	164	49	-	-	-	223
Flood/Rainfall	Districts	-	8	8	-	6	-	7	22	25	28	30	-
	Taluks	-	35	42	-	24	-	25	103	180	182	*	-
Landslide	Districts	2	2	3	2	3	4	7	5	5	5	-	-
	Taluks	2	2	3	2	4	6	12	7	9	10	-	-
Earthquake	Districts	2	1	1	1	1	2	1	1	1	6	-	-
	Taluks	2	1		1	1	2	1	1	1	10	-	-

Source: State Disaster Management Plan 2022-23 and Memoranda
**In 2022, number of taluks affected by floods was not notified*

As at the end of March 2023, there were 31 districts with 223 taluks. The major disastrous incidents that happened in the State during the Audit period of 2017-18 to 2022-23 and their impacts are listed in **Table 1.2** and **Table 1.3** below.

Table 1.2: Major disaster events which happened in Karnataka during calendar years 2018-23

Calendar Year	Disaster	Impact
2018	Severe drought affecting 30 districts	Total estimated loss – ₹28,046.95 crore Rabi season: Crop loss - ₹11,384.47 crore Kharif season: Crop loss - ₹16,662.48 crore
	Heavy rainfall leading to floods in seven districts coupled with devastating landslides	Total estimated loss – ₹3,705.87 crore Crop loss– ₹1,670.84 crore Compensation and relief items – ₹227.51 crore Damage to infrastructure – ₹1,811.54 crore 67 human and 240 cattle deaths
2019	Floods in 22 districts	Total estimated loss - ₹35,160.81 crore Crop loss of ₹15230.60 crore Damage to infrastructure – ₹9,642.67 crore Compensation and relief items – ₹ 10,287.44 crore 91 human and 3,400 cattle deaths
	49 taluks declared drought affected	---
2020	Floods in 25 districts	Total estimated loss - ₹23,481.63 crore Crop loss of ₹17,700.76 crore Damage to infrastructure – ₹10,984.71 crore Compensation and relief items – ₹458.58 crore 85 human and 1,867 cattle deaths
2021	Coastal districts affected by cyclone *Tauktae*	Total estimated loss - ₹209.60 crore Crop loss of ₹4.48 crore Damage to infrastructure – ₹196.93 crore Compensation and relief items – ₹8.19 crore 6 human and 2 cattle deaths
	Floods in 28 districts	Total estimated loss - ₹5,690.51 crore Crop loss of ₹1,702.65 crore Damage to infrastructure – ₹3,619.21 crore Compensation and relief items – ₹368.65 crore 16 human and 358 cattle deaths

Calendar Year	Disaster	Impact
2022	Floods in 30 districts	Total estimated loss - ₹7,647.13 crore Crop loss of ₹3,596.26 crore Damage to infrastructure – ₹3,673.30 crore Compensation and relief items – ₹404.57 crore 82 human and 462 cattle deaths reported
2023	All 31 districts of the State declared drought affected	Total loss estimated - ₹65,594.92 crore (crop loss)

Source: Memoranda submitted by State Government to GoI

Table 1.3: Estimated Loss due to Calamities

Calamity (*Calendar year*)	**Total estimated loss** *(₹ in crore)*	**Loss of lives**	
		Human	**Livestock**
Drought (2018, 2019 and 2023)	93,641.87	-	-
Flood and landslide (2018, 2019, 2020, 2021 and 2022)	75,685.95	341	6,327
Cyclone (2021)	209.60	6	2
Total	**1,69,537.42**	**347**	**6,329**

Source: Memoranda submitted by State Government to GoI

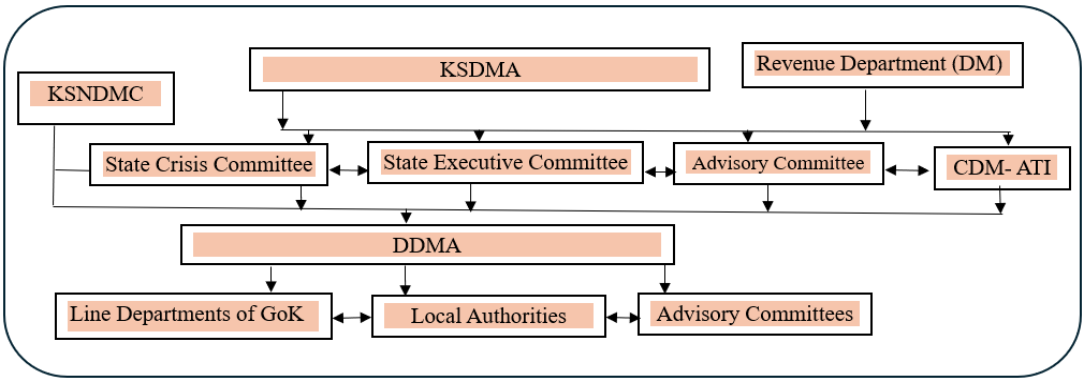
Though the State Government did not notify any specific disaster during the year 2022, expenditure was, however, found to have been incurred towards compensation for rain damage.

As could be seen from the tables above, the State was affected severely by one or the other hazards with substantial damage to agriculture/horticulture crops, public infrastructure and individual houses besides, loss of human lives and livestock. There were instances of both drought and flood distressing the State in the same year.

1.4 Organisation set up

The Revenue Department (Disaster Management) headed by a Principal Secretary to the Government is the nodal department for monitoring disaster management in the State. The organisational setup in respect of disaster management at State level is given in **Chart 1.2**.

Chart 1.2: Organisational Setup at State level for Disaster Management



Source: Karnataka State Disaster Management Plan 2017-18

The institutional arrangements for disaster management in the State and their functioning are detailed in Chapter 2 of this report.

1.5 Why did we select this subject?

The State has suffered recurrent hazards of different types causing substantial damage to both public infrastructure and private properties. Disaster Management also calls for effective coordination between the different departments in the State. It is against this backdrop that the Performance Audit (PA) on Disaster Management has been carried out to assess the readiness of the State in its transformation from a response/relief centric approach to disaster risk reduction.

1.6 Audit Objectives

The PA was undertaken to assess whether:

- Institutional mechanism is in place as per the DM Act and functioning effectively in implementing disaster management policies and plans.
- Adequate financial resources are provided for disaster management and efficiently utilised.
- Forecasting mechanism and preparedness for disasters are timely and effective.
- The State has taken appropriate preventive and mitigation measures in addition to the response-relief approach and rehabilitation activities.

1.7 Audit criteria

Audit observations are benchmarked against the criteria derived from:

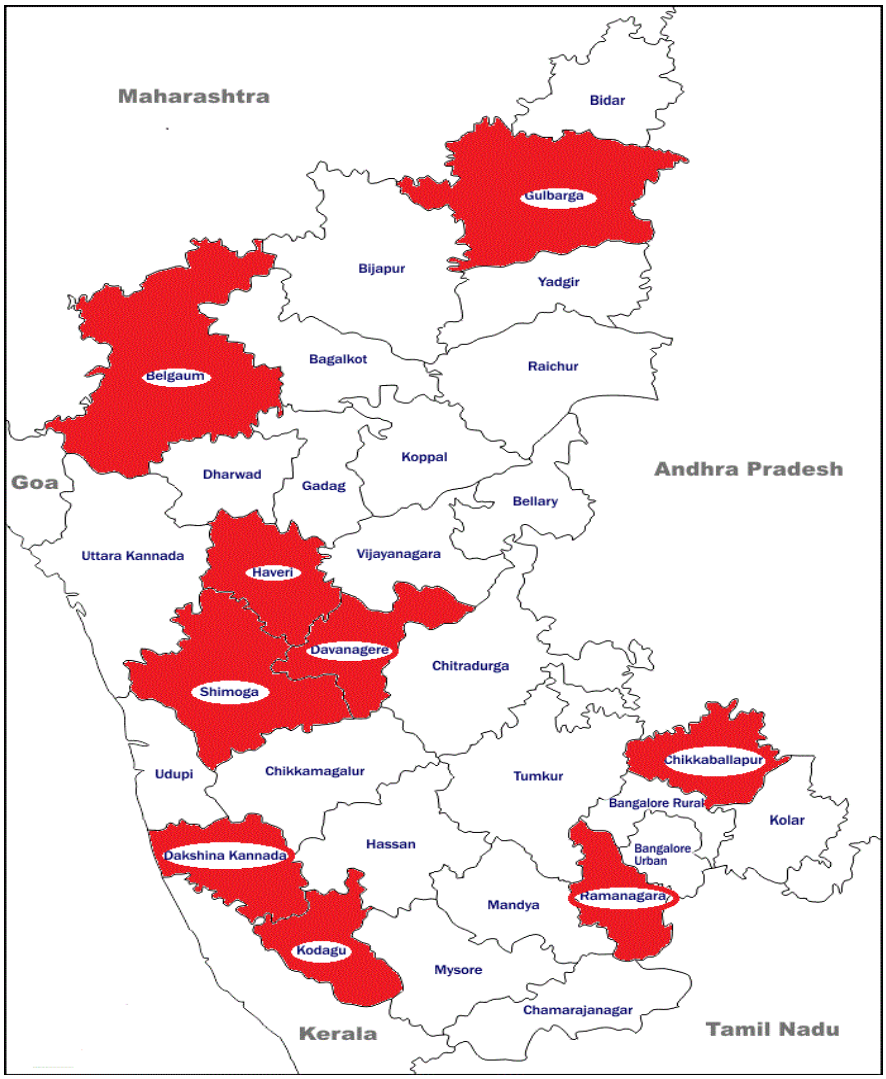
- Disaster Management Act 2005;
- NDMA Guidelines on respective disasters;
- Disaster Management Policies and Plans; and
- Government instructions, orders, circulars, *etc*.

1.8 Scope and methodology of Audit

In the absence of comprehensive details of incident/disaster-wise expenditure, Audit selected the districts adopting random sampling method through IDEA. The PA covering the period 2017-18 to 2022-23 was conducted from November 2022 to July 2023 through scrutiny of records at the Office of the Principal Secretary to the Government, Revenue Department (Disaster Management) and Offices of the Deputy Commissioner of selected nine[2] districts (**Chart 1.3**).

[2] Belagavi, Chikkaballapur, Dakshina Kannada, Davanagere, Haveri, Kalaburagi, Kodagu, Ramanagara and Shivamogga.

Chart 1.3: Districts selected for Performance Audit



Joint physical verification of disaster-affected locations was also conducted, wherever necessary and possible.

All of the test-checked districts have been subjected to floods and droughts during the past decade. While the districts of Dakshina Kannada, Kodagu and Shivamogga had also encountered landslides, the coastal district of Dakshina Kannada often faced cyclones. Besides, there were instances of loss of human lives and livestock due to lightning in these districts.

An entry conference was held on 9 January 2023 with the Principal Secretary, Revenue Department (Disaster Management) wherein Audit objectives, scope and methodology of Audit were discussed. The findings of the Performance Audit were discussed in the exit conference held on 22 January 2024 with the Principal Secretary, Revenue Department (Disaster Management). The State Government furnished replies to the draft report during August 2024 which have been incorporated appropriately in the Report. In cases where replies were not furnished, the minutes of the exit conference have been considered.

1.9 Acknowledgement

Audit acknowledges the cooperation extended by the Principal Secretary and staff at Revenue Department (Disaster Management) and the staff at the Offices of the Deputy Commissioner at test-checked districts during the conduct of this Performance Audit.

1.10 Structure of the report

The Disaster Management Act and the National Policy on Disaster Management spell out the institutional arrangements to be in place for management of all disasters, both at the Centre and the States. The Karnataka State Disaster Management Policy stipulated an institutional framework and responsibilities thereon together with the need for capacity building measures including forecast mechanism for disaster management in the State. Chapter II of the Report deals with the institutional framework present. Additionally, the mechanism for forecasting and capacity building measures have been looked into.

The management of disasters and implementation of policies/action plans require sufficient funding. Chapter III deals with financial resources and their utilisation.

The National Disaster Management Authority has brought out separate guidelines for management of various disasters such as floods, cyclones, landslides, drought, lightning *etc.*, beginning from the year 2007 onwards. The State, though belatedly, has brought out its action plans for management of each disaster other than drought. Chapters IV, V, VI and VII deal with management of drought, flood, landslide and other disasters respectively with a focus on compliance with the stipulated provisions.

The major components of disaster management cycle include response, rescue, relief and rehabilitation activities. Disaster management in the State has been more response and relief-centric rather than making the State disaster resilient. These aspects were discussed appropriately in the respective disaster-wise chapters.