

## Preface

- ❖ This Report for the year ended March 2023 has been prepared for submission to the Governor of Karnataka under Article 151 (2) of the Constitution of India.
- ❖ This Report of the Comptroller and Auditor General of India contains the results of “Performance Audit on Disaster Management in Karnataka” covering the financial period 2017-23.
- ❖ The instances mentioned in this Report are those, which came to notice during test audit for the period 2017-23 but could not be reported in the previous Audit Reports; matters relating to the period after 2017-23 have also been included, wherever necessary.
- ❖ The Audit has been conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.
- ❖ Audit wishes to acknowledge the cooperation received from the Revenue Department (Disaster Management) and other stakeholding departments at each stage of this Audit process.



## EXECUTIVE SUMMARY

### Why did CAG do this Audit?

The State of Karnataka, due to its unique geo-climatic and socio-economic conditions, is vulnerable to various natural disasters and has been confronting frequent droughts, floods, landslides, *etc.* Disaster risks in the State are further compounded by changes in demography, unplanned urbanization and development within high-risk zones, environmental degradation, climate change and geological hazards. These factors contribute to a situation where disasters seriously threaten the State's economy, its population and sustainable development.

The increase in natural disasters over the past decade and the extent of damage caused to both public infrastructure and private properties was creating a substantial financial burden on the State Exchequer, which has necessitated understanding the reasons for such increase and the steps taken to forecast, prevent, mitigate and reduce the impact of the disasters. 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-based approach to reducing disaster risk.

Though the PA was conducted covering the period from 2017-18 to 2022-23, it attempted to even analyse prior disastrous incidences *vis-à-vis* endeavours of the State Government not only in managing the calamity but also measures taken towards disaster risk reduction. The PA involved test-check of records of offices of the Principal Secretary, Revenue Department (Disaster Management) at the apex level and selected nine offices of Deputy Commissioners at district level besides Karnataka State Natural Disaster Management Centre (KSNDMC), Bengaluru. Belagavi, Chikkaballapura, Dakshina Kannada, Davanagere, Haveri, Kalaburagi, Kodagu, Ramanagara and Shivamogga districts were selected for audit as all of them had been subjected to floods and drought during the past decade. Moreover, the districts of Dakshina Kannada, Kodagu and Shivamogga had also encountered landslides while Dakshina Kannada often faced cyclones.

The State witnessed major disasters during the years 2018 to 2023 with floods occurring every year from 2018 to 2022, which caused damage to crops, infrastructure, losses to human lives and cattle. In 2023, all the 31 districts were declared drought affected causing an estimated crop loss of ₹ 65,594 crore.

### Major Audit Findings

Karnataka State Disaster Management Authority (KSDMA) was constituted in the year 2008. However, the State Government published the State Disaster Management Policy only during the year 2020 *i.e.*, 12 years after constitution of KSDMA. KSDMA constituted the Advisory Committee consisting of experts in the field of disaster management, in December 2019. The State Disaster Management Plan for each year was being approved during/after September of the year to which the SDMP pertained.

Sixteen departments (dealing with functions vulnerable to disasters and as decided by SEC) prepared their DMPs only during 2020-21 but had not reviewed and updated them. None of the hospitals (except a few private hospitals under Bengaluru Urban district) and educational institutions in the State as well as test-checked districts had prepared the required disaster management plan. The State Emergency Operation Centre (SEOC) was under-equipped in terms of human resources and infrastructure, which affected its functioning. As regards the forecast mechanism for different disasters, Audit noticed that the data collection, forecasting and dissemination mechanism in place in the State was flawed with defunct/faulty equipment, deficient data, improper contract management, non-creation of disaster models, non-installation of sensors, *etc.* The Disaster Response Force units had huge vacancies (mainly in the cadres of police and fire service personnel) ranging from 67 to 96 *per cent* of the sanctioned strength whereby the units faced difficulties in managing shift-wise duties and rescue operations. As regards the National Disaster Management Information System (NDMIS), a comprehensive online application, developed by the Ministry of Home Affairs, the database was not being updated on a regular basis either at the State level or district level, failing which information regarding damages/losses on account of disasters could not be accurately captured.

Funds released (as per orders issued from the State level) were not ‘calamity specific/component specific’, making it difficult to monitor the actual utilisation of NDRF/SDRF grants. Multiple bank accounts were opened and operated at Taluks without the approval of the Government/competent authority, which violated the instructions (January 2017) of the Government itself. The Fire and Emergency Department had utilised ₹23.68 crore and ₹7.69 crore (released towards the components of search and rescue, capacity building and training) remained unutilised and was lying in the bank account as at the end of March 2023. There was misappropriation of funds of ₹18.59 lakh during 2017-18, at Chintamani taluk of Chikkaballapura district. Further, ₹1.81 crore was paid by taluks of Haveri district out of SDRF fund, for reasons not related to natural calamities/disasters.

The State Government was yet to bring out region-specific guidelines for management of drought. KSNDMC installed Telemetric Rain Gauges (TRGs) and TWSs in a phased manner (2009-2015), however as of December 2023, the percentage of defective instruments was 43 *per cent* and 52 *per cent* respectively, with the reason attributable being non-revision of the AMC since March 2022. The State Government/KSDMA/SEC had not formulated the Crisis Management Plan up to 2022-23. The Crop Weather Watch Group (CWWG) set up in the State to monitor the drought situation in the State, did not meet as envisaged during the years 2017 to 2022. As of 2022-23, the envisaged mission/task force for drought mitigation had not been set up in the State.

Karnataka Groundwater Authority could not control illegal and inordinate extraction of groundwater for commercial purposes through private water tankers and did not possess either time-series data on the number of borewells in the State or data on the total number of borewells drilled in the water distressed notified taluks.

Despite being a drought-prone state, Karnataka also faced severe floods and landslides during the past decade. The State Action Plan for Flood Risk Management was brought out only during 2021 and in contrast to NDMA guidelines, did not provide for preparation of Flood Management Plans by schools, hospitals, industries, entertainment houses *etc.* In the absence of basic data, the State Government/KSNDMC could not create the envisaged hydrological models for flood forecasting in the State/region, rendering the investment of ₹2.45 crore on the sensors and stream gauge monitors largely unfruitful. The purpose of installing equipment at grassroots level for alerting endangered population from flood early warning through a wireless broadcasting system was not achieved. 25 Telemetric Water Stations (TWSs) and 04 ultrasonic water level sensors to be installed under the work 'Preparation of urban flood model for Bengaluru' funded by the Department of Science and Technology, GoI, were installed and the project remained unimplemented. As of December 2023, 49 out of 100 Water Level Sensors (WLS) installed on storm water drains in Bengaluru were non-functional and no information/data was available in respect of five WLS installed at flood vulnerable streets. Further, 69 out of the 184 equipments *viz.*, Telemetric Rain Gauge, Telemetric Weather Stations, Telemetric Water Level sensors installed under smart cities of Mangaluru, Belagavi and Hubballi-Dharwad remained non-functional (December 2023).

Despite mentioning the requirement of legal framework in its Flood Action Plan, the State did not establish a legal framework for obtaining mandatory clearances by agencies for construction of public infrastructure in flood-prone areas, as a result of which there were instances of National/State highways, Railways and other roads getting flooded/inundated.

Lacuna was noticed in the provision of relief assistance particularly in compensation of house damages and crop loss. Verification of a few individual payment files showed that photographs which neither had GPS coordinates nor the signs of rain/wetness on the damaged portion/collapsed buildings formed the basis for payment. The absence of clear guidelines on the classification of damage and the huge difference in payment of compensation between categories allowed for arbitrary classification by the authorities, leading to contrasting compensation for the same percentage range of damage. As against 1,10,407 approved cases of house damage for reconstruction during 2019-23, construction had not commenced in 22,496 cases (20 *per cent*) for which a total of ₹213.94 crore was already paid, raising questions on the assessments made. A sample analysis of *Parihara* portal (based on individual Aadhar number) disclosed omissions in payment of compensation for crop loss. Random verification of the data (through input of data like individual Aadhaar number, year, season, calamity, *etc.*) in the *Parihara* portal showed instances of compensation having been paid in violation of the guidelines. A joint physical inspection (October 2022) of three bridges and two roads (State highway) damaged due to flood during the year 2022-23 in Ramanagara district revealed that bridges/roads had not been restored and resultantly, the public were forced to take alternate longer routes.

Under landslide management, the State's response had been inadequate, with a delayed State Action Plan. Critical gaps include inaccurate landslide hazard zonation maps, lack of a landslide inventory and lack of early warning systems. The State Government had rolled back the ban imposed on land conversions from

agriculture to non-agricultural purposes in Kodagu district. The DC office (District Disaster Management Authority) building at Kodagu was built on a landslip vulnerable site and remained insecure despite an expenditure of ₹6.25 crore.

The National Cyclone Risk Mitigation Project faced delays in implementation with EWDS equipment yet to be tested and shelter level equipment not being supplied to any MPCS. There were discrepancies between statistics pertaining to the loss of human lives by lightning furnished by the district authorities and district level data shown in the Thunderstorm and Lightning Action Plan - 2022 published by the Revenue Department (Disaster Management). Deaths due to lightning had not shown any decreasing trend over the years 2018-23, evidencing the need of a robust mechanism at grass root level for community awareness for taking precautions from lightning strikes, in conjunction with advanced technological methods. As of August 2024, action had not yet been initiated on the suggested actionable strategies to counter damage caused by Thunderstorms and Lightning.

### Recommendations:

- *The State Government should ensure effective functioning of institutions like SDMA, SEC, DDMA's etc., duly complying with provisions of the DM Act and ensure preparation of integrated disaster management plans at all envisaged levels.*
- *The State Government should revamp the Emergency Operation Centres at all levels while ensuring availability of key infrastructure and form sector specific teams to deal with different disasters.*
- *The State Government should ensure adequate capacity building by training officials at all levels for effective management of disasters at ground level and also strengthen the State Disaster Response Force.*
- *The State Government should prioritise IEC activities at all levels to create awareness and better educate communities on disaster management.*
- *The State Government should ensure strict adherence to financial record-keeping and reconciliation procedures to enhance accountability and transparency in financial transactions.*
- *The State Government should formulate guidelines for mitigating drought considering geo-spatial climate variations and ensure effective coordination among all the sectors in enhancing drought mitigation efforts.*
- *The State Government should emphasise measures for water conservation and water harvesting as well as enforce regulations on unchecked groundwater extraction.*
- *The State Government should take immediate measures to prepare floodplain zoning of all vulnerable locations and should enact regulations thereon. It also should contemplate shifting villages persistently affected by floods to safer elevations to avoid recurrent damage as well as expenditure towards compensation.*
- *The State Government should streamline the procedure for payment of compensation towards damages preventing ineligible payments and fixing accountability on concerned officials for any irregularities.*

- *The State Government should put in place a proper institutional framework integrating geo-referenced landslide inventory-cum-susceptibility maps, regulate landslide risk areas and develop a Comprehensive Landslide Prevention and Mitigation Plan to avoid geological disaster. Government should also ensure thorough assessments of land conversions and enforce zoning regulations.*
- *The State Government should ensure proper commissioning and effective functioning of disaster risk reduction projects, such as NCRMP, while enhancing capacity-building measures in respect of hazards like cyclones and lightning to minimize infrastructural damage and human loss.*