



August 19, 2018
Alappuzha District



CHAPTER V FINANCIAL MANAGEMENT AND SURVEY



Financial management

Audit analysed the procedures followed in administration of the State Disaster Mitigation Fund and extent of utilisation of State Disaster Response Fund for immediate restoration activities in the post 2018 flood scenario and the resultant observations are presented in the following paragraphs.

5.1. Management of the State Disaster Mitigation Fund

In line with the stipulation in the Disaster Management Act, 2005 requiring¹⁰⁹ the State Disaster Management Authority to recommend making available funds for mitigation¹¹⁰ and preparedness measures in relation to disasters, a State Disaster Mitigation Fund (SDMF) was constituted (December 2011) exclusively for projects meant for the mitigation of disasters. The Guidelines for administration of SDMF were issued (June 2012) by GoK to ensure consistency¹¹¹ in the use of the Mitigation Fund and promote measures to reduce future loss to life and property, protect the infrastructure and ultimately help build disaster resistant communities. The Guidelines envisage (Paragraph 2.5) that the State Disaster Management Plan formulated by the SDMA, SEOC and the Department of Revenue and Disaster Management¹¹² should form the basis for the effective utilisation of SDMF. Audit noticed the following deviations in the management of the Fund.

5.1.1. Need for proactive role of KSDMA to ensure higher provision of funds

The Guidelines stipulated that the annual contribution of GoK to SDMF for each financial year would be as recommended by SDMA, to be provided every year in the State budget. The budgetary provisions and expenditure under SDMF during the audit period from 2014-19 are detailed in **Table 5.1**.

¹⁰⁹ Section 18(2)(f) of the Disaster Management Act 2005

¹¹⁰ 'Mitigation' refers to the lessening or limitation of the adverse impacts of hazards and related disasters. (Source: Guidelines for the Administration of State Disaster Mitigation Fund, June 2012)

¹¹¹ Guidelines for the Administration of the State Disaster Mitigation Fund, June 2012

¹¹² Page 3 of State Disaster Management Plan 2016

Table 5.1: Budgetary provisions and expenditure of SDMF during 2014-19

(₹ in crore)

Year	Funds provided in the Budget	Expenditure against budget provision
2014-15	0.05	0.00
2015-16	42.50	32.50
2016-17	10.10	1.00
2017-18	6.25	6.25
2018-19	1.00	0.81
Total	59.90	40.56

(Source: Detailed Appropriation Accounts of the respective years)

As seen above, the funds received from GoK were meagre in all years other than 2015-16 when GoK made available ₹42.50 crore for the fund. Also, contrary to stipulations in the Guidelines, KSDMA did not formulate a State level mitigation plan/ strategy detailing all mitigation activities to be undertaken in the State.

In reply, the Department of Revenue and Disaster Management stated (November 2020) the following:

- 'Mitigation' denotes the proactive steps aimed at reducing the risk, impact or effect of a disaster or threatening disaster situation. SDMF Guidelines require that the SDMF should be a demand-driven rather than supply-driven mechanism.
- It was further stated that Audit had ignored the fact that the Disaster Management Act of 2005 mandates Government of India to constitute a National Disaster Mitigation Fund, which remains to be created. Expenditure from SDMF is met entirely out of State Funds and allocation is based on recommendation of KSDMA, but subject to availability of funds, the ways and means position of the Government and Governmental priorities.
- Government further stated that there was no statutory obligation on KSDMA or SEC to frame mitigation plans (unlike the required preparation of Disaster Management Policy, the DM Plan and Guidelines for the integration of measures for prevention of disasters and mitigation) under the Disaster Management Act 2005.
- Under the DM Act (section 18(2)), in specific cases of mitigation, KSDMA has to a) recommend provision of funds for mitigation and preparedness measures (Kerala is one of the few States to have created the SDMF and utilised it, complying with the statutory requirement) and b) review the development plans of the different departments of the State and ensure that the prevention and mitigation measures are integrated therein. In compliance of the statutory requirements, KSDMA carried out a detailed examination of the budget heads and plans of departments and suggested action points as guidelines for mainstreaming disaster risk reduction.

- The mitigation plans are to be laid by the respective departments depending on the site-specific conditions with the general guidance of the State and District Disaster Management Plans. It is not a statutory requirement that the State Disaster Management Authority create a separate Disaster Mitigation Plan. SDMF is demand driven and when specific funding demands are submitted by departments or DDMA to the SEC, they are examined and approval given based on merits.

The reply is not tenable since KSDMA was tasked with coordinating and implementing disaster mitigation projects through DDMA, empanelled NGOs, other departments, local self-governments, self-help groups etc. As the coordinating and implementing agency, KSDMA should have taken proactive steps including interacting with various stakeholders for assessment of their needs and obtaining funds from GoK for attainment of such objectives. Contrary to requirements of the Guidelines (Paragraph 2.5) framed by KSDMA itself, no State level mitigation strategy was formulated, apart from including in the Disaster Management Plan, a Chapter on Disaster Preparedness and Mitigation, which had no indication of a Mitigation Strategy in the context of flood as threatening disaster other than Operation Anantha in Paragraph 3.14 and Mullaperiyar Crisis Management Plan (Paragraph 3.10). Audit observes that had KSDMA chalked out a Mitigation Plan detailing vulnerabilities and ensured a strategy in place to mitigate potential disasters, KSDMA's recommendations for funds would have been based on the same. Audit notes that the Guidelines (Paragraph 2.5) for the administration of the SDMF envisage that once the State level mitigation strategy has been detailed, the works which could be taken up at the district, block and grama Panchayat level for shorter duration could be culled out of the Long-term disaster mitigation/ prevention plans. Further, it also provides that in its functioning, the SDMF should be based on a risk reduction plan which suggests a definite set of measures - structural or non-structural. If these Guidelines had been adhered to, identified projects could have been presented before SEC for approval and sufficient funds for mitigation activities could have been provided in the budget. A passive approach by KSDMA in this regard possibly contributed to the low budgetary allocation for SDMF over the years. Audit notes that the Guidelines also provide scope for utilising the SDMF for supporting mitigation projects of short-term nature that may be implemented within a period of maximum three years that emerge out of a threatening situation (besides the projects identified through the State Disaster Management Plan) but this does not endorse the view that no State Level Mitigation Plan or Strategy was warranted.

That the National Disaster Mitigation Fund has not been constituted in the country, makes it all the more important for KSDMA to formulate a State level Mitigation Plan/ Strategy and make recommendations based on the same for securing funds for the SDMF.

5.1.2. Deviation from procedures laid down for administration of State Disaster Mitigation Fund

The Guidelines for administration of SDMF envisage that the Fund is utilised for supporting mitigation projects (as distinguished from preparedness and response measures) of short-term nature that may be implemented within a period of maximum of three years, either identified in State Disaster Management Plan or emerging out of a threatening situation. The guidelines also envisaged utilisation of the funds only for such mitigation activities that were not covered under any of the existing plan schemes and stipulated that the interventions should be in areas which were otherwise not supported by regular or other Government schemes.

The mitigation projects evolved by any agency shall be assessed and approved by DDMA which shall forward them to SDMA. The proposals accepted by SDMA with respect to financial feasibility, compliance with guidelines etc. shall be placed before SEC. All project proposals seeking assistance from SDMF were to have seven elements¹¹³ as chapters to be evaluated with marks. The SEC was solely responsible for selection, approval/ disapproval of a project proposal after reviewing all pertinent information regarding the project proposal.

Audit observed that only seven projects as listed below in **Table 5.2**¹¹⁴, were taken up under SDMF during the seven-year period till March 2019.

Table 5.2: Projects taken up under SDMF till March 2019

(₹ in crore)		
Sl. No.	Name of project (Proposed by)	Amount expended
1.	Mullaperiyar Crisis Management Plan (DDMA Idukki and SDMA)	1.31
2.	Operation Anantha in Thiruvananthapuram and Kannur districts (DDMA Thiruvananthapuram)	23.72
3.	Pulimuttu Construction (Harbour Engineering Department)	10.00
4.	Side wall construction for a residence (DDMA, Thiruvananthapuram)	0.25
5.	Drought Mitigation (Kerala Water Authority)	6.00
6.	Urgent rectification works to left bank of Muvattupuzha river (Government)	0.50
7.	Mud flow prevention at Wayanad (Government)	0.04
	Total	41.82

(Source: Details furnished by KSDMA)

Audit could not obtain documentary evidence for adherence to the aforementioned stages in administration of SDMF from connected records at KSDMA/ GoK. Proposals were not seen routed by DDMA to SEC through

¹¹³ (i) Introduction (ii) Identification of hazards/ proposed implementation site (iii) Materials and methods (iv) Deliverables (v) Financial budgeting (vi) Timeline (vii) Profile of proposing or implementing authority/ agency and technical advisor

¹¹⁴ **Table 5.2** shows the total expenditure incurred on all the seven projects funded by SDMF from 2012 till March 2019, whereas **Table 5.1** details expenditure on SDMF projects during the audit period from 2014-15 to 2018-19.

KSDMA and project proposals not seen approved by SEC, except in Sl.No.2 for which ratification was obtained.

Though project proposals seeking assistance from SDMF were to be evaluated by SEC with marks to be allotted on the basis of seven elements, there were no recordings in the files to indicate that this process had been complied with and that projects had in fact been approved by SEC. Audit however observed that bypassing crucial stages in selection of projects like routing proposals from DDMA to KSDMA to SEC for approval, SEC's review of the chapters in project proposals prior to approving/ disapproving a proposal etc. is a cause for concern as regards transparency in prioritisation of projects.

Government in its reply (November 2020) stated that the SEC and the Government were adequately satisfied with the projects and proposals that are sanctioned from SDMF as testified by documents and justifications pertaining to each of the project and that the guidelines have been scrupulously followed in each case.

However, Audit notes that the role that is envisaged for the SEC is that of an approving and sanctioning authority for project proposals, rather than a role where it steps into the picture after the decision has already been taken to sanction from SDMF.

The clarification of Member Secretary, KSDMA in the Exit Conference (January 2021) on delegation of financial powers wherein works upto ₹ one crore could be approved at the level of Principal Secretary (Revenue and Disaster Management Department) cannot be regarded as a justification to evade the stipulated sequence of phases of approval of project proposals by SEC. The approval of the project by the SEC after following due procedure is to precede the financial sanction. Even the Government order¹¹⁵ only delegates the financial powers of the SEC to the Additional Chief Secretary, Revenue and Disaster Management.

Audit was also informed (November 2020) that it had been ensured that all listed mitigation activities did not have funding from any other source. As regards items at 4 and 6 in **Table 5.2**, it was indicated as follows:

In the case of work cited at Sl. No. 4, it was stated that competent authorities examined the matter and reported the potential loss to life and property and the District Collector reported the matter to the Government. The Government decided to release funds from SDMF and recover the costs from the concerned parties who may have triggered the failure to the cliff. As regards Sl. No. 6, it was stated that based on the report of DDMA Kottayam, Government decided to support this 'proactive measure' in the light of the specific fact that this was a mitigation activity requiring immediate application of resources to avoid a threatening disaster situation as corroborated by the technical report of Irrigation Department¹¹⁶. In both cases, powers vested upon SDMA and

¹¹⁵ GO (Rt) No. 2167/2016/DMD

¹¹⁶ The nodal department for flood preparedness and mitigation

DDMA under Section 50 of Disaster Management Act, 2005 were complied with.

Chapter 3 of the Mitigation Fund Guidelines warrants execution of necessary measures by the Secretary SDMA for the prevention/ mitigation of threatening disaster situation where immediate measures are necessary to protect the community from an anticipated disaster. However, in such cases, approval from the Convenor and Chairperson of SEC are to be kept in the file. Any such action taken by KSDMA should be submitted for ratification before the SEC in the subsequent meeting. In both cases, no records in support of the above were available in DDMA/ KSDMA/ Government. Audit observes that if action was warranted under Section 50 of the Act in respect of both these cases, then these procedures as per Chapter 3 should also have been complied with.

Audit observed that as per Paragraph 2.6 of the Guidelines, the Secretary, State Disaster Management Authority will ensure financial feasibility of the project, ensure that no other funding from Government of Kerala is available or possible for the proposed project and ensure compliance with the guidelines for the utilisation of the SDMF before presenting to the SEC for its consideration.

Audit observes that in the specific instance of these two works, they failed to meet the criterion of other sources of funding not being available/ possible. Audit does not agree with the manner in which SDMF has been operationalised merely as a funding window to accommodate projects, without adequate justification in file to show what considerations had been taken into account in reaching the decision that SDMF funds could be sanctioned for the same.

Audit noted that despite the District Collector Thiruvananthapuram requesting funds (07 June 2017) under State Disaster Response Fund (SDRF) to execute Sl. No. 4 on an urgent basis and the Council of Ministers also deciding (14 June 2017) to sanction ₹25 lakh from SDRF, it was noticed that Revenue and Disaster Management Department sanctioned (22 June 2017) funds for executing the work from SDMF, without offering any justification in files. Due to non-availability of sufficient funds under SDMF, the amount could be released to District Collector only on 27 January 2018, of which ₹8.96 lakh alone had been spent till date, for the completed first phase of the work. Hence, clearly, this was not an instance where power under Section 50 of the Disaster Management Act should have been utilised to permit emergency procurement.

The work at Sl. No. 6, belonged to the category of works for which funding was possible under Flood Control/ River Management Fund by Water Resources Department/ District Collector. Even the Finance Department had raised this query. Audit observes that even if funds were not immediately available under the Flood Control/ River Management Fund, this does not appear to be an adequate justification for utilisation of SDMF since the work

was seen completed only in June 2020, after a period of over two years. The Secretary, KSDMA should have ensured that not only was no other funding from Government of Kerala available at that point of consideration but also that no other funding was possible for the proposed project. Clearing such items for consideration under SD MF, from the financial perspective, may be at the cost of other potential proposals for which no other source of funding was possible at all.

Recommendation 5.1: a) In order to ensure effective utilisation of SD MF, a State level Mitigation Plan/ Strategy may be formulated as envisaged in the Guidelines for administration of SD MF, based on which shorter duration flood mitigation works could be taken up at the district, block and Panchayat levels.

b) KSDMA also may ensure that all project proposals seeking assistance from SD MF are presented before SEC for selection and approval.

5.2. Execution of immediate restoration activities in post flood scenario

Section 48 (1) (a) of the Disaster Management Act, 2005 stipulates constitution of State Disaster Response Fund (SDRF) at the State level. Based on the recommendations of the Finance Commission, Government of India and State Government contribute funds to SDRF in the ratio 75:25 (during 2018-19 the sharing pattern was 90:10). The Revenue and Disaster Management (R&DM) Department sanctions funds from SDRF for meeting the expenditure towards relief assistance to victims of disasters, immediate repair and restoration of infrastructure damaged during disasters etc. The details of funds expended under SDRF during 2014-15 to 2018-19 are detailed in **Table 5.3**.

Table 5.3: Details of funds expended under SDRF during 2014-15 to 2018-19

(₹ in crore)

Year	Opening Balance	Funds received from			Total	Expenditure	Closing Balance
		GoI	NDRF ¹¹⁷	GoK			
2014-15	77.73	119.50	...	39.83	237.06	215.15	21.91
2015-16	21.91	138.75	...	46.00	206.66	134.14	72.52
2016-17	72.52	145.50	...	48.50	266.52	150.66	115.86
2017-18	115.86	153.00	164.72	51.00	484.58	197.50	287.08
2018-19	287.08	192.60	2904.85	21.40	3425.10 ¹¹⁸	1311.12	2113.98

(Source: Finance Accounts of the respective years)

Consequent upon the floods in 2018, R&DM Department allotted funds from SDRF to all District Disaster Management Authorities (DDMA) to meet the immediate post deluge needs such as evacuation of people, supply of food items, immediate relief assistance etc. In addition to the funds allotted to

¹¹⁷ National Disaster Response Fund; The additional assistance received from NDRF during 2017-18 and 2018-19 were for Ockhi and Flood respectively

¹¹⁸ includes ₹19.17 crore provided by GoK as arrears of interest on uninvested balance in the Fund

DDMAs, R&DM Department sanctioned ₹891.85 crore between August 2018 and June 2019 to various departments/ agencies such as Water Resources, Police, Public Works, Directorate of Health Services, Clean Kerala Company etc. to meet the expenses in connection with distribution of food items, removal of non-biodegradable waste in flood affected areas, supply of drinking water, search and rescue operations, restoration of infrastructure like roads, bridges, irrigation structures etc.

Audit observed that Water Resources (Irrigation) Department, which was the nodal department for flood preparedness was sanctioned ₹536.27 crore for immediate repair and restoration of damaged infrastructure during 2018 flood based on the proposal submitted by six¹¹⁹ Chief Engineers of Water Resources (Irrigation) Department. The Apex Committee of the Irrigation Department approved (May/ July/ August 2019) a total of 7124 works such as rectification of flood damages in Regulator-cum-Bridges, rectification works in canals, removal of silt and debris etc. for an amount of ₹515.51 crore. Of these, only 1406 works (20 *per cent*) for an amount of ₹49.47 crore were seen completed (January 2020).

As per the SDRF guidelines, the works of immediate nature alone could be funded from SDRF. Though these works were said to be immediate repair and restoration works, even after a lapse of two years and eight months, they were yet to be completed (April 2021). As the works taken up were priority items such as rectification of damaged structures, removal of silt and debris from canals, streams etc. and deepening them for increasing their carrying capacity etc. partial/ non-completion of these works would increase the impact of floods in ensuing years also.

Government replied (November 2020) that as the works under SDRF were proposed to rectify the urgent damages inflicted to the infrastructure during the flood, the cost of most of the works offered were small, due to which many of the works had to be retendered. Further, during the implementation stage of works undertaken, the State was lashed with another flood.

Audit notes that as per Paragraph 8.38 of Manual of Administration of State Disaster Response Fund, assistance for damage to infrastructure is permissible for repair/ restoration of immediate nature. Such expenditure is normally incurred within a short span mostly during the initial period of immediate relief operations itself and that such aspects were to be kept in view while projecting the requirement under this sector. GoK also informed that 63 *per cent* of the approved works have been undertaken and that the expenditure stands at 49 *per cent* (November 2020).

In the Exit conference (February 2021), Additional Chief Secretary (Water Resources Department), while agreeing to the audit contention that works could have been executed much faster, stated that there was delay in planning and obtaining Administrative Sanctions from the Revenue and Disaster

¹¹⁹ Chief Engineers in Irrigation and Administration, Project I, Project II, Kuttanad Package, IDR and Mechanical

Management Department for execution of works. It was also assured that efforts are being taken to complete all works by May 2021.

In its reply (December 2020), the Revenue and Disaster Management stated that vide GO dated 27 March 2018, the time limit for implementation is decided as one year and six months from date of release of funds. However, in the specific case of works relating to 2018 floods, the 2019 floods that followed within a period of one year created *force majeure* conditions after taking up the works which delayed the execution of most of the civil works in the State.

In his reply (April 2021), ACS, Water Resources Department informed that as on 16 April 2021, agreement have been executed for 95.39 *per cent* of the works¹²⁰ and 82.62 *per cent* of works have already been completed. It was also stated that all the works were expected to be completed within a period of two months.

Audit observes that even after the passage of several months after the 2019 floods, the fact remains that works (which had been approved in the wake of the August 2018 floods) are expected to be completed only by May-June 2021.

Recommendation 5.2: Government may put in place a system of periodic monitoring of status of works of immediate nature funded by SDRF to ensure that works sanctioned are completed on priority basis, given the State's increasing vulnerability to severe flooding events.

Results of survey

One of the objectives of the Performance Audit was to assess whether the preparedness and response to the floods in 2018 was adequate and timely. During the Entry Conference (June 2019), Audit intimated Government that it was proposed to conduct a survey of affected people in the selected districts. The Principal Secretary to Government, Revenue and Disaster Management Department informed that most of the immediate response activities undertaken in 2018 floods could not be sufficiently documented and hence were not readily available for verification by Audit. It was also suggested that the authenticity of details recorded under the survey need to be verified by the institutional heads concerned. Audit conducted a survey among 800 persons affected by 2018 flood during the period from September 2019 to February 2020 in 32 LSGIs of the four selected districts. Two taluks in each district and four LSGIs in each taluk were selected for the survey. The respondents for the survey were selected randomly from the list of flood affected persons maintained by the LSGIs. The name of LSGI, taluk and number of respondents are detailed in **Appendix 5.1**. The individual responses of 800 flood victims to queries relating to pre-flood preparedness, operational phase of flood management and post flood review, duly attested by the Secretaries of LSGIs, have been compiled and the summary is presented below.

¹²⁰ ACS informed vide letter dated 19 April 2021 that a total of 6,923 works amounting to ₹52,940.39 lakh were progressing under the supervision of the six Chief Engineers of Irrigation Department.

5.3. Pre-flood preparedness

The National Disaster Management Plan, 2016 envisages¹²¹ that the Revenue and Disaster Management Department, SDMA, SEOC, DDMA and all other relevant Departments/ Agencies are responsible for disseminating early warning signals and information to the District Administration, local authorities and the public at large upto the last mile in the areas likely to be affected by a disaster so as to reduce loss of life and property.

- Six hundred and one persons (75 per cent) stated that they had not received any warnings/ alerts from village/ taluk/ local body authorities before the occurrence of the 2018 floods. Out of those who had not received the alerts, 411 persons came to know about the catastrophe only when water level rose suddenly and 99 persons faced the reality in the form of landslides which ravaged their houses and property.
- Seventy-three per cent (582) stated that they were not informed of any steps for evacuation from their areas in view of the impending flood.
- Five hundred and fifty four respondents were ignorant about the meaning of yellow/ orange/ red alerts issued by authorities at the time of disaster.

The responses on pre-flood preparedness indicate that warnings/alerts by local administration/ Disaster Management authorities to the public before the impending floods were not adequate at the last mile. This also reinforces the audit observation on inadequate early warning and communication facilities detailed in Paragraph 3.5.2 of this Report. Ignorance of the people at the grassroots level about the colour coding of various alerts points to the fact that the steps taken by Disaster Management authorities to generate awareness about the importance/ relevance of each type of alerts and precautionary steps to be taken by the public based on specific alerts were insufficient.

5.4. Flood Management - Operational phase

State Government, SDMA, SEOC, DDMA, all other relevant Departments/ Agencies, State Disaster Response Force and Civil Defence had to make quick assessment of evacuation needs such as the number of people and animals to be evacuated and mode of evacuation, mobilise transport and resources for evacuation, identify and prepare sites for temporary relocation of affected people and animals. The State Disaster Management Plan 2016 was to include

¹²¹ Paragraph 4.9, Responsibility matrix on preparedness and response, Page 101

specific provisions¹²² for evacuation, safety and the rehabilitation of animals affected by flood.

- It was stated by 534 respondents that no Government/ LSGI officials had approached them and briefed them about the gravity of the situation, when water level started rising.
- Four hundred and ninety four out of 800 persons informed that no authorities had asked them to move to safer locations, 252 persons stated that they were asked to move to safer spots by various Government officials who visited their households when the water level was rising and 225 had conveyed their willingness to move.
- Of the 496 victims who owned pet animals, 402 persons could not shift their cattle/ poultry/ pet animals to safe locations. However, 88 out of the 94 persons who were able to safeguard their animals informed that they did not obtain help from departmental officials in moving the animals to safer locations.

5.5. Post flood review

- Of the 458 persons who moved to the relief camps, 445 opined that sufficient quantity of quality food, drinking water, medical supplies and toilet facilities were available in the relief camps. 391 among these persons opined that adequate drainage facilities were provided in the camps and 326 stated that they even received counselling in the camps to deal with the trauma. The commendable standard of facilities provided in the relief camps which operated during the crisis is evident from the above.
- Out of the 800 affected persons covered in the survey, 672 persons (84 *per cent*) confirmed the receipt of the immediate assistance of ₹10,000 provided by the Government to the victims in flood affected regions for cleaning and removing the dirt and mud deposited inside houses. This is indicative of the efficacy of response system as regards disbursement of monetary assistance during the crisis situation.

Government, in its reply (November 2020) contested the results emanating from the survey citing the following grounds:

- The survey was based on a sample population of only 800 individual victims which is not representative enough for generalisation as at least 30 *per cent* of the total population needs to be covered for a

¹²² Sl. Nos. 2 and 15 of Responsibility Matrix for preparedness and response under paragraph 4.8 in National Disaster Management Plan 2016 delegate to States the responsibility of quick assessment of evacuation needs such as the number of people and animals to be evacuated and mode of evacuation, mobilising transport and resources for evacuation, identifying and preparing sites for temporary relocation of affected people and animals etc. and require the States to include these provisions in the State Disaster Management Plans.

prudent/ credible statistical survey. The reactions were of selected public, whose reactions could not be considered as reliable and dependable. Further, effectiveness of survey conducted 15 months after the event was also doubtful. The original records relating to the survey findings were not provided by Audit to KSDMA till date for examining the reliability of data and results.

- There are factual contradictions in the data mentioned in paragraph 5.3 and 5.4. Whereas in 5.3 it is stated that 582 persons held that they were not informed of any steps for evacuation, in 5.4 it is mentioned that 534 respondents were not briefed about gravity of the situation.
- Audit cannot expect the State to disseminate an early warning as IMD had not predicted the 'extremely heavy rain' which resulted in the deluge. Based on the National Disaster Management Plan of 2016¹²³, Audit observation concerning responsibility for dissemination of warning signals was not correct. Central Agencies are to provide the information to the State Agencies and they in turn have to pass it on to the district Administration and local authorities. There was no early warning available to the State regarding the August 2018 floods. The actual rainfall exceeded several fold the IMD's predicted rainfall and forecast of dates also varied. Prediction system of IMD and CWC, the Central agencies involved itself could not capture the extremely heavy rainfall which led to the floods and hence the communication itself could be based only on the level of alert. Deluge resulted from extremely heavy rainfall and such rainfall was not predicted before 15 August 2018.
- All information available with KSDMA and the Government and the warnings/ advisories issued besides the Hon'ble Chief Minister's directions and briefings were shared with the public through print, audio, visual and social media including KSDMA's Facebook page. In spite of the absence of dedicated disaster communication radio channel or nation-wide last mile connectivity other than through print, visual, audio and social media, the State Government, with the support of CDoT¹²⁴, NDMA and BSNL, started using location-based messaging system for the first time in the country during the 2018 floods and sent out 16 lakh advisory messages to public. Mike announcements were also carried out in critical areas.
- Audit failed to consider the drawbacks of the early warning systems of IMD and CWC which is the first link of the chain in early warning.

¹²³ As per the National Disaster Management Plan 2016, it is the responsibility of the Central Agencies to undertake a) to issue forecasts, alerts, warnings, b) provide early warnings (wherever possible) to reduce loss of life and property, and c) disseminate warnings and information to Central Ministries/ departments/ agencies and to the State Government. It is the responsibility of State agencies to i) disseminate early warning signals to the district administration, local authorities and public at large in areas likely to be affected by a disaster so as to reduce loss of life and property ii) disseminate warnings and information upto the last mile.

¹²⁴ Centre for Development of Telematics

As even IMD started issuing colour coded alerts to Kerala only from 08 August 2018, it is not proper for Audit to suggest imparting training on colour coded warnings to public when Kerala was in the midst of the fury of floods. KSDMA issues specific action protocols for public, district authorities and departments based on SOPs which are in simple Malayalam and do not need training.

- During crisis, Government/ LSGI officials and the public as well as voluntary organisations join hands and combat the situation. Audit has attempted selective reading to serve the purpose of pointing fingers, without examining the real situation and on-the-spot requirement during floods.
- There is no statutory obligation under Disaster Management Act, 2005 upon KSDMA, Government or LSGI officials to physically visit individuals and brief them of the gravity of any situation in almost 30 *per cent* of the State's populated area. During crisis management, physical presence of rescue forces was ensured for rescue operations. The public was alerted at large and conveyance was provided to those unable to move by themselves.
- Specific public alerts were issued in all media to let loose pets and domestic animals. Carrying pets along with evacuated families is not the best practice in a severe flood situation.

The response of Audit to the points contested is as follows;

- The purpose of the survey was to understand the public perception in the context of flood preparedness, operational phase of flood management and post flood activities of the Government. This was sought to be carried out with Audit's limited resources, through survey questionnaires issued to 800 persons in flood ravaged areas and the results of the survey indicated a mixture of positive and negative feedback. Since the survey was conducted in the presence of Revenue/ Local Self-Government officials and the survey responses sheets also bear the seal and signature of the Secretary of the GPs in each instance, there is no reason to doubt the results of survey or the process followed. Confidentiality has been maintained as regards sharing the filled in questionnaires as data collected includes personal data such as name, address, mobile number and ration card number.
- There is no contradiction between response sets obtained in respect of any of the questions. The response to questions in 5.3 pertained to pre-flood scenario and that in 5.4, related to actual crisis situation. Audit notes that a person who had been briefed about the gravity of the situation may not have been informed about the steps for evacuation.
- Audit notes that the contention that the State could not be expected to disseminate early warning in the absence of alerts from competent

Central agencies is not acceptable based on the laws and procedures in place (SOPs);

- (i) Section 38, 2 (h) of the DM Act, 2005 states that it is the responsibility of the State Government to “establish adequate warning system up to the level of vulnerable group”. Early Warning Dissemination is one of the most important roles of Emergency Operations Centre (EOC) (EOCESFP¹²⁵ 2015, Paragraph 4). The EOC utilises Information and Communication Technology (ICT) tools and various other modes available for transmission of early warning to the vulnerable groups and also activate the responders.
- (ii) While IMD is a competent agency for weather warnings (EOCESFP 2015, Paragraph 4.1), the functions of SEOC, vide the same paragraph, include issuing warnings to district administrations and, if necessary, to public based on predefined thresholds of environmental variables (rainfall, water level, seismological inputs, wave height etc.) and specific warnings from India Meteorological Department (IMD), Central Water Commission etc. Thus, there should have been an effective system in place to issue warnings based on predefined thresholds of environmental variables and SEOC/ KSDMA should not have merely depended on the receipt of early warnings from IMD, CWC etc.
- (iii) The SEOC is a nerve centre of, *inter alia*, early warning (EOCESFP 2015, Paragraph 1.1). One of the objectives of the SEOC is to conceptualise and implement hazard early warning systems (EOCESFP 2015, Paragraph 2.1). Paragraph 2.1 also envisages that once made operational, the Decision Support System (DSS) of SEOC would enable the prediction and early warning of major hydro-meteorological hazards and provide support for emergency operations in the event of hazards. However, in the absence of real time data, the DSS could not fulfil the envisaged role of providing early warning of major hazards during the August 2018 floods. Unless real time data is made available, the DSS would not be able to enable the prediction and early warning of major hydro-meteorological hazards in the future also.
- (iv) The State Disaster Management Plan 2016 also requires the Water Resources Department, the nodal department for disaster preparedness, to ensure proper early warning mechanism for flood by monitoring water level of surface water bodies.

¹²⁵ Emergency Operations Centres and Emergency Support Functions Plan 2015 of KSDMA, renamed as Orange Book of Disaster Management in May 2019.

- Audit acknowledges the positive steps taken by the DM authorities to communicate with the public during the floods of 2018 utilising different media and other resources. However, Audit notes that at least one other Report (Post Disaster Needs Assessment, October 2018)¹²⁶ also documents gaps/ challenges in early warning communication to the last mile¹²⁷ indicating that the system certainly needs to be made more effective to ensure better preparedness for the future.
- The National Disaster Management Plan 2016 details matrix of responsibilities assigned to Government/ agencies/ community at different levels for coordinated preparedness/response. The questionnaire was prepared in line with the delegation of responsibilities underscored by NDMP. Audit proposed to assess whether warnings with respect to the impending likely disastrous situation of inundation, consequent on continuous heavy rainfall and opening of shutters of all dams in the State had been disseminated till the last mile by Government. It was also a review of the extent of compliance to instructions from State/ DDMA's by officials at taluk/ village/ LSGI level during crisis situation, sourced from the public who were the direct victims of the deluge. Situations in which people got to know of the disaster during odd hours at night when water rushed into their houses were reported to Audit in the course of the survey. The audit exercise may be viewed as a constructive aid in improving response operations in future disaster scenarios. The Action Plan for Rebuild Kerala Development Programme on 2018 floods by Rebuild Kerala Initiative of Government of Kerala mentions limited/ restricted/ restrained dissemination of disaster risk information and lack of awareness of disaster risks as among the underlying multi-sector issues that contributed to the heavy impact of floods which exacerbated the vulnerability of State to disasters.
- District specific colour coded alerts were disseminated to the public through visual media. The intention of Audit was to highlight the necessity of imparting timely information to the public on the colour coded warnings, as to what is to be done on receipt of specific type of alerts. Colour coding of IMD has been in place for some years and the authorities as well as the public in Kerala and particularly in

¹²⁶ Commissioned by the Kerala Government, the Kerala PDNA was undertaken jointly by experts from the line Ministries and the United Nations.

¹²⁷ There were two major problems identified in early warning communication to the last mile; 1) warnings not understood: Some of the district administrations indicated that the warnings like red alert or orange alert issued by the IMD for the entire district were not understood well enough to elicit response action or preparedness planning. More detailed localised warnings indicating the taluks and panchayats are required to take appropriate actions and 2) warnings understood but ignored: Although Kerala is prone to floods, it does not experience regular flooding. Hence community preparedness to respond to such a disaster was low. Although the flood warnings were provided to the community, there was reluctance to respond to them due to lack of knowledge about the impact of the flood.

(Extracted from the Chapter on Disaster Risk Reduction in the PDNA Report)

hazard prone areas ought to have been made familiar with the coding system and its implications much before the floods as part of the disaster preparedness.

- Audit also notes that had a strong early warning system and timely evacuation been in place, possibly more animals which were sources of livelihood to many, could have been saved through shifting to safe shelters etc.