



# Kerala's Disaster Management Initiative: An Analytical Study Of Pre And Post Tsunami.

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## INTRODUCTION

“Disaster” means a Catastrophe, Mishap, Calamity, or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destructions 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;<sup>1</sup>

Natural Disaster have been integral part of Human history as it causes loss human life, livestock and property. Large Concentrations of world's Population in Several countries are frequently subjected to various natural disasters due to unique geo-climatic conditions. Such regions susceptible to floods, droughts, cyclones, earthquakes, landslides, etc. As a result annually many people are either killed or missing, they become homeless. Also, there huge loss of public and private properties as well as agriculture field and products. Thus, disaster undermine development efforts thereby retarding economic growth and making social stability fragile. Internationally, there have been deep concerns for the continuing human suffering and disruptions of development caused by natural disasters<sup>2</sup>.

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. About 60% of the landmass is a prone to earthquakes of various intensities; over 40 million hectares is prone to floods; about 8% of the total area is prone to cyclones and 68% of the area is susceptible to drought. In the decade 1990-2000, an average of about 4344 people lost their lives and about 30 million people were affected by disaster every year. The loss in term of private, community and public assets has been astronomical<sup>3</sup>.

Kerala state is vulnerable to multitude of disasters and categorized as multi-hazard prone state. Kerala divided into the level of prone state 14.5% of the state flood prone, 14.4% is land slide, and 55.5% Coastline prone to Coastal Hazards and other is man-made kind of disasters. The state falls in zone III in the national seismic

zonation map. Kerala is highly density of Population, Urban Character, long coastline, Potential impact of climate change, exotic infections disease and terrorism related hazards. With this view, the Kerala state Disaster management authority has formulated the “Kerala State Disaster Management Policy (KSDMP)” It has followed National Guideline in Disaster Management. The Disaster management policy calls for mechanism for coherence and alignment policies of the Government and Future Legislation<sup>4</sup>. The vision of KSDMP is a “State community and better quality of the in the state through holistic and comprehensive state of the art disaster management services”.

## **KERALA’S DISASTER MANAGEMENT HISTORY BEFORE THE TSUNAMI**

Before the Tsunami Kerala had been inconsiderate in managing numerous disaster situation. During the period the State disaster management focused on the limited preparedness and response related activities. The majority of preparedness efforts were generally concentrated on building structural defence against coastal erosion and flooding such as sea wall groynes, embankments, and spillways. On the other hand, immediate relief and rescue, damage assessment, and compensation distribution were the main components of the disaster response. All types of disasters in the state were handled by the state revenue department. Other Department like Agriculture, Public Work and Irrigation also the part of disaster management. However, there was very little mention of the role and responsibilities of these stakeholders in dealing with the disaster situation. Understanding this, the state disaster management as a system was not in place in Kerala. Because of this, disaster management was frequently interpreted as offering aid to victims, assisting with recovery, paying out compensation, setting up relief camps, repairing damaged infrastructure, etc. As for the whole situation state disaster management considered as Responsive Centric<sup>5</sup>.

According to the Responsive centric view, the main purpose of the Disaster Management was constructing structural measures for mitigating the effect of floods and coastal erosion. During the period 1951-56 the flood control work were initiated in the second five year plan. The flood control works mainly focus on building of embankments, retaining walls, bed bars, permeable groynes etc., to protect the densely populated riverbanks, save lives and property, and safeguard public property, such as structures, roads, canal, and other infrastructure, from the devastation of floods<sup>6</sup>. The first evident disaster management is the Thottapally water spill way in Alappuzha district which was commissioned in 1954 to protect flood hazards from Kuttanad during period of second five year plan<sup>7</sup>. It was also intended for prevention of ingress of salinity into Kuttanad during summer while allowing for discharge of flood waters during rainy season<sup>8</sup>. Second important evident for disaster management initiative is Kattampally project regulator cum bridge across Kattampally River in Kannur district introduced in 1958<sup>9</sup>. After these two project, in early 1960’s Flood Control Board and a Technical Advisory Committee was constituted “Flood Control Technical Committee”<sup>10</sup>. They studied detailed about the Kerala flood in 1963 and also Implemented lot of project but lack of Funds, Floods Control measures could not be taken up on a wide scale till the sixth five year plan. New approaches of the disaster management taken by the Ninth five year plan. The Basin wise study was the new approach to identifying the flood prone areas and understand flood causes of Occurrence, Intensity, Duration etc., it was not initiated due to lack funds and technical support. State was faced major flood in the years of 1961, 1968, 1975, 1981, 1985,

1986, 1989, 1992 and 1994 provide immediate response activities such as immediate rescue rehabilitation and damage assessment. Early 1996s local self-government was initiated disaster management in the local level. Another major disaster situation in Kerala on the coastal erosion. From the second five year plan a portion of fund was allocated to construct sea wall and strengthen existing sea wall of the state. This continues still the ninth five year plan period.

Earlier period other than flood and coastal erosion state was not adopted any other mitigation activities. The western Ghat region of Kerala have been considered as the hotspot of the landslides. However no proactive mitigation measures had been taken other than immediate response relief rescue operation, damage, assessment etc. Drought is another notable hazard in the state. The year 1983 state taken initiative to improving water supply. This Scheme benefited 40 lakh people. Total expenditure for this drought relief scheme was Rs.21.53 crores<sup>11</sup>. In 1984 state get support from European commission to construct disaster relief centre in various centres. But this was not taken long run because of the state negligence.

### **KERALA'S DISASTER MANAGEMENT AFTER THE TSUNAMI**

The December 2004 tsunami generated by the M 9.0 Sumatra-Andaman earthquake devastated many parts of the Kerala coast<sup>12</sup>. The tsunami is the wakeup call<sup>13</sup> in many sense, in fact in Kerala, Tsunami was make drastic change in the Disaster management in Kerala. After tsunami all most all the major disaster management initiatives including institutional set up as well as a policy framework evolved. In the early time Kerala state disaster management was a post-disaster relief and rebuilding centric.

The Kerala State Disaster Management Authority (KSDMA) was constituted in 2007 and district disaster management authorities (DDMA) in 2008 as envisaged in the disaster management act 2005. The KSDMA has, as envisaged in the DM Act, 2005, constituted the State Executive Committee (SEC) chaired by its Chief Executive Officer(*inter alia* Chief-secretary) and the Executive Management Of The Authority is vested with the principal Secretary, Disaster Management (*inter-alia* State Relief Commissioner according to state DM policy 2010). Vide GO (Ms) No.68/2011/DMD dated 08/02/2011 a State Level Crisis Management Committee was formed for addressing natural disasters with the Chief Secretary as the Chairperson. Vide GO (Rt) No. 6410/2013/DMD dated 29/11/2013, The State Executive Committee of KSDMA decided to form a Crisis Management group specifically for Anthropogenic Hazards with the Home secretary of the state as the Chairperson<sup>14</sup>.

The State government shall also consider enactment of appropriate legislation and revision of existing relief codes to form comprehensive Disaster Management Code to provide state specific legal framework for disaster management<sup>15</sup>. Disaster management in Kerala was mainly divided into two 1). Institutional set up and 2) Policy, Techno Legal framework.

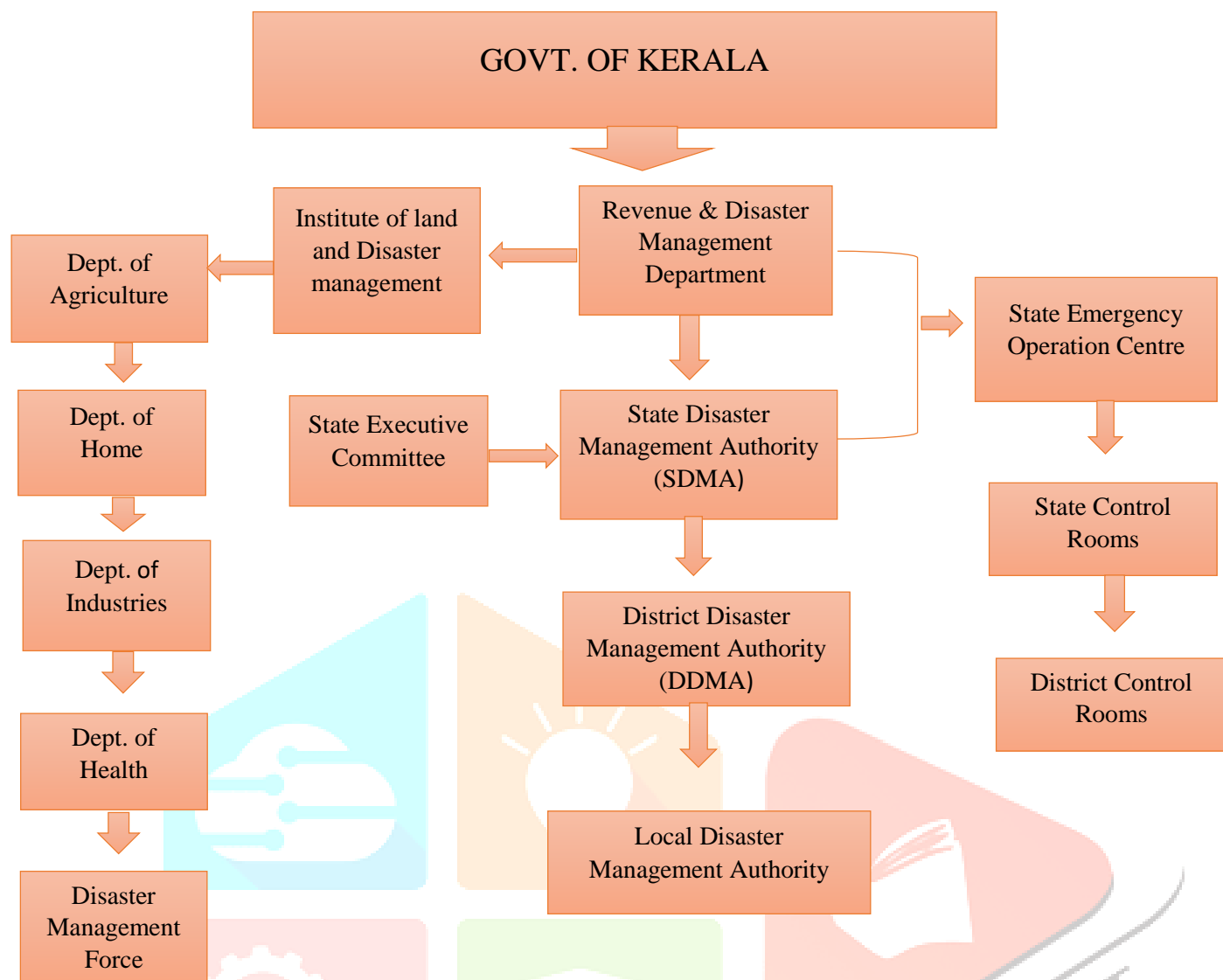


Figure 1. Institutional set up of Disaster management in Kerala

Figure 1 representing the Institutional set up in the state. In state there was three important high profile bodies were established for DM. 1) State Disaster Management Authority (SDMA), and State Executive Committee (SEC) 3) State Crisis Management Committee. Vide Section 3 of the Kerala State Disaster Management Report, 2007 the authority is composed of ten members, chaired by Chief Minister and Convened by Additional Chief secretary, Revenue and Disaster Management. The Chief Secretary (inter alia Chairperson of the State Executive Committee) is the Chief Executive Officer of KSDMA vide Section 14(4) of the DM Act, 2005. The KSDMA has three technically competent non-*ex-officio* members nominated by the chairman of the Authority vide Section 3 (f) and (g) of KSDMR, 2007. Additional Chief Secretary, Revenue and Disaster management is the Head of the Department of KSDMA vide GO (Rt) No.2181/2016/DMD dated 23-03-2016. The other ex-officio member are Hon'ble minister for Home and Vigilance, Hon'ble Minister for Agriculture, Additional Chief Secretary, Home and Head of the State Emergency Operations Centre. Head of state Emergency Operations Centre is vide section 3(4) of KSDMR, 2007 (amendment 2016) the Member Secretary of the Authority. The KSDMA shall meet at least once in a year<sup>16</sup>. KSDMA shall function as the

apex decision making body and facilitate, co-ordinate, review and monitor all disaster related activities in the state including capacity building.

Established as per Section 20 (1) of DM Act, 2005 and section 11 (2) of KSDMR 2007. The State Executive Committee shall meeting at least once in 3 months. Member of this committee 1) Chief Secretary, Kerala- Chief Executive Officer (Ex-officio) 2) Additional Chief Secretary, Home, Kerala- Member (Ex-officio) 3) Additional Chief Secretary, Finance –Member (Ex-officio) 4) Additional Chief Secretary, Revenue & DM- Convener (Ex-officio) 5) Principal Secretary Health- Member (Ex-officio)<sup>17</sup> .

Table 1 give the information about the various nodal department in the state and their initiatives in major disaster. Departments like Revenue, Home, and Public Health dealing with many Major disaster at a time. Other Nodal department on disaster management are Home, Agriculture, Animals, Husbandry, Forest, and Public Work Department handling disaster in their respective areas.

Table 1. State Nodal Department Dealing with major disaster

Sl.no	Nodal Department	Disaster
1	Department of Revenue	Flood, Drought, Landslides, Earthquake and other major natural & made disaster
2	Department of Home	Manmade and Human Induced disaster including rail and road accident
3	Department of Public Health	Chemical, Biological health related, Radiological and Nuclear Disaster
4	Department of Factories and boolers	Industrial Department
5	Department of Agriculture	Pest Attack
6	Department of Animals Husbandry	Cattle Epidemics
7	Department of water resource	Dum Burst
8	Public works Department	Major building Collapse
9	Department of Forest	Forest fire

Source: State Disaster Management Policy

The State Executive Committee of KSDMA is the State Level Crisis Management Group for Natural hazards vide GO (Ms) No. 68/2011/DMD dated) 08-02-2011. The CMG shall meet once in 3 month.

The Disaster Management policy is the guiding principle for the state and vision of the state for disaster management. It aims to establish an optimum system for dealing with disasters, avoiding disruption of economic activity and ensuring continuity in developmental activities without damaging the environment. The policy framework is structured in such a way that Kerala State Disaster Management Authority provides the overall direction and guidance to various entities leveraging the resources and capability of existing entities and building new capabilities without treating disaster management as a separate sector or discipline<sup>18</sup>. Kerala has established a policy Techo -Legal frame work of DM in the state which create on enabling regulatory environment and compliance regime in the state facilities and activities of different phase. There is three stages DM 1) Pre- Disaster Phase 2) During Disaster Phase 3) Post Disaster Phase.



### 1) Pre Disaster Phase

- ❖ Roles: Prevention, Mitigation, Preparedness
- ❖ Activities:
  - Hazard Risk and Vulnerability Assessment
  - Preparation of DM plan
  - Inventory of resources capacity Assessment and enhancement.
  - Early Warning System
  - The State Disaster Management funding
  - Community phased disaster management.

### 2) During Disaster Phase

- ❖ Roles: Disaster Response
- ❖ Activities:
  - Implementation and Operationalization of Disaster Management
  - Evacuation, Research & Rescue
  - Food, Shelter, Health, Sanitation etc.
  - Restoration of Basic Infrastructure and essential Service
  - Maintain Law And Order.
  - Immediate Relief
  - Damage & Need Assessment

### 3) Post Disaster Phase

- ❖ Roles: Relief and Reconstruction
- ❖ Activities:
  - Damage Assessment and estimation of funds
  - Restoration of livelihood
  - Physical Reconstruction (Housing, Infrastructure, Service, etc.)
  - Project Management

The Disaster Management Plan Call for a framework for mainstreaming disaster management in the State and Necessitates the Departments of the State Government to give Priority to Hazard Identification and risk assessment in their plans and schemes and allocation of a portion of plan funds for efforts that directly or indirectly Help in disaster management<sup>19</sup>.

After 2004 Tsunami Kerala disaster Management disaster framework was progress in high level. Post-tsunami Context the state has adopted proactive approaches in an Organized and structured manner for strengthening the disaster management framework. Kerala is the one the first state in the country constituting a State Disaster Management Authority. At the District Level 14 District Disaster Management Authority (DDMA) have been strengthened through various provision of Disaster Management Act<sup>20</sup>. As a result District Emergency Operation Centres attached to various DDMA Acts as a Link between grassroots level disaster management institutions such as village and taluk Officers and State Emergency Operation Centre.

For flood mitigation the DDMA Thiruvananthapuram introduced a project “Operation Ananta” in May 2015. This project main aim was removing unauthorized and dangerous concrete Structure from the urban drainage Basin of corporation which is considered as leading factor of urban flood in the capital city of the state. “Malappuram Model” is a project adopted by DDMA of Malappuram in 2012 for mitigate drought incident incidents on the district through Constructing eco-friendly check dams.

To control drought in state there was several project was adopt by state known as “Mazhapolima” and “Jalavarshini”. Mazhapolima is a community based roof rain harvesting and open well recharge project. “Jalavarshini” another project that reviving selected ponds in the state, minor dams, with local material etc. Mullaperiyar crisis is the one of the dangers hazard in the state. The KSDMA plan has been established as a preparedness initiative in the vulnerable areas of Vandiperiyar, Upputhara, Elappara, Kumali, Kanchiyar and ayyappankovil of Idukki. “Namal Namukayi” is a project rebuild Kerala from 2018 flood. One of the famous Disaster Management project.

The pre tsunami phase of disaster Management in Kerala was Responic centric and relief centric, it given less interest in institutional and policy framework. But after the unknown disaster 2004 tsunami state was seriously take responsibility for disaster management in Kerala. Both preparedness and response capacity

## ENDNOTES

<sup>1</sup> The Gazette of India, Legislation Department, Published by Authority, 2005, New Delhi.

<sup>2</sup> Kumar M, *Disaster Management through Panchayati Raj*, Mohit Publication, 2010, New Delhi.

<sup>3</sup> Disaster Management in India- A Status report, Ministry of Home Affairs, Government of India, 2004, New Delhi

<sup>4</sup> Kerala State Disaster Management Plan Profile(2011), Kerala state Disaster Management Authority, Government of Kerala

<sup>5</sup> S Sarun, An Appraisal of Disaster Management Initiatives in the Multi Hazard Prone State of Kerala, India, IJMSSR, Vol: 07,pp.65, 2018

<sup>6</sup> *Ibid.*,

<sup>7</sup> Economic review (1956) Government of Kerala, Volume 9

<sup>8</sup> Kerala Gazetteers (1989) Economic Affairs, Government of Kerala, Volume 3

<sup>9</sup> Report of the Expert Committee Constituted by Government order number 1124/97 in 1996

<sup>10</sup> S Sarun, An Appraisal of Disaster Management Initiatives in the Multi Hazard Prone State of Kerala, India, IJMSSR, Vol: 07,pp.66, 2018

<sup>11</sup> Economic review (1983) government of Kerala

<sup>12</sup> Kurian .N.P, Prakash T.N, Baba .M, and Nirupama N, Observation of Tsunami impact on the Coast of Kerala, India, Marine Geodesy, 2006, Jstore

<sup>13</sup> Anonymous, 2005 Report of the Committee to review the Coastal Regulation zone, India.

<sup>14</sup> Orange Book of Disaster Management 1, 2019, SEOC, Govt. of Kerala

<sup>15</sup> Kerala Disaster Management Policy, KSDMA, Govt. of Kerala

<sup>16</sup> Kerala Disaster Management Plan 2016, KSDMA, Govt. of Kerala

<sup>17</sup> Kerala Disaster Management Policy, Opsit.,

<sup>18</sup> *Ibid.*,

<sup>19</sup> Kerala State Disaster Management Plan Profile(2011), KSDMA, Govt. of Kerala

<sup>20</sup> Disaster Management policy(2010), Dept. of Revenue and disaster Management, Thiruvananthapuram

