

Disaster Management - A Case of Latur Earthquake

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ABSTRACT

In this world, natural disasters are an inevitable phenomenon and India is no exception. India is highly susceptible to natural disasters due to its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides are common phenomena. Almost 60% of the area is prone to earthquakes of various intensities; over 40 % of the total area is prone to floods; around 8% of the total area is prone to cyclones and 68% of the area is susceptible to drought. Each year a teeming number of people have to prostrate themselves in front of nature's fury, losing lives and property and are completely ravaged by the disasters.

At the global level, there has been considerable concern over natural disasters. It is not possible at any cost to completely recapture the destruction wreaked and losses inflicted by these disasters. But it is certainly possible to mitigate the losses and alleviate the suffering emanating from these disasters by having adequate warning systems in place to provide manoeuvring space; planning, preparing and executing developmental plans to resurface rapidly from such disasters, and commence the process of rebuilding with slightest possible lag.

Key Words:- Natural Disaster, Disaster Management, Information and Communication Technology, Emergency Operation Room, National Disaster Management Authority, Disaster Management Plan, Disaster Management Cycle, Disaster Risk Management , Disaster Risk Reduction, Epicentre, Hypocentre, Richter Scale

INTRODUCTION

A natural disaster is a condition of the environment. Natural disasters are a manifestation of the destructive forces of nature, usually wreaking havoc and causing untold misery. They have

ramifications of den life, property, leading to turbulent upheavals in the social and economic course of normal life. With this age being heralded as Anthropogenic, only accentuating the impact of man on his surroundings, climate change has become an imminent phenomena, which perhaps spurs on nature more frequently to a tergiversation of it benign countenance and assume a malignant one. Mankind, despite its refulgent advances and accomplishments, has to prostrate itself in front of nature's fury. Huge amount of destruction is caused by such disasters as, property damage, infrastructure destroy, injuries and death, or a long term social and economic results, out coming from the event. Mankind, lives under a worsening threat of such disasters happening at any time due to any natural phenomena. Disasters may last for a few minutes or they may even extend for years in which they leave behind, only a devastated landscape.

Earthquakes are one such instance of natural disasters when somewhere below the ground, the joints of two rock masses, locked together under tremendous tension, rupture. This movement may be slight but releases a tremendous amount of energy, akin to a bomb explosion and the whole surface tears up with a jerk. This triggers a massive domino effect, bringing down massive structures and reducing them to heaps of rubble.

LATUR DISTRICT: A PROFILE

PROFILE OF THE DISTRICT: The Latur district is in the south-eastern part of the Maharashtra state. Latur town is situated on the 18.7° latitude and 73.25° longitude. The district is situated on the Maharashtra Karnataka boundary. On the eastern side of the Latur is Bidar district of Karnataka, whereas Nanded is on the northeast, Parbhani on the northern side, Beed on the Northwest and Osmanabad on the western and southern side. The entire district of Latur is situated on the Balaghat plateau, 540 to 638 Meters from the mean sea level. The area of Latur district is 7372 Sq.Kms.

The district is divided into three sub-divisions and 10 Talukas. According to the 2001 Census, there are 945 villages and 786 Gram Panchayat in Latur district. The population of the district is 2080285.

Administratively the district is divided into three subdivisions namely Latur, Nilanga and Udgir, and further divided into ten Talukas & ten Panchayat Samitis. These are Latur, Udgir,

Ahmedpur, Ausa, Nilanga, Renapur, Chakur, Deoni, Shirur Anantpal, and Jalkot. Latur city is the administrative headquarters of the district.

INFRASTRUCTURE:The district has 148 km of railway line, out of which 83 km is broad gauge and 65 km is narrow gauge and the total road length of Latur district is 13,642 km.. The schooling and higher education infrastructure density, expressed as number of institutions per 100,000 people, is 85.33. The literacy rate of 55.6% is below the State average of 64.8% and is marginally above the national average of 52%. After the TLC the literacy rate in the 15-35 age groups has increased from 55% to 75% as per the TLC norms. Medical infrastructure of the district is served by 12 government hospitals, 46 Primary Health Centers, 19 dispensaries and 234 primary health support groups. In addition to these there are a number of private hospitals.

THE INCIDENT

Lord Ganesha, is one of the most beloved deities whom the Hindu's worship. A God of good luck and prosperity, Lord Ganesha, was worshipped for ten days with the hope of good fortune by the villagers on Ganesh Chaturthi Celebration went on till late night after which they had a sound sleep from which most of them never awoke, as on 30th September, 1993 at 3.56 a.m. a killer earthquake struck them. It was 6.4 on Richter scale (a scale which classifies the magnitude (force) of an earthquake), 3 aftershocks on the same day. The epicentre (the place on the surface of the earth directly above the hypocentre (the place deep in the earth's crust where an earthquake starts)) near Killari village, It was a rude interruption in the season of relative happiness. It was a full moon day and a mottling roar swept over the southern sector of the Deccan Plateau.

A film of dust clouded the air. Everywhere, there were signs of waste, not deprivation. Though the quake was only for a few minutes, yet the dance of death overcome, all most all the villagers who were sleeping under their own roofs.

The epicentre of the earthquake was in Osmanabad district, Umarga nearest to Solapur. If a radius would have been drawn it was of 25 Km around Killari. This part was the worst hit, 'A natural disaster is a catastrophe' could well be felt by the amount of destruction caused by low

roofed huts made of brick and stone which was the main reason for they could not keep themselves intact and resist the devastating quake.

Those who were the survivors were full of shock and fear as mild tremors still continued to move them. The survivors felt immense grief when nearly 8,000 people were killed and double the very numbers were injured. There was not a single family that had not lost any of its near and dear ones. People did not know what was to be done, for they needed help. Killari, lost the most as it was the worst affected amongst the other villages that were struck by the earthquake.

The Control Room was asked to alert the Government agencies in the district and to ask Medical team to rush with necessary medicines and ambulance etc. to Killari. Divisional Controller, State Transport was asked to send buses to facilitate transportation of injured persons.

Small pieces of granite and timber were scattered in heaps with so many unknown bodies lying below them. Corpses were being taken out from the heaps of rubble left. Bodies of young and old were being wrapped in bed sheets, towels and were being taken in the Governments trucks, as fast as possible. The hospitals were getting too small for the bodies as they were many in number. Mass funerals, were taking place which lit up Killari even in the night because of the immense number of dead bodies. Many of them who were buried alive lay there to be pulled out. Only bulldozers and excavators would pick out the buried bodies which started stinking with the passage of time. Heavy rain made it impossible to carry out the work of cremation and corpses were only being piled up in bullock carts. Rain also proved a hurdle for bulldozers to extract bodies from the debris.

Only prayers were being said to clear up the sky so that the rescue operation could carry up their work smoothly. Many outsiders started pouring in to see the state of the villages and the kind of help they were being given. Policemen were stopping all to enter the village Killari because of the nauseating smell of the decomposed bodies.

The Chief Minister of Maharashtra and his colleagues visited the affected areas to assess the situation personally. On the same day the Lok Sabha Speaker, Shri Shivaraj Patil Chakurkar visited Killari and other villages. The Central Home Minister, Shri Shankar Rao Chavan had an aerial survey of the affected villages. A team of officer trainees, amongst whom there were a

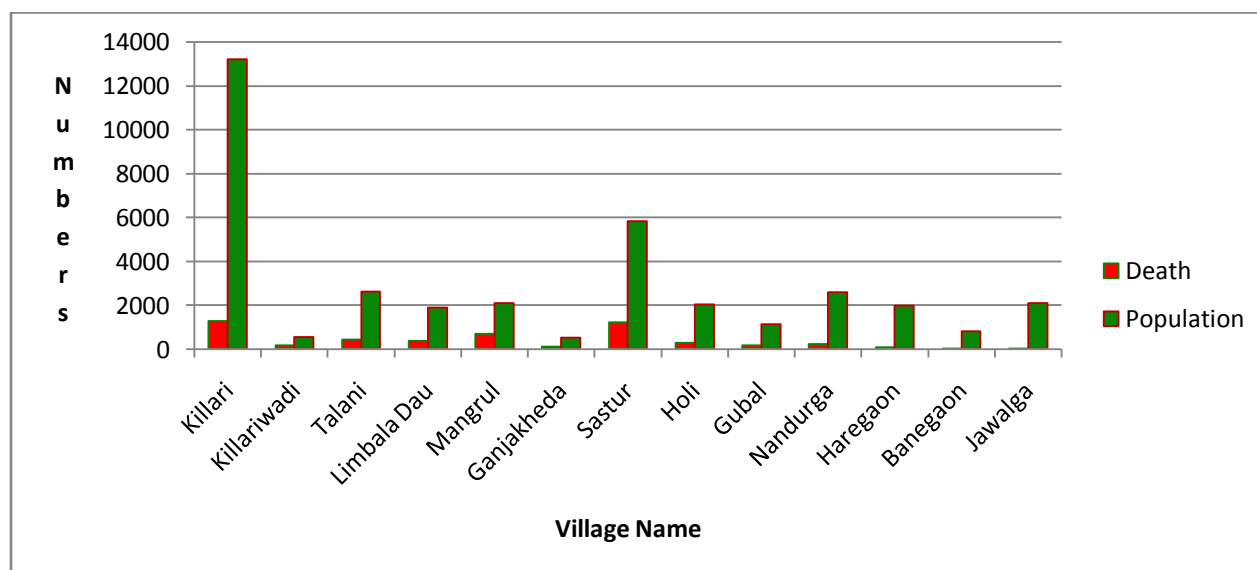
few doctors from Lal Bahadur Shastri National Academy of Administration, Mussoorie visited the tragic site to provide the needed help. Later in the day, the Chief Minister held a meeting of the District Heads at Latur wherein it was decided to:

1. Provide firewood and white cloth for cremation of the dead bodies at Government cost.
2. Provide adequate medical aid to injured persons.
3. Provide temporary sheds to shelter the affected families in each affected village. It was also decided to provide health centres and food to the sufferers.
4. Appoint one Government officer to head a team of officers and non-officials for taking relief measures.
5. Provide free milk for a period of 15 days.
6. Set up a control room in the Collectorate to work round the clock.
7. All the information is transferred with the help of VSAT of NIC District Centre, Government of India.

Volunteers, had set up tents and medical aid, food, clothing were given to the needed ones. The death estimates put by the officers varied from 30,000 to one lac. On October 1, the bodies when removed came up to the total of 9,782 with Latur having 5,926 bodies and Osmanabad, 3856. Among the bodies found in Osmanabad were those of women and children. The details of the lives lost are given below:-

Name of the Village	Death Toll	Total Population	Percentage to the Death
Killari	1284	13208	9.72%
Killariwadi	180	566	31.80%
Talani	431	2630	16.39%
Limbala Dau	384	1884	20.38%
Mangrul	686	2113	32.47%
Ganjakheda	121	531	22.79%
Sastur	1223	5821	21.01%
Holi	282	2033	13.87%
Gubal	164	1127	14.55%
Nandurga	211	2606	8.10%
Haregaon	68	1971	3.45%
Banegaon	27	826	3.27%

Jawalga	21	2095	1.00%
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THE TOLL

As per the survey 3698 human beings had lost their lives. 9954 houses had been fully damaged and 3962 houses had been partially damaged in the 36 villages. Earthquake had claimed 1094 cattle and caused immense damage to public property. There was a heavy loss to infrastructure and property.

The damages estimated are as follows:-

- | | |
|------------------------------|-----------------|
| 1. Electricity installations | Rs.0.39 Crores |
| 2. Water Supply | Rs.8.79 Crores |
| 3. School Buildings | Rs.1.85 Crores |
| 4. Samaj Mandirs | Rs. 0.16 Crores |
| 5. P.W.D buildings | Rs.1.28 Crores |
| 6. Health Dept. Buildings | Rs.1.44 Crores |
| 7. Gram Panchayat Buildings | Rs.0.40 Crores |

Electricity and drinking water supply was affected. In fact in many of the villages entire public life had been disturbed and many peoples had been left homeless. About 65,000 people had to be

accommodated in temporary shelters. 116 women were widowed. 247 children lost one of their parents with 37 losing both. To restore normalcy in the affected villages the Government went in for immediate relief measures comprising of:

1. Removal of person alive and dead bodies.
2. Providing drinking water and restoring, the original source of drinking water and extending water supply to relief camps.
3. Providing food, ration, clothes and utensils to the affected population. White Ration cards were distributed to each family to proper ensure supply of relief material.
4. Providing temporary shelter to the home less families.
5. To remove carcasses of animals, to treat alive animals etc.
6. Providing medical facilities and to ensure that no epidemics spread.

RESCUE and RELIEF

Both Army and District Administration are taking care of keeping record of the death roll. The Administration began rescue and relief work in all earnest by appointing many people as relief workers who worked round the clock. The 'Operation Sahayata' of constituting of many men from Army Centres in the southern region other Non-Governmental Organisations (NGOs) took care of the survivors, helping them with food, clothing and temporary shelter which was very consoling for the shocked individuals. The volunteers were like a gift from god for the dazed people. The International Committee of Red Cross, the US Special Co-ordinator for International Disaster Assistance, the UN High Commissioner for Refugees were among those who came for help for the grief struck survivors and also those who had lost their lives.

Medical relief was also provided to the injured. The political parties were only proving their presence with huge lots of men who resembled the picture of a procession or rally with flags and symbols in their hands. This, not only proved that they came to pose for the photographers who had the picture of the debris as their background, giving in their statements, making their promises and thus, leaving with stories of high hopes.

In Bombay itself, people in large numbers donated clothes, blankets, sheets and also money for the rehabilitation purposes. Shelter was the most important necessity that the people of the quake - hit areas needed. Kerala Housing Board was given the contract to construct houses that were quake resistant.

A mill owner too, showed his duty bound self by helping in the relief work. Private Citizens who had no existence as the people of the disaster hit areas felt helped a lot as compared to the Government whose traces were not seen.

IMMEDIATE RELIEF MEASURES

PROVISION OF TEMPORARY SHELTERS

Poor Construction was the major cause behind this devastation. The soil on which buildings are constructed should be hard in prone quake resistant areas. This type of statement was made after the 1985 Mexico City earthquake. Buildings should always be dome-shaped that mostly resist earthquakes.

To house the affected people the district administration took upon it self the challenging task of providing temporary shelters to all who had lost their houses.

The administrative approval provided Rs. 70.000/- as cost of construction of one shelter Cubicles of 170 Sq. Ft. were constructed to house a family of 8 members. One shed comprise of 5 such cubicles thereby housing 40 people.

These temporary shelters were provided with electricity, water through tankers, bore wells, pit latrines and bathing facilities for women and proper drainage facilities. In addition prompt and continued medical help was provided to the residents. In all till date 1857 such sheds had been completed. These had taken care of the approx. 65,000 people who had been rendered homeless.

FOOD AND CIVIL SUPPLIES

From the very next day of the earth quake community kitchens were started in 27 villages to provide the people with wholesome food. The Government was helped in good measure by the voluntary agencies in this regard.

With a view to provide items of relief in an orderly manner each earthquake affected person was issued a white ration card against which he/she was given foodgrains, clothing, utensils, blankets and other such requirements. Many individuals and organisations contributed relief items in good measure thus strengthening the arm of the Government in providing relief to the affected people. To ensure that relief items reached the affected people a village committee was formed which helped to monitor the distribution. This committee consists of village sarpanch, one gram sevak, police and one backward class member.

It is worth noting that adequate care was taken to ensure that though the receipts of relief material were concentrated towards the early days, the despatch was evened out to ensure an adequate and continued supply to the people.

The attached statements and graphs give an overall picture of the progressive supply scenario as also the increasing number of people covered.

MEDICAL RELIEF

The first medical team reached Killari at 5.30 A.M. and started treating the cases to the Civil Hospital, Solapur and Latur and Medical College, Ambajogai. Before leaving for Killari, the civil surgeon had given emergency messages to rural hospital, Nilanga and AUSA to be in readiness to treat a large number of casualties. The local private practitioners including specialists responded and immediately rushed to Killari. This timely action helped save many lives.

While the above said action was being taken at Killari, at Latur all the private and Government hospitals were geared up to handle mass casualty operations. Many Orthopaedic surgeries and General surgeries were performed.

At Bombay, the Secretary, Public Health Department issued instructions to Addl. Director Health Services to co-ordinate the emergency health services. After receiving the instructions the Director reached Latur on 30th Sept. 93.

The District Health Officer organised medical teams and dispatched 22 teams to various villages which were affected by earthquake. The supplies of the medicines available in the Government Hospitals and stores were put to immediate use. Help was seeking from the private practitioners and chemists.

The medical treatment of the casualties was rendered primarily at district hospital, Latur and hospitals in Ausa, Nilanga and Killari. Private hospitals also came forward to help. As a matter of fact, at Killari the emergency medical treatment was given even while patients were lying on the ground because no other facilities were available on hand.

Help in form of additional medical supplies started pouring in both from national and international agencies. A separate medical store was opened at Girl's High School; smaller medical stores were opened at Rural Hospitals and also one at the Control Room. These stores were functioning round the clock for facilitating medical treatment, especially in emergency cases.

On 30th Sept. 93 itself, 22 medical teams consisting of a doctor, a health assistant, multipurpose health worker and an attendant were deployed. By 2nd Oct. the numbers of teams were expanded to 41 with help of medical staff from the adjacent districts. One team was assigned to one village and for the first 2-3 days they remained in the affected villages itself. The teams were provided with the modern medical kits received from UNICEF and also from Government of Japan.

These teams provided the following medical health care to the affected population:

1. Treatment of the patients who were ill due to any disease.
2. Dressing of such patients who had sustained injuries due to earthquake or otherwise.
3. Follow up of the patients who had been discharged from the civil hospital.
4. House to house surveillance for all epidemic disease likes Cholera, Gastro, and Malaria etc.
5. Disinfection of water sources as well as of water tankers.
6. Provided tetanus toxic and other vaccines to the needy.

7. Referred the cases whenever it was essential.
8. Imparted health education to the people.

WATER DISINFECTION

After the earthquake to prevent an outbreak of any epidemic action was taken to disinfect the water sources. 30 people were deployed round the clock so as to disinfect the water sources from where water tankers were filled every day. Similarly the tanker drivers had been trained to disinfect the water tankers and they were provided with adequate quantity of medicated solution. Because of these measures not a single epidemic of Cholera, Gastro, Typhoid or infective hepatitis had been noticed in any of the villages. However constant vigilance is being maintained to avoid occurrence of any epidemic in the future.

HEALTH EDUCATION

In the present circumstances in view of the dangers of epidemic the people at large are being informed by using public address system fitted on to the jeeps and also by using posters regarding personal and environmental hygiene. 80 sweepers were deployed in these villages for maintenance of cleanliness.

POTABLE WATER SUPPLY

Due to earthquake affected villages in 31 villages the water supply was disturbed. Initially immediate water supply was made through tankers. The total number of tankers deployed varied from 9 to 104 per day. The water through tankers was supplied at places where temporary sheds were erected and at other places where the normal supply source was affected. The approximate expenditure incurred for tankers is around Rs. 15.00 lacs.

At 52 new shelters in earthquake affected area, so far 90 bore wells had been drilled, out of which 76 are successful. 57 hand pumps and 8 power pumps had been installed and remaining work is in progress. The expenditure incurred so far is Rs. 14.06 lacs.

A programme of 140 borewells is proposed in the permanent rehabilitation location, which would require an additional fund of Rs. 24 lacs. Thus the total requirement of fund for drilling

borewells in earthquake affected villages is Rs. 38.06 lacs. Following table shows the details of estimated and incurred expenditure on various water supply schemes and their repair work.

Sr. No.	Scheme	Expenditure Estimated	Incurred (Rs. In lacs.)
1.	Restoration and Extn. of PWS	43.00	35.00
2.	Bore wells	38.06	14.06
3.	Repair of Structures	4.80	--
4.	Strengthening and repair of ESR	793.50	--
5.	Tankers	--	15.00
	Total	879.36	64.06

EMPLOYMENT PROGRAMME

In addition to the occupational rehabilitation of skilled persons through banks and other financial institutions under various Government schemes, unskilled labourers, who are rendered jobless due to slack in agricultural operations, large number of works and the Employment Guarantee Scheme works had been sanctioned and had been started in Ausa and Nilanga Taulka of this district, which are worst affected.

WELFARE SCHEMES

A survey was done by the social welfare department to find the impact of the earthquake on the existing schemes and to prepare future plan of action for rehabilitation of the affected persons of backward classes.

The following table gives the details of the existing schemes, the damage caused, and the estimated cost of repair and reconstruction work:

Sr. No.	Scheme	Existing No.	No. Of Bene.	Damaged	Estimated Repair Exp

				F.	P	
1.	Govt. Hostels	8	585	--	8	300.00 lacs.
2.	Aided Hostels	74	3101	1	21	151.41 lacs.
3.	Ashram	19	2180	--	14	42.00 lacs
4.	Post Basic School	9	1180	--	7	35.00 lacs
5.	Backward Class Housing Society	40	1600	164	128	27.36 lacs
6.	Samaj Mandir	30	--	--	16	16.00 lacs.
Total Exp.						571.77 lacs.

F: - Fully

P: - Partially

After the earthquake the Government had decided to start 10 hostels for rehabilitation of the students belonging to backward class and other backward classes, who had become destitute because of earthquake. The proposal will help 480 students and will result in expenditure of Rs. 12 lacs. per year.

WOMEN AND CHILD WELFARE

Various schemes are being implemented in Latur district for welfare of women and child, which involves approximate expenditure of Rs. 30.293 lacs per year. After the earthquake the Government had proposed various schemes for the development of women and child in the affected area.

The following table gives various schemes and estimated expenditure involved.

Sr. No.	Proposed Scheme	No.	Estimated Exp. Per Year
1.	Bal Sadan	3	Rs. 1.80 Lacs.
2.	Orphan House	1	Rs. 0.75 Lacs.
3.	House For Old Aged Persons	1	Rs. 0.90 Lacs.
4.	Training Centre	1	Rs. 5.00 Lacs.
TOTAL			Rs. 8.45 Lacs.

For orphaned children (37 children lost both their parents in the earth quake) the Government had proposed their adoption.

The Government is also taking up the construction of houses for the women who had become widow because of earthquake. The number of houses to be built under this scheme is 116, which will involve an expenditure of Rs. 106.72 lacs, at the cost of Rs. 92000 per house.

Apart from this the Government had proposed a training centre for the self employment of widows that will involve an expenditure of Rs. 21 lacs.

Every sore takes time to heal up. “Time” being the ointment. A hope lies deep in the heart of each villager or effected victims of the earthquake that they too will had new houses, a new future once again.

The massive relief measure seems like “Sunshine” for them which bring new life to everything. Still there are many victims who could not get any help at all and still await the ray of hope. But there is no doubt that Western Maharashtra is trying to stand on its original form with the immense help received from all over the world.

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