Government of Uttar Pradesh

State Disaster Management Working Action Plan For Epidemics

Final February 2010

(INCORPORATING COMMENTS RECEIVED AT THE FINAL PRESENTATION ON JANUARY 20, 2010)

DEVELOPED BY

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Chapter I: Introduction

Uttar Pradesh State Profile

Geography: Uttar Pradesh is bounded by Nepal on the North, Himachal Pradesh on the northwest, Haryana on the west, Rajasthan on the southwest, Madhya Pradesh on the south and south- west and Bihar on the east. Situated between 23° 52' N and 31° 28' N latitudes and 77° 3' and 84° 39'E longitudes, this is the fourth largest state in the country.

Uttar Pradesh can be divided into three distinct hypsographical regions:

1. The Himalayan region in the North
2. The Gangetic plain in the centre
3. The Vindya hills and plateau in the south

Demography: The state of Uttar Pradesh has an area of 240,928 sq. km. and a population of 166.20 million. There are 70 districts, 813 blocks and 107452 villages. The State has population density of 689 per sq. km. (as against the national average of 312). The decadal growth rate of the state is NA (against 21.54% for the country) and the population of the state continues to grow at a much faster rate than the national rate.

Uttar Pradesh is now divided into seventy-one districts under eighteen divisions. Districts are administered by District Magistrates, and divisions are administered by Divisional Commissioners. Lucknow, the capital of the state, constitutes the Lucknow district. Other districts are further divided into administrative units such as subdivisions and blocks, administered by SDO and BDO, respectively. The Panchayati Raj has a three-tier structure in the state. The atomic unit is called a Gram Panchayat, which is the Panchayat organization for a collection of villages. The block-level organizations are called Panchayat Samiti, and the district-level organizations are named Zilla Parishad.

Socio-Economic Profile: Uttar Pradesh (UP) is the second largest economy in India after Maharashtra, contributing 8.17% to India's total GDP. Gross State Domestic Product (GSDP) at current prices in 2004-2005 was US$ 55 billion. UP had always been a predominantly an agrarian economy, agriculture being the highest contributor to the GSDP. But in recent years the contribution of the Tertiary sector to the GSDP has been increasing. In 2004-05, Tertiary sector's contribution was found to be the maximum (44%) and agriculture slid to the second place with 35% of the GSDP being contributed by it which includes agriculture, cultivation, fishery, mining activities, etc. Agriculture is a key contributor to the primary sector with 66% of the share. Between 1999 and 2008, the economy grew only 4.4% per year, one of the lowest rates in India. The state's debt was estimated at 67 per cent of GDP in 2005.

Vision

The national vision is to build a safer and disaster resilient India by developing a holistic, proactive, multi-disaster and technology driven strategy for DM. This will be achieved through a culture of prevention, mitigation and preparedness to reduce the impact of disasters on people. The entire process will centre stage the community and will be provided momentum and sustenance through the collective efforts of all government agencies supported by Non-Governmental Organisations (NGOs).

Purpose of the Plan

The purpose of the plan is to respond promptly in a coordinated manner in an epidemic situation, mitigate potential impact of epidemics in order to save lives of people in Uttar Pradesh. This document

deals with management of "Epidemics" in the State of Uttar Pradesh. The themes underpinning the plan will be as follows.

- The vulnerability of different parts of the state to epidemics.
- The measures to be adopted for prevention and mitigation of epidemics.
- The manner in which mitigation measures shall be integrated with development plans and projects.
- The capacity building and preparedness measures to be taken.
- The roles and responsibilities of each department of the state government in relation to the measures specified above.
- The roles and responsibilities of different Departments of the state government in responding to any threatening disaster situation or disaster.
- The state plan will be reviewed and updated annually.

Key Objectives

The aim of the state plan is to ensure that various components of Disaster Management (DM) are addressed to facilitate planning, preparedness, operational, coordination and community participation. Flowing from the national vision and the aforementioned approach, the objectives guiding the plan formulation are:

- Promoting a culture of prevention and preparedness by ensuring that DM receives the highest priority at all levels.
- Ensuring that community is the most important stakeholder in the DM process.
- Encouraging mitigation measures based on state-of-the-art technology and environmental sustainability.
- Mainstreaming DM concerns into the developmental planning process.
- Developing contemporary forecasting and early warning systems backed by responsive and fail-safe communications and Information Technology (IT) support.
- Promoting a productive partnership with the media to create awareness and contributing towards capacity development.
- Ensuring efficient response to epidemic outbreak and relief with a caring approach towards the needs of the vulnerable sections of the society.
- Ensuring effective surveillance system that can continuously monitor the situation and forecast any imminent epidemic outbreak so that appropriate action can be taken immediately.
- Ensuring all possible preparedness actions are taken for control of epidemic situations.
- Undertaking reconstruction as an opportunity to build disaster resilient structures and habitat.
- Undertaking recovery to bring back the community to a better and safer level than the pre-disaster stage

Chapter II: Vulnerability Assessment and Risk Analysis

Health Indicators

The Total Fertility Rate of the State is 3.8. The Infant Mortality Rate is 69 and Maternal Mortality Ratio is 517 (SRS 2001 - 03), which are higher than the National average. The Sex Ratio in the State is 898 (as compared to 933 for the country). Comparative figures of major health and demographic indicators are as follows:

No.	Item	Uttar Pradesh	India
1	Total population (Census 2001) (in million)	166.20	1028.61
2	Decadal Growth (Census 2001) (%)	NA	21.54
3	Crude Birth Rate (SRS 2007)	29.5	23.1
4	Crude Death Rate (SRS 2007)	8.5	7.4
5	Total Fertility Rate (NFHS-III)	3.8	2.7
6	Infant Mortality Rate (SRS 2007)	69	55
7	Maternal Mortality Ratio (SRS 2001 - 2003)	517	301
8	Sex Ratio (Census 2001)	898	933
9	Population below Poverty line (%)	31.15	26.10
10	Schedule Caste population (in million)	35.15	166.64
11	Schedule Tribe population (in million)	0.11	84.33
12	Female Literacy Rate (Census 2001) (%)	42.2	53.7

Communicable Diseases Prevailing in U.P.

Following diseases have been identified as Communicable Diseases occurring in UP. Many of these diseases are epidemic prone and commonly been observed in the recent past.

- Water-borne diseases: Diarrhea, Gastro-enteritis, Cholera, Jaundice (Hepatitis A & C), Polio-mellitus, and Typhoid.
- Vector-borne diseases: Malaria, Filaria, Japanese Encephalitis, Kala-azar, Dengue/Chikungunya.
- Other diseases: Acute Encephalitis Syndrome, Measles, Chicken Pox, Diphtheria, Tetanus, Whooping Cough, Acute Respiratory Infection, Pneumonia, Meningitis, Rabies, AIDS, Syphilis, Gonococcal Infections, Other STDs, Pulmonary Tuberculosis, Avian Flu, Swine Flu.

Outbreak of these diseases are monitored and reported to the Directorate of Health on regular basis as follows.

- Diseases reported daily: Diarrhea, Gastro-enteritis, Cholera, Jaundice (Hepatitis A & C), Measles, Chicken Pox, Japanese Encephalitis, Kala-azar, Dengue, Avian Flu/ Swine Flu.
- Diseases reported weekly: Diarrhea, Gastro-enteritis, Cholera, Jaundice (Hepatitis A & C), Measles, Chicken Pox, Japanese Encephalitis, Kala-azar, Dengue and Chikungunya.

- Diseases reported monthly: Acute diarrheal diseases, Polio-mellitus, Typhoid Diptheria, Tetanus, Whooping Cough, Acute Respiratory infection, Pneumonia, Meningitis, Rabies, AIDS, Syphilis, Gonococcal Infections, Other STDs, Pulmonary Tuberculosis, Malaria, Filaria.

The status of water-borne and vector-borne communicable diseases in recent years is given in the following tables.

Status of Water-borne Communicable diseases in recent years

Year	Diarrhoea		Gastro-enteritis		Cholera		Jaundice	
	Affected	Deaths	Affected	Deaths	Affected	Deaths	Affected	Deaths
2006	11611	67	612	6	0	0	309	3
2007	17151	197	1264	15	6	0	301	2
2008	21278	326	998	32	0	0	141	10
Up to May 2009	1530	9	88	0	0	0	20	0

Status of Vector-borne Communicable diseases in recent years

Year	Malaria			Filaria		Dengue		Kala-azar	
	Malaria Positive	P.F	Deaths	Diseased	M.F	Affected	Deaths	Affected	Deaths
2004	85868	2142	0	7999	1088	7	0	36	2
2005	105302	3149	0	7613	619	121	4	68	2
2006	91566	1875	0	5738	725	617	14	83	0
2007	81580	1989	0	5791	637	130	2	69	1
2008	93383	2310	0	5134	477	51	2	26	0
Up to May 2009	6446	47	0	1082	175	0	0	1	0

Epidemic Outbreaks

Epidemic outbreaks are common in Uttar Pradesh. Every year during the months of July to November outbreaks of epidemics are witnessed. A scan of the media reports for a decade has given the data as presented in the table. Main diseases that occur in the outbreaks include Japanese Encephalitis, Dengue, Cholera, Malaria, Hepatitis B and Flourosis. Districts in the eastern part of Uttar Pradesh are the most affected including Gorakhpur, Azamgarh, Maharajaganj, Sidharthnagar, and Faizabad. Out of these, Gorakhpur District is the worst affected by Japanese Encephalitis.

Japanese Encephalitis: Japanese encephalitis is a disease caused by the mosquito-borne Japanese encephalitis virus and is spread by infected mosquitoes in the agricultural regions of Asia. The Japanese encephalitis virus is a virus from the family Flaviviridae. Domestic pigs and wild birds are reservoirs of the virus; transmission to humans may cause severe symptoms. One of the most important vectors of this disease is the mosquito Culex tritaeniorhynchus. This disease is most prevalent in Southeast Asia and the Far East. It can affect the central nervous system and cause severe complications and even death. In India, there is a rise of JE incidence and the outbreaks have occurred in 25 states. During the last 3 decades JEV is responsible for the major outbreaks of the disease in India. In India JE was first recognized in 1955 from cases of encephalitis admitted to the Christian Medical College and Hospital, Vellore (Tamilnadu). The first major outbreak of JE involving more than 700 cases and 300 deaths occurred in Burdwan and Bankura districts of West Bengal in 1973 and

followed by second outbreak in 1976 (Banerjee, 1996). Since then, a number of outbreaks have been reported. Majority have been reported from the states of Bihar, Uttar Pradesh, Assam, Manipur, Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Haryana, Kerala, West Bengal, Orissa and Union territories of Goa and Pondicherry. An outbreak of viral encephalitis has recently occurred in Gorakhpur, Uttar Pradesh, from July through November 2005. It was the longest and most severe epidemic in 3 decades; 5,737 persons were affected in 7 districts of eastern Uttar Pradesh, and 1,344 persons died. JEV is endemic in the Gorakhpur and Basti divisions of eastern Uttar Pradesh. The geographic features of this region are conducive for the spread of JEV; an abundance of rice fields and a bowl-shaped landscape allow water to collect in pools. Heavy rains saturated the ground in 2005, which caused ideal breeding conditions for mosquitoes that transmit the virus from pigs to humans. In addition, high temperature and relative humidity provided a suitable environment for JEV transmission.

Status of Japanese Encephalitis cases in U.P.

Year	Affected	Deaths	Death rate	J E Positive (%)
2005	5581	1593	28.54	36.99
2006	2075	476	22.93	12.02
2007	2675	577	21.44	12.07
2008	2730	483	17.69	3.7

In Uttar Pradesh, Japanese Encephalitis is found in the eastern districts of the state. As of date, 34 districts have been found to be affected since 2000. It is generally found in the rural areas and is carried by the female *culex* mosquito and can spread by its bite. Pigs are the amplifying host for this disease. Major symptoms of JE are severe headache, fever, irritation, fits, dizziness, etc.

Measles: Measles is an infection of the respiratory system caused by a virus, specifically a paramyxovirus of the genus Morbillivirus. Morbilliviruses, like other paramyxoviruses, are enveloped, single-stranded, negative-sense RNA viruses. Symptoms include fever, cough, runny nose, red eyes and a generalized, maculopapular, erythematous rash. Measles is spread through respiration (contact with fluids from an infected person's nose and mouth, either directly or through aerosol transmission), and is highly contagious: 90% of people without immunity sharing a house with an infected person will catch it. The infection has an average incubation period of 14 days (range 6–19 days) and infectivity lasts from 2–4 days prior to 2–5 days following the onset of the rash. Measles was historically called rubeola. In contrast, German measles is an unrelated condition caused by the rubella virus. Fifty-one of 68 districts in UP reported 6922 cases and 281 deaths due to measles in 1996. Overall case fatality ratio (CFR) was 4.1 %. Majority of the deaths occurred in Badaun, Gorakhpur, Siddarthnagar, Basti, Maharajganj, Bareilly, Lakhimpur Kheri, Sitapur, Moradabad and Faizabad districts. There was heavy clustering of cases and deaths in rural areas; only endemic pattern was observed in urban communities. The only way to prevent measles is by receiving measles immunization. In developed countries, most children are immunized against measles by the age of 18 months, generally as part of a three-part MMR vaccine (measles, mumps, and rubella). The vaccination is generally not given earlier than this because children younger than 18 months usually retain anti-measles immunoglobulin (antibodies) transmitted from the mother during pregnancy. A second dose is usually given to children between the ages of four and five, in order to increase rates of immunity. Vaccination rates have been high enough to make measles relatively uncommon. Even a single case in a college dormitory or similar setting is often met with a local vaccination program, in case any of the people exposed are not already immune.

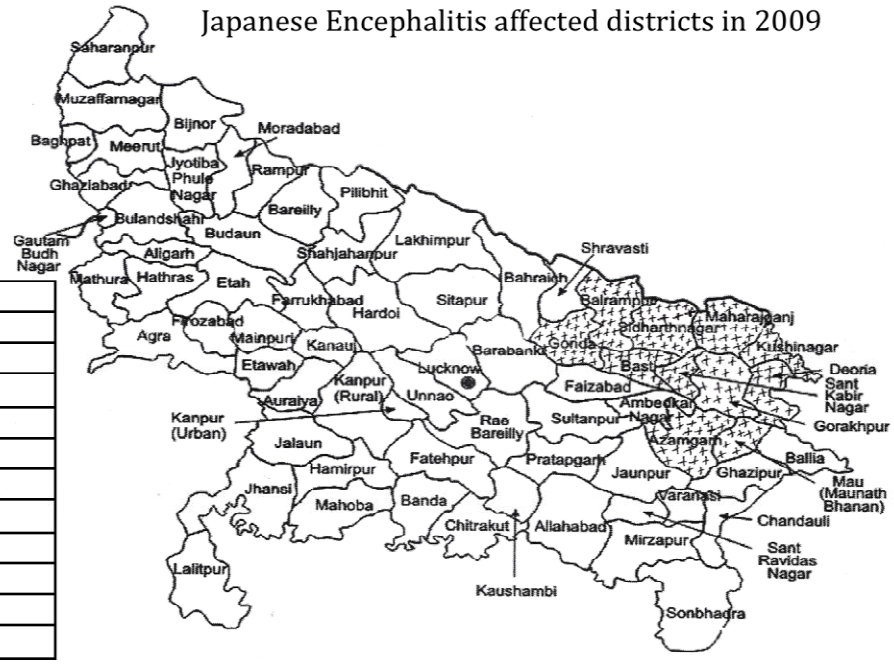
Epidemic Outbreaks in Uttar Pradesh		
YEAR	**DISEASE**	**AFFECTED AREAS**
2000	Flourosis	Agra
	Measles	Lucknow
	Japanese Encephalitis	
2001	Cholera	Hapur Block, Ghaziabad
	Viral Hepatitis B	Bandhgaon, Saharanpur
	Japanese Encephalitis	Gorakhpur
2002	Polio	
	Encephalitis	
2004	Viral encephalitis	Baghpat

2005	Japanese Encephalitis	Gorakhpur
2006	Dengue	Mujaffarnagar, Siddharthnagar, Mau, Azamgarh,
2008	Malaria	Kanpur
	Dengue	Kanpur
	Acute Encephalitis Syndrome	Gorakhpur
2009	Japanese Encephalitis	Gorakhpur, Allahabad, Faizabad, Kushinagar, Maharajganj, Lucknow

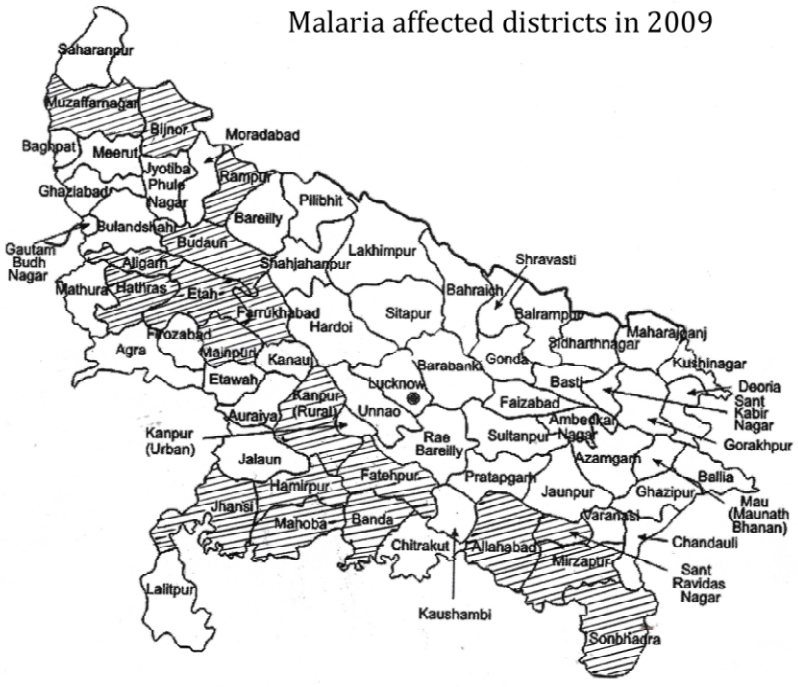
Risk Profile

Epidemic Risk Profile of Uttar Pradesh has been mapped in the following pages based on the occurrence of epidemic diseases in various districts of the State.

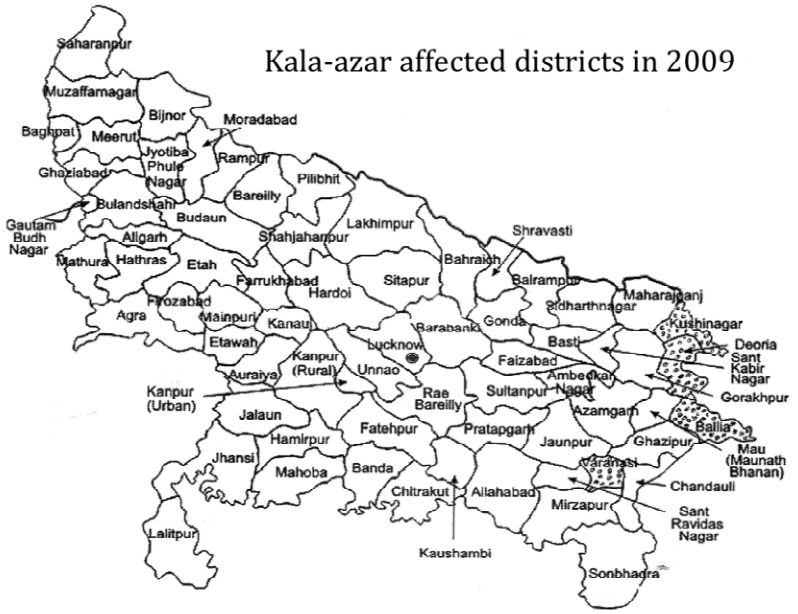
Azamgarh
Balrampur
Basti
Deoria
Faizabad
Gonda
Gorakhpur
Kushinagar
Maharajganj
Mau
Sant Kabirnagar
Siddharh Nagar



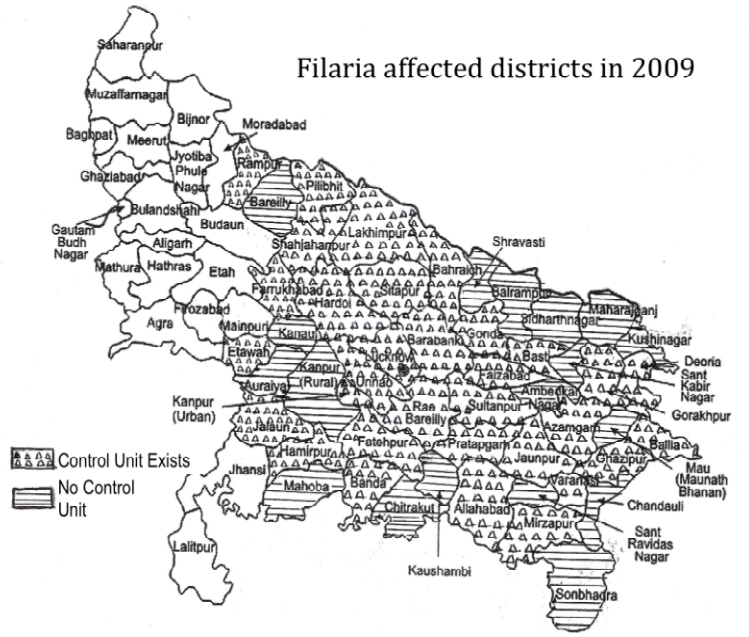
Aligarh
Allahabad
Banda
Bijnor
Budaun
Etah
Farukhabad
Fatehpur
Hamirpur
Hathras / Mahamaya Nagar
Jhansi
Kanpur (Rural)
Kanshiram Nagar
Mahoba
Mainpuri
Mirzapur
Mujaffar Nagar
Rampur
Sant Ravidas Nagar
Sonbhadra



Ballia
Deoria
Kushi Nagar
Varanasi



Allahabad
Ambedkarnagar
Auraiyah
Azamgarh
Bahraich
Ballia
Balrampur
Banda
Barabanki
Bareilly
Basti
Chandauli
Chitrakut
Deoria
Etawah
Faizabad
Farukhabad
Fatehpur
Gazipur
Gonda



Gorakhpur	Kanpur Dehat	Maharajganj	Rae Bareilly	Siddharthnagar
Hamirpur	Kanpur Nagar	Mahoba	Rampur	Sitapur
Hardoi	Kaushambi	Mau	Sant Kabirnagar	Sonbhadra
Jalaun	Kushinagar	Mirzapur	Sant Ravidas nagar	Sultanpur
Jaunpur	Lakhimpur Khiri	Pilibhit	Shahjahanpur	Unnao
Kannauj	Lucknow	Pratapgarh	Shravasti	Varanasi

Chapter III: Epidemics Preventive Measures

Factors causing new epidemics

Factors that have been described by different studies and research to stimulate the rise of new epidemics include:

1. Alterations in agricultural practices and land use
2. Changes in society and human demographics
3. Poor population health (e.g., malnutrition, high prevalence of HIV)
4. Hospitals and medical procedures
5. Evolution of the pathogen (e.g., increased virulence, drug resistance)
6. Contamination of water supplies and food sources
7. International travel
8. Failure of public health programs
9. Globalization & International trade
10. Natural Disasters
11. Climate change
12. Reduced levels of biodiversity (e.g. through environmental destruction)
13. Bad urban planning

Epidemics mitigation / prevention

Epidemics control planning will involve the following activities:

- Surveillance
- Vaccination
- Public education on hygiene and sanitation
- Improving access to health facility

Surveillance

The Government of Uttar Pradesh under GoI has initiated in 2006-07 a decentralized, state based Integrated Disease Surveillance Project (IDSP). The project would be able to detect early warning signals of impending outbreaks and help initiate an effective response in a timely manner. The project development objective is to improve the information available to the government health services and private health care providers on a set of high-priority diseases and risk factors, with a view to improving the on-the-ground responses to such diseases and risk factors. Specifically, the project aims:

- To establish a decentralized state based system of surveillance for communicable and non-communicable diseases, so that timely and effective public health actions can be initiated in response to health challenges in the country at the state and national level.
- To improve the efficiency of the existing surveillance activities of disease control programs and facilitate sharing of relevant information with the health administration, community and other stakeholders so as to detect disease trends over time and evaluate control strategies.

The project components are:

(1) Establish and Operate state and district-level Disease Surveillance Unit. Under this component, Ministry of Health and Family Welfare (MOHFW) will establish a new Disease Surveillance Unit at the state level to help coordinate and decentralize disease surveillance activities. The new unit will support and complement the national disease surveillance efforts. The unit will be staffed by existing permanent staff reassigned from within the MOHFW. This component will address the constraints of lack of coordination despite central control of surveillance activities and the need for changing the diseases included in the system. Effective coordination (as compared to control) of disease surveillance activities depends on establishing the appropriate processes and institutional arrangements at the central level. This will be done through the creation of a small disease surveillance units at district level to support the states disease surveillance efforts.

(2) Integrate and strengthen disease surveillance at the state and district levels. This component addresses the constraints imposed by lack of coordination at the sub-national levels, the limited use of modern technology and data management techniques, the inability of the system to act on information and the need for inclusion of other stakeholders. It will integrate and strengthen disease surveillance at the state and district levels, and involve communities and other stakeholders, in particular, the private sector.

(3) Improve laboratory support system. This component will consist of (i) upgrading laboratories at the state level, in order to improve laboratory support for surveillance activities. Adequate laboratory support is essential for providing on-time and reliable confirmation of suspected cases; monitoring drug resistance; and monitoring changes in disease agents; and (ii) introducing a quality assurance system for assessing and improving the quality of laboratory data.

(4) Training for disease surveillance and action. The changes envisaged under the first three components will require a large and coordinated training effort to reorient health staff to an integrated surveillance system and provide the new skills needed. Training programs will include representatives from the private sector, NGOs and community groups.

(5) Strengthening of Data quality, analysis and linkages to action.

Project Highlights

- District, State & Central Surveillance units will be set up so that the program is able to respond in a timely manner to surveillance challenges in the country including emerging epidemics.
- It will integrate surveillance activities in the country under various programs and use existing infrastructure for its function.
- Private practitioners / Private hospitals / Private laboratories will be inducted into the program as sentinel units.
- Active participation of medical colleges in the surveillance activities.
- The project will ensure uniform high quality surveillance activities at all levels by
    - Limiting the total number of diseases under surveillance and reducing overload at the periphery
    - Developing standard case definitions
    - Developing formats for reporting
    - Developing user friendly manuals

- Providing training to all essential personnel, and
- Setting a system of regular feed back to the participants on the quality of surveillance activity.

- District Public Health Laboratory will be strengthened to enhance capacity for diagnosis and
- Investigations of epidemics and confirmation of disease conditions.
- Use of information technology for communication, data entry, analysis, reporting, feedback and actions. A national level surveillance network will be established up to the district level.

Diseases and conditions under the surveillance programme:

(i)	**Regular Surveillance**:		
	Vector Borne Disease	1.	Malaria
	Water Borne Disease	2. 3.	Acute Diarrhoeal Disease (Cholera) Typhoid
	Respiratory Diseases	4.	Tuberculosis
	Vaccine Preventable Diseases	5.	Measles
	Diseases under eradication	6.	Polio
	Other Conditions	7.	Road Traffic Accidents (Linkup with police computers)
	Other International commitments: Unusual clinical syndromes (Causing death / hospitalization)	8. 9.	Plague Menigoencephalitis/Respiratory Distress Hemorrhagic fevers, other undiagnosed conditions
(ii)	**Sentinel Surveillance**		
	Sexually transmitted diseases/Blood borne	10.	HIV/HBV, HCV
	Other Conditions	11. 12.	Water Quality Outdoor Air Quality (Large Urban centers)
(iii)	**Regular periodic surveys:**		
	NCD Risk Factors	13	Anthropometry, Physical activity, Blood Pressure, Tobacco, Nutrition, Blindness
(iv)	***Additional State Priorities:*** Each state may identify up to five additional conditions for surveillance.		

Key performance indicators

Key aspects of overall performance of the surveillance system will be assessed using the following indicators:

- Number and percentage of districts providing monthly surveillance reports on time - by state and overall;
- Number and percentage of responses to disease-specific triggers on time - by state and overall;
- Number and percentage of responses to disease-specific triggers assessed to be adequate - by state and overall;
- Number and percentage of laboratories providing adequate quality of information - by state and centre;
- Number of districts in which private providers are contributing to disease information;

- Number of reports derived from private health care providers;
- Number of reports derived from private laboratories;
- Number and Percentage of states in which surveillance information relating to various vertical disease control programs have been integrated
- Number and Percentage of project districts and states publishing annual surveillance reports within three months of the end of the fiscal year;
- Publication by CSU of consolidated annual surveillance report (print, electronic, including posting on the websites) within three months of the end of fiscal year.

Expectations

Surveillance is the essence of a disease control program. By setting up a decentralized, action oriented, integrated and responsive program, it is expected that IDSP will avert a sufficient number of disease outbreaks and epidemics and reduce human suffering and improve the efficiency of all existing health programs. Such a program will also allow monitoring of resource allocation and form a tool to enhance equity in health delivery.

Implementation

Four main strategies for implementation are:

(1) Information Technology & Networking

(2) Laboratory Up gradation

(3) Human Resource Development

(4) Disease Surveillance & Response Mechanism

Surveillance Units

State level and district level disease surveillance units have been established under the Director General of Medical and Health Services, UP.

State Surveillance Unit

The State Surveillance Unit is headed by the State Surveillance officer and has the following responsibilities:

- Collection and Analysis of all data being received from the districts and transmitting the same to the central surveillance unit.
- Co-ordinating the activities of the RRTs and dispatching them to fields whenever required.
- Monitoring and reviewing the activities of the district surveillance units including checks on validity of data, responsiveness of the system and functioning of the laboratories.
- Co-ordinating the activities of the state public health laboratories and the medical college laboratories.
- Sending regular feedback to the district units on the trend analysis data received from them.
- Co-ordinating all training activities under the project.
- Co-ordinating meetings of the state surveillance committee.

State Surveillance Committee

A State Surveillance Committee has been set up under the chairmanship of the Secretary, Medical and Health Department to oversee all the surveillance activities in the state and will be administratively responsible for implementation of the programme.

Members of the State Surveillance Committee (SSC) are:

Chairperson: Secretary, Medical & Health, Govt of UP

Co-chairperson: Director General, Medical & Health

Member Secretary: State Surveillance Officer

Members:

- Director, Health, GoUP
- Programme Officers (TB, Malaria, Polio, AIDS, Blindness Control, Leprosy eradication)
- Representative nominated by the Principal Secretary, Home, GoUP.
- Representative from Pollution Control Board, UP.
- In-charge, State Public Health lab.
- State Representative of IMA
- Representative of State Medical College
- Representative of Health related NGOs

The SSC meets at least twice in a year and as and when required.

District Surveillance Committee

Constitution of the committee is as follows:

Chairperson: District Magistrate

Co-chairperson: Chief Medical Officer

Member Secretary: District Surveillance Officer

Members:

- Programme Officers (TB, Malaria, Polio, AIDS, Blindness Control, Leprosy eradication)
- Representative of Sentinel Private Practitioners
- Superintendent of Police
- Representative of NGOs
- Representative of Jal Nigam
- Chairman, Distt Panchayat
- In-charge, Distt Public Health lab

The DSC meets once a month regularly and as often as needed during an epidemic. A routine report of this meeting is forwarded to the SSC to give a feedback on the progress and problems in various districts. Report of these meetings is forwarded to the National Surveillance cell once in three months.

District Surveillance Unit

The DSU is headed by District Surveillance Officer nominated by the CMO.

Outbreak Response

There is a District Outbreak Investigation Team (DOIT) in each district to look after the various aspects of an outbreak. At state level there will be three Rapid Response Teams to investigate at the time of outbreak of epidemic.

Strengthening of data quality, analysis and linkages to action

Main activities under this head are:

- Online entry, management and analysis of surveillance data through use of computer and internet and WWW.
- Reporting surveillance data using standard software including GIS, with flexibility with new system
- e- mail services between state head quarter, district blocks, laboratories and GoI.
- Linkages with institutions and personnel involved in Public Health.
- Using feedback from health workers/ community to take action
- Rapid dissemination of health alerts to public health staff and civil societies.
- Quality assurance surveys of laboratory information.

Improving Laboratory support system

Under the IDSP GoI has provided norms to strengthen laboratory support systems for correct diagnosis of diseases for rapid action. For UP the following units need to be strengthened:

- State laboratory at state HQ and SSU.
- District lab at every district head quarter
- Peripheral labs at all CHCs

Strengthening norms of above units includes components of:

- Civil works
- Procurement of lab equipment
- Consumables
- Office equipments
- Furniture & fixtures

Training of stakeholders in disease surveillance and action

For capacity building of stakeholders and effective implementation of the Disease surveillance, training program is undertaken. This includes:

- Epidemiology, Laboratory, Data management, Quality assurance.
- It is a three tier training process: State & district personnel training at national level, and sub-district personnel trained at district level.
- Trainees include MPWs (Male & Female), State surveillance team, Medical officer, Peripheral worker, Lab technicians/ assistants, Data managers, District surveillance team and ASHAs.

Integrating disease surveillance at all levels and involving communities and other stakeholders

The success of any program depends upon the participation of stakeholders, co-ordination, sharing of information, and feedback. This linkage has to be maintained between the state, district and peripheral levels and is done through IT Networking.

Information, Education & Communication

A robust BCC intervention is undertaken on regular basis to facilitate the process of understanding co-operation and co-ordination in respect of various components of the program. Convergence with other BCC interventions under NRHM is also being done.

Reporting

DSU submits the following report regularly to the State government:

(1) Weekly Outbreak Report

(2) Weekly epidemic prone diseases

(3) Monthly statement of Institutional cases and Deaths due to Communicable diseases

(4) Monthly statement of Institutional cases and Deaths due to Non-Communicable diseases

The State Government is expected to continue the disease surveillance activity after the current project has been completed.

Vaccination

The number of diseases that can be prevented by vaccines is growing. Advances in biomedical research, technology, and government support for more publicly funded immunization programs are helping to make this possible. Vaccines still provide the most effective, longest-lasting method of preventing infectious diseases in all age groups. Diseases like Small Pox, which were a big havoc in history, have been eradicated by vaccination and similar efforts being made for other diseases like Polio and Tuberculosis have proven substantial results. The vaccine-preventable diseases listed below are presented with a study/epidemiology of the disease along with some information about their vaccines.

Vaccine Preventable Diseases	
Disease	**Details**
Anthrax	Bacillus anthracis is a bacterium that forms spores that then enter the body one of three ways: through a cut or burn, through breathing it in, or by eating it. Depending on the way Anthrax has entered the body, the symptoms can range from blisters to vomiting to bloody diarrhoea. Eventually, breathing difficulties occur and can cause death.
Chickenpox (Varicella)	Chickenpox is caused by the Varicella Zoster virus. The disease is spread through coughing and sneezing or from touching a person with chickenpox or shingles blisters. Symptoms include fever, an itchy rash of blisters, headache, and loss of appetite. Usually, chickenpox lasts a week or two and leaves no lasting effects. Adults who have had chickenpox are at risk for shingles after the age of sixty.
Diphtheria	Diphtheria is a disease in which a bacterium (Corynebacterium Diphtheriae) releases poisons into a person's body. The bacteria live in the mouth, nose, and throat and are spread by coughing or sneezing. Typically, Diphtheria is similar to a cold. The symptoms include a sore throat, fever, and chills. Eventually, a thick coating of bacteria develops on the back of the throat causing breathing difficulties and leading to heart troubles.
Hepatitis A	Hepatitis A is a virus that is found in faecal matter or through sexual contact with an infected

Vaccine Preventable Diseases	
Disease	**Details**
	person. The virus spreads when something touches the infected faecal matter and then is ingested. Usually, it involves foods that have grown in infected soil or washed in infected water. Symptoms include fever, appetite changes, nausea, stomach cramps, and jaundice. Usually, Hepatitis A lasts for two months, but it can spread out to a full year.
Hepatitis B	Hepatitis B is a virus that is spread through blood or bodily fluids that are passed into an uncovered scratch or cut. Hepatitis B is commonly spread through sexual contact with an infected person. Half of the time, there are no symptoms. Others acquire a high fever, nausea, lack of energy, muscle and joint pain, headache, vomiting, and jaundice. Hepatitis B is linked to certain forms of liver cancer. The disease can be fatal for some.
Hib	This bacterial infection is commonly linked to meningitis, epiglottis (swelling of the throat), and skin diseases. Spread through sneezing and coughing, the disease is most often found in infants and toddlers.
HPV	HPV is a virus that is sexually transmitted. The HPV virus is linked to cervical cancer. There are no symptoms of the disease. It is essential that girls and women who are sexually active get a yearly pap smear.
Influenza	Spread through coughing and sneezing, influenza (the flu) can lead to pneumonia. Symptoms include exhaustion, fever, chills, muscle pain, and headache. Normally, the flu season extends from December to March.
Measles	Measles is an easily spread virus. The symptoms include fever, pink eye, runny nose, cough, and a rash covering much of the body.
Meningococcus (Meningitis)	This bacterial infection attacks the covering of the brain and spinal cord. Symptoms include fever, sore throat, stiff neck, muscle and joint pain, headache, and possibly seizures.
Mumps	Symptoms of mumps include swollen glands, fever, headache, and loss of appetite. Usually, children have no problem recovering from this disease. In adults, it can be more severe causing fertility issues.
Pertussis (Whooping Cough)	Pertussis is a bacterial infection that starts with a runny nose, fever, and cough. The cough develops into a raspy cough that sounds more like a loud bark than an actual cough. Most commonly, pertussis affects children. Infants with pertussis should be hospitalized to assist their breathing.
Pneumococcal	Pneumococcal Disease is another bacterial disease. Pneumonia (lung infection), Meningitis (brain infection), and Bacteremia (blood infection) are the three illnesses related to Pneumococcal.
Polio	95% of those infected with polio have no symptoms. Polio is a viral disease that is spread through fecal matter. If symptoms do occur they include headache, vomiting, sore throat, meningitis, and in rare cases paralysis.
Rabies	Transferred through the bite of an infected animal, rabies is a deadly disease that attacks the central nervous system. The disease is best avoided by staying away from animals you do not know.
Rotavirus	This intestinal virus is only found in young children. Typically, Rotavirus is passed through sneezing and coughing and spreads quickly through daycare and school settings. Symptoms of Rotavirus include severe diarrhea that can lead to dehydration.
Rubella	Rubella is a viral infection spread through the air. Symptoms include a rash, fever, swollen glands, joint pain, and respiratory difficulties.
Shingles	This viral infection consists of a rash of painful, itchy red blisters. It is similar to chickenpox, but

Vaccine Preventable Diseases	
Disease	**Details**
(Herpes Zoster)	only affects older adults. Shingles can be transmitted to another touching the open blisters. The disease is caused by inactive remnants of the chickenpox virus that remain dormant until the adult years. Commonly, adults older than sixty who had chickenpox as a child are susceptible.
Smallpox	While there has not been an outbreak of Smallpox in decades, there is the threat of the disease being used as a biological weapon. Therefore, laboratory settings keep a stock of the vaccine on hand. Smallpox symptoms include fever, rash, headache, and body aches. The disease is spread through saliva (sneezing or coughing).
Tetanus	Tetanus is another bacterial infection that releases toxins into the bloodstream. Typically, the bacteria enter your body through a cut or puncture wound. The disease can cause severe muscle pain and spasms, fever, elevated blood pressure, and a rapid pulse.
Typhoid Fever	Related to a strain of Salmonella, Typhoid Fever is not common in the United States. Symptoms include fever, abdominal pain, body aches, and loss of appetite. If not caught in time, the intestines can rupture.
Yellow Fever	Mosquitoes carry Yellow Fever and can transfer it to humans through a bite. If contracted, flu-like symptoms are to be expected. Headache, malaise, fever, and lack of energy are common. The name "Yellow Fever" comes from the yellow color (jaundice) that tints the skin while the disease is active in the system.
Other diseases preventable by vaccine are Tuberculosis for which BCG vaccine is given and JE for which JE-VAX is administered	

Public Education on Hygiene and Sanitation

Campaigns for giving awareness and educating the men, women and children in the following will be effective for reducing the outbreak of epidemics and its impact.

- Personal hygiene and sanitation including the importance of hand washing with soap after defecation and before preparing or eating food.
- Home hygiene, to keep the space in and around the house clean.
- Safe disposal of household waste including solid waste.
- Safe disposal of hospital waste.
- Safe disposal of industrial effluent.

Improving access to health facility

Providing improved access to health facility, the community's health vulnerability is reduced. Reduced vulnerability results in reduced risk to epidemics. Thus, primary health care can be a good preventive measure. National Rural Health Mission is showing positive results. Based on the success of the rural health mission, the government is planning to introduce similar measures at the urban level.

National Rural Health Mission (NRHM)

Rural Health Care forms an integral part of the National Health Care System. Provision of Primary Health Care is the foundation of all rural health care Programmes. For developing vast public health infrastructure and human resources of the country, accelerating the socio-economic development and attaining improved quality of life, the Primary health care is accepted as one of the main instruments of action. Thus, recognizing the importance of Health in the process of economic and social development and improving the quality of life of our citizens, the Government of India has launched the National Rural

Health Mission to carry out necessary architectural correction in the basic health care delivery system. The Mission adopts a synergistic approach by relating health to determinants of good health viz. segments of nutrition, sanitation, hygiene and safe drinking water. It also aims at mainstreaming the Indian systems of medicine to facilitate health care.

The National Rural Health Mission (NRHM), a National effort at ensuring effective healthcare, especially to the poor and vulnerable sections of the society was launched (on 12th April, 2005 for a period of seven years (2005-2012) throughout the Country with special focus on 18 states viz. Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Jammu and Kashmir, Manipur, Mizoram, Meghalaya, Madhya Pradesh, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Uttarakhand and Uttar Pradesh.

Key features of NRHM include

- Making health delivery system fully functional & accountable to the community
- Convergence of National Health Programme at all levels of health system
- Improved management through capacity building
- Involvement of community
- Monitoring progress against standards
- Flexible financing for optimum fund utilization
- Inter-sectoral coordination for financial enhancement.

Objectives of NRHM

- Reduction in maternal and child mortality.
- Universal access to affordable and quality health care services.
- Prevention of comprehensive primary health care.
- Population stabilization.
- Promotion of healthy life style.

NRHM in Uttar Pradesh

The National Rural Health Mission is being implemented in the state with an aim to reduce infant mortality rate and maternal mortality ratio, ensuring population stabilization, prevention and control of communicable and non-communicable diseases.

Mission

Improved health status and quality of life of rural population with unequivocal and explicit emphasis on sustainable development measures.

Key Objectives (to be achieved by 2012)

- To reduce MMR to 258/lac live births
- To reduce IMR to 36/1000 births
- To reduce TFR to 2.8
- Malaria mortality reduction rate by 60%
- Kala-azar mortality reduction rate by 100%
- Filaria/Microfilaria reduction by 80%

- Leprosy Prevalence rate less than 1 per 10000
- Tuberculosis DOTS series-85% cure rate and 70% detection of new sputum smear positive cases
- Upgrading all CHCs (Community health centers) to IPHs (Indian public health standards)
- Increase bed occupancy>75%
- Engaging 1.23 lakh ASHAs (Accredited social health activist)
- Dengue mortality reduction by 50%
- Cataract Operation-42 lacs
- To bring down total Goitre rate<10%
- To ensure that >90% households consume iodized salt
- Safe drinking water and sanitation facilities to >60% of villages
- Reduction of malnourished children by half of present level

UP state AIDS control program:

The specific objective is to reduce new infection as estimated in the programme by Forty per cent (40%) in the vulnerable states (U.P is one of the vulnerable states) so as to stabilize the epidemic.

Blood safety program:

The blood Safety programme is to provide blood & blood products that are safe pure, potent & effective. Blood collected by Voluntary Blood Donation has lesser chances of transmitting infective disease. Total blood units collected are being tested for HIV, Hepatitis B, Hepatitis C, Malarial parasites and Syphilis.

In Uttar Pradesh total 169 licensed Blood Banks are working at present out of which 63 Blood Banks are in govt. sector, 08 are in Military Hospitals, 98 charitable/private sectors. There are 4 Blood Component Separation Centre (a) CSMMU, Lucknow (b) SGPGI, Lucknow (c) IMS.BHU, Varanasi (d) GSVM medical college, Kanpur are working presently. Six other at MLN medical college, Allahabad, SN medical college, Agra, PL. Sharama District Hospital, Meerut, JN medical college, Aligarh, MLB medical college, Jhansi, and BRD medical college, Gorakhpur are being upgraded for BCSC. CSMMU, Lucknow is already upgraded to State of Art Model Blood Bank and SGPGI, Lucknow is also being upgraded by NACO to Model Blood Bank. The process for the same has been initiated.

Out of 169 Licensed Blood Bank 63 blood banks in Govt. sector and 02 charitable blood banks are facilitated by UPSACS according to NACO norms.

To increase voluntary blood donation NACO has provided budget for organizing voluntary blood donation camps twice a month.

Presently 51 district of UP are covered with blood banking facilities. While 15 new blood banks are proposed to establish in this financial year. Blood storage facilities will also be provided at 50 selected first referral units. Training of Medical Officers & Lab Technicians completed.

Targeted intervention program:

Objective is prevention of new infections in High Risk Groups and General Population through:

- Saturation of coverage of High Risk Groups with Targeted Interventions (TIs)
- Scaled up interventions in the General Population

The basic purpose of the Targeted Intervention program is to reduce the rate of transmission among the most vulnerable and marginalized populations. One of the ways of controlling the disease from further spread is to carry out direct intervention program among these groups through multi-pronged strategies, beginning from behaviour change communications, counselling, providing health care support, treatment for STDs and creating an enabling environment that will facilitate behaviour change. It envisages a comprehensive and integrated approach to marginalized and vulnerable populations such as sex workers, intravenous drug users, and men having sex with men, truckers, and migrant labour and street children.

All over the world, it has been commonly found that particular groups of people are more vulnerable than others to the HIV/AIDS epidemic. These groups, because of their behavioural attributes, are prone to contract the infection more quickly and spread the disease in a very short period.

School AIDS evaluation programme also is one of the programmes in this effort.

National Urban Health Mission (NUHM)

The national urban health mission (NUHM) aimed at providing basic health care facilities for the urban population, especially urban slum dwellers, will be launched in the near future all over the country. The NUHM is being launched after the impressive performance of the national rural health mission started three years ago to take health care to every household.

The health status of people in Uttar Pradesh is amongst the lowest in the country, especially for the urban poor. The health indicators among urban poor are significantly lower than in rural areas of the state. Urban areas report a high rate of home deliveries and low rates of immunization of children. A significant percentage of the population in the cities of UP live in slum areas, thus even more prone to sickness and disease. Many of them are migrants from the rural areas or from neighbouring states, living below poverty line, and unable to afford the high cost of private medical care.

Indicator	Urban Poor	Urban Non poor	Urban	Rural	State Total	India Total
Infant mortality rate %	86.2	51.9	64.2	74.8	72.7	57.0
Under five mortality rate %	110.1	66.1	82.4	100.0	96.4	74.3
% Mothers who had at least 3 ANC visits	20.7	53.2	42.1	22.5	26.6	52.0
Institutional delivery (%)	16.7	52.3	40.0	18.0	22.0	41.0
Children completely immunized (%)	15.3	42.9	33.0	21.0	23.0	44.0

At the primary level, the urban health care infrastructure of the government consists of various types of non standardized health facilities such as urban health posts / urban health centres / urban family welfare centres. These facilities have evolved over various five-year plan periods and have not been rationalised since for population growth or the changing health needs of people. Cities have a large concentration of slums and many of these are not being served by any public health facility nearby. Even in existing facilities the services are irregular because of lack of staff, drugs or equipment. As a result there is over-crowding in most of the secondary and tertiary health institutions of the state. Private clinics and nursing homes have mushroomed all over the cities and in the absence of any regulation on private health establishments many of them charge exorbitant rates to patients and with no decent standard of care.

The National Urban Health Mission (NUHM) is due to be launched in 14 cities of UP imminently with the aim to meet the health needs of the urban poor, particularly the slum dwellers through the provision of essential primary health care services. The key objectives to be achieved through this project are:

- To deliver comprehensive primary health care services to the urban population (particularly the slum population) being covered by the selected facilities.
- To improve uptake of health services such as immunization, antenatal and post natal care and institutional deliveries by slum population being covered by these health facilities.

Government of UP will be launching the National Urban Health Mission (NUHM) in the state, under which voluntary link workers or Urban Social Health Activist (USHA) workers will be identified and enrolled for urban slum communities. These would typically be literate women from the community of about 25 to 45 years of age. Each USHA will cover about 1000-2,500 beneficiaries, between 200-500 households based on spatial consideration. USHA on the lines of ASHA (Accredited Social Health Activist) under NRHM would remain in charge of each area and serve as an effective and demand–generating link between the health facility (Primary Urban Health Centre) and the urban slum populations.

Chapter IV: Mainstreaming DM Concerns into Developmental Plans

Is there a connection between development and disasters? Do developments lead to disaster? Or, do developmental activities help in managing disasters? How to 'integrate' Disaster Risk Reduction issues into development planning? These are the questions in the minds of those who are involved in the activities of disaster management since this topic started getting world attention.

Most countries agree that development and disaster management are linked. Development cannot be sustainable unless it incorporates elements of disaster risk reduction. Risk reduction measures should be incorporated into development initiatives to protect development gains. At times development initiatives help to reduce disaster risks. A few examples are given here to explain how disaster risk reduction can be integrated into development planning.

- Consider the construction of a road to connect an isolated settlement. The road helps to develop the area economically and also provides a safe evacuation route. However, it is seen that the development process often clashes with disaster risk reduction principles. Roads constructed in hilly areas of the country end up destabilizing the slopes leading to frequent and catastrophic landslides. Therefore, when implementing the road project, necessary measures should be taken to reduce the risk of landslides.
- When water supply and sanitation projects are implemented, they meet the basic needs of the target population. However, it may result in outbreak of water borne epidemic diseases due to water contamination; outbreak of epidemics due to unsanitary conditions, mosquito breeding, etc. therefore, whenever water supply and sanitation projects are planned, provision should be made for inspecting water treatment and supply systems periodically, properly maintain the system; avoid contamination of drinking water; take precautions to avoid breeding of mosquitoes; and educate people on use of safe water and hygiene.
- When hospitals are constructed in order to provide medical facility to the people, if sanitary condition is not properly addressed, it may lead to diseases or epidemics. Therefore, it is essential to ensure clean environmental sanitation and appropriate safe methods for disposal of hospital waste. Also, new hospital buildings should be constructed with disaster resisting features; and survey of existing health service buildings should be done and retrofitting work taken up if needed.

Chapter V: Preparedness Measures

Epidemics may break out in the aftermath of a natural disaster. Disaster causes negative impact on the overall health of the community besides interfering in its sustainable development. Direct health implications of disaster are death and injury. Disruption of human ecology and environmental concerns are of prime importance. Disruption of human ecology is due to:

- Disruption/ damage to sanitation and sewage facilities create enabling environment favourable for occurrence of vector borne and water borne diseases,
- The affected communities living in temporary shelters/ resettlements have limited or no access to safe drinking water, food etc. In addition, prevailing unhygienic sanitary conditions also make it conducive for spread of food and water-borne diseases.
- Overcrowding in temporary shelters results in spread of communicable diseases.
- Effects on mental health include Post-traumatic Stress Disorder; excessive grief, sleep disorders; exaggeration of existing illness; death wish & suicidal ideation
- Reproductive Health – Pregnant mothers and newborns become vulnerable and require additional care.

Among all the adverse health impacts, the impact of communicable diseases is often delayed for weeks or months after the acute event. Water and food-borne disease transmission potential increases immediately and week after the disaster. Vector borne diseases may appear after four weeks or more, due to disruption of vector control efforts, washing away of residual insecticides, increased number of vector breeding sites and more man-vector contact. Nutritional problems appear after months.

Health Effects Due To Natural Disasters

Emphasis on post-disaster public health measures is necessitated by the following additional factors:

- Destruction of healthcare infrastructure.
- Interference in public health services specially for:
    - Safe drinking water
    - Sanitation measures
    - Immunization
    - Rodent / mosquito control
- Ecological changes and effects in vector populations
- High population density due to displacement

Public health interventions to prevent disease outbreaks after disaster should essentially focus on:

- Post disaster sanitation measures for:
    - Safe water supply
    - Food hygiene
    - Proper sewage systems/disposal of excreta
    - Vector / rodent control.
    - Public health education.
- Strengthening epidemiological surveillance system

Surveillance system should be in place as early as possible after the natural disaster.

Surveillance in natural disaster can be defined as a systematic collection, compilation, analysis and interpretation of deaths, injuries and illnesses in order to provide information about any adverse health effects related to a disaster event in a community. This also tells us about early warning signals of impending outbreaks. Surveillance system allows:

- Assessment of human health impacts of a disaster
- Early identification of potential problems to planning and effective preventive control measures
- Early detection of outbreak, if it occurs

The surveillance should focus on main health problems that can have a response. The system should be simple, feasible so easily adaptable to new needs.

The effectiveness of a surveillance system depends on effective and earliest reporting of occurrence of any disease in the community and immediate, initiation of appropriate control measures. A simple format can be used to gather information on epidemic-prone diseases.

In post-disaster phase, important epidemic-prone diseases can be grouped as under:

- Water-borne diseases (eg. acute diarrhoeal diseases including cholera, enteric fever, viral hepatitis A & E)
- Vector-borne diseases (eg. malaria, dengue, acute encephalitis)
- Vaccine-preventable diseases (eg. measles)
- Others (eg. meningitis, leptospirosis)

Health effects of various disasters						
Health effects	Earthquake	Floods	Landslides	Epidemics	Fires	Conflict situation
Deaths/ severe Injuries	Many	Few	Many	Many	Few	Many
Requiring extensive treatment	Many	Few	Few	Few	Many	Many
Increased risk of epidemics	Yes	Yes	Yes	-	-	Yes
Damage to water systems	Severe	Light	Severe (but localized)	None	None	Limited (depends on the factions fighting)
Damage to health facilities	Severe (structural and equipment)	Severe - equipment only	Severe (but localized)	None	Depends on location	Limited (Depends on the factions fighting)
Damage to health services	High	High	Low	Moderate	Moderate	High
Food shortage	Possible (due to distribution problems)	Common	Common (but localized)	None	Possible (if crops destroyed)	Common (in prolonged conflicts)
Major population movements	Common (generally limited)	Common	Common (generally limited)	Rare	Unlikely	Common (generally limited)

Preparedness Measures in a Disaster Situation

- Initial assessment: should include rapid collection and analysis of data including mortality, morbidity, malnutrition, vaccine coverage, mapping of area.
- Measles immunization: is an absolute priority and should be initiated within a week. It should be given to 6 month to 5 yr-old children. The vaccination strategy should be mass campaign followed by routine vaccination.
- Vitamin A supplementation to be given with measles to all children between 8 months and 5 years of age residing in the camps.
- Safe water and proper sanitation: to prevent risk of diarrhoeal diseases. Quality indicators may be set up and should be monitored.
- Food and nutrition: Malnutrition is common after displacement and contributes to deaths. Daily minimum of 2100 Kcal/day/individual should be available. Assessment for it should be quick.
- Shelter and site planning should be done to prevent transmission of diseases related to over-crowding, rain etc.
- Health care in emergency phase: includes availability of guidelines for medical management, drugs supplies, diagnostic kits and reagents, bio safety measures equipment etc.
- Control of communicable diseases/ epidemics. The greatest killers are diarrhoea, measles, acute respiratory infections and malaria. Preventive measures should be enforced. Preparedness plans for dealing with epidemics should be is place.
- Public health surveillance to monitor health status of population.
- Human resources training.
- Inter-sectoral co-ordination between different concerned sectors.
- Media management.

Control of water borne diseases

Setting up of control rooms

- Control rooms to be set up at district and state level
- Nodal officers should be identified at the state and district levels for collecting data and analysing relevant surveillance reports and ensuring appropriate follow up action.
- For technical assistance and help in investigation of outbreaks, control room of National Institute of Communicable Diseases (NICD) and Directorate General of Health Services may be contacted. The addresses are: (i) Director, NICD, 22 Shamnath Marg, Delhi-ll0054; Tel: 23981289, Fax: 23928700, 23922677; (ii) Director, EMR, Directorate General of Health Services, Nirman Bhawan, New Delhi-110011; Tel: 23061302; Fax: 23061457; Mobile: 9868619799. Clinical samples can be sent to NICD round the clock.

Surveillance of Acute Diarrhoeal Diseases (ADD)

- Information on occurrence of ADD is to be collected from all the health facilities including temporary / mobile health units.

Identify source of contamination of water and remedial measures

- Identify source(s) of contamination of drinking water and ensure repairing of water pipes (if indicated), make it safe for use or make alternative arrangements for safe drinking water by supplying through 'Tankers'.
- Check water for chlorination, and if possible for bacteriological contamination.
- If surface water/hand pump water is found contaminated, it should not be used for drinking purposes.
- Boiling will kill or inactivate V.cholerae and other common organisms that cause diarrhoea. Boiling is, however, expensive and may not be practical in areas having fuel shortages.

Chlorination of water

- Ensure proper chlorination of water sources including draw wells/shallow wells as per the standards laid down for minimum residual chlorine level
- Chlorine releasing tablets may be distributed for domestic use:
- Crush commercially available chlorine-releasing tablet.
- Put in the water container with 20 litres of water
- Allow to stand for 30 minutes
- Use water within 24 hours

Storage of water at household level

- Encourage storage of drinking water in clean, covered and narrow mouthed containers.
- Use only tap or ladle to draw water if stored in a wide-mouthed container.

Safety of food

- Avoid raw and uncooked food unless it can be peeled or shelled.
- Cook food thoroughly and eat it while still hot.
- Cooked food should not be stored for a long time. Keep the food covered and reheat it thoroughly before consuming.

Information Education & Communication (IEC)

- Increase awareness in the community about personal hygiene and sanitation including the importance of hand washing with soap after defecation and before preparing or eating food.

Case management

- Treatment facilities should be readily available and accessible. Manage dehydration and electrolyte imbalance due to acute watery diarrhoea by using ORS (Oral Rehydration Salt) solution. Monitor the clinical condition of the patients during and after rehydration until diarrhoea stops. IV fluids (Ringer lactate solution) should be used only for the initial rehydration of patients with severe dehydration. Plain glucose solutions are ineffective and should not be used.
- Antimicrobials are unnecessary for the treatment of ordinary diarrhoeas; the anti-diarrhoeal preparations are contraindicated. In case of suspected cholera cases, tetracycline and norfloxacin may be given.

Community participation

- Community must be encouraged to participate in activities for the prevention and control of outbreaks including taking appropriate action for storage of water at household level and personal hygiene. They must be aware of danger signals of dehydration and when to seek immediate medical care.

Control of vector-borne diseases

Active surveillance of Acute Fever cases

- Information on occurrence of acute fever cases should be collected from all the health facilities including temporary/mobile health units. If clustering of cases is found in time and space, investigations should be carried out to find out the cause. Examine peripheral blood smears for malaria parasites and manage the cases appropriately.

Vector Surveillance

- Vector surveillance should be immediately initiated to monitor the existing vectors and should include search for adult vector mosquitoes and their immature forms, and identification of mosquito species and density. Increase in density of the vectors and their breeding sites in the area should be taken as early warning signals for vector borne disease outbreaks.

Vector Control

- The success of vector control depends on reducing the density and longevity of the species responsible. Reducing the vector density can be achieved by measures directed at the breeding sites: environmental management (drainage, filling, levelling of depressions/borrow pits etc.) or the use of insecticides (larvicides). The target vectors must be susceptible to the chemical. In addition, this chemical should not kill non-target organisms (such as fish) or present a hazard to people drinking water from the same source. Longevity reduction depends on the use of insecticides that kill the adult vectors, which is often called for, in emergencies, due to the urgent nature of the problem and the risk of vector-borne disease epidemics.

Community participation

- The community must be encouraged to take steps to protect themselves from mosquitoes by eliminating mosquito breeding sites and taking personal protection measures such as use of bed nets, mosquito repellents etc.

Control of measles in relief camps

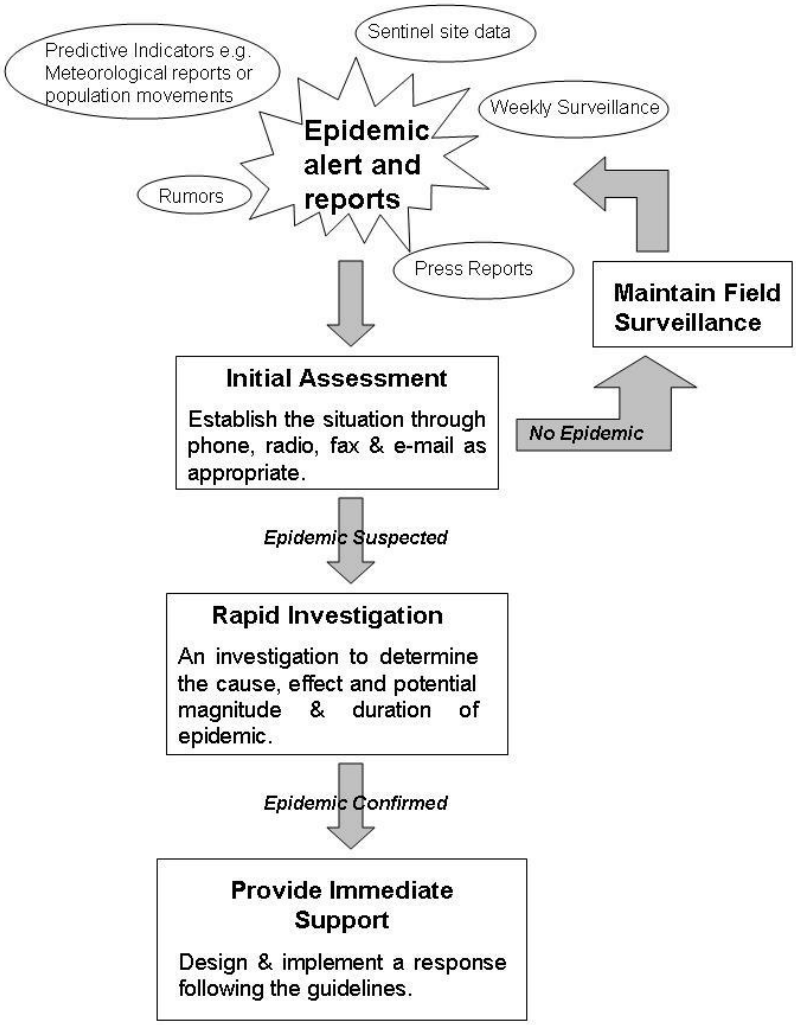
- In areas where immunization coverage is poor, all children between 6 months and five years of age (irrespective of their previous immunization status) who are to be housed is make shift relief camps should be administered a dose of measles vaccine as soon as they arrive the camps. Once the outbreak has started, vaccination may not have a substantial impact on the course of the outbreak, as the children are likely to have been exposed to the virus by the time the response is initiated. Nevertheless, the cases should be treated appropriately.
- Strengthen surveillance system for vaccine preventable diseases including measles for early detection of cases/ clustering of cases/ early identification of outbreaks.
- Strengthen routine vaccination for measles and other vaccine preventable diseases in disaster affected and surrounding areas.
- Educate community for immediate reporting of measles cases.

Chapter VI: Response for Epidemics

Response System in U.P.

The system of response for epidemics is as follows:

- The state has an Epidemic Cell headed by the Director General, Medical Health (DG).
- DG is reported to by Jt Director, Communicable Diseases who is in-charge of the State Control Room (SCR) for information on diseases.
- At district level, the Chief Medical Officer (CMO)/ Dy. CMO are responsible for tackling emergencies.
- District Control Room (DCR) is looked after by CMO/ Dy CMO. DCR sends weekly and epidemic reports to SCR who further send it to the Control Room of National Institute of Communicable Diseases (NICD) on a periodic basis. Often SCR receives information on an outbreak from the NICD also.
- There are also Rapid Response Teams (RRT) at the state and district levels. In case of an outbreak CMO sends the RRT under him and sends information to the Epidemic Cell. If required state RRT are also sent to the site. The RRT is composed of:
    - A Physician / Epidemiologist
    - A Pathologist
    - A Microbiologist
    - An Anaesthetist
- There is no separate hospital for dealing with outbreak cases. There is an isolation ward in the District Hospital for isolation of patients with communicable diseases.
- The District is also required to prepare an Annual Action Plan for dealing with outbreaks. It has to cover three stages – Investigation, Prevention & Treatment.



Trigger Mechanism

Trigger mechanism is a concept that has been developed in order to ensure the smooth flow of response activities after disaster. The trigger mechanism is in essence, the Standard Operating Procedure (SOP) in which the implementation of efforts on ground is well laid down. The different levels of disaster have been defined as follows.

Level	Description	Remarks
L0	Normal times	Non-disaster time. The following activities are undertaken: • Close monitoring • Documentation • Preparatory activities • Training of search and rescue teams • Rehearsals • Evaluation • Inventory updating for response activities
L1	District Level	• Situation managed by District resources • State and Centre to watch the situation • State and Centre to provide assistance if asked for
L2	State Level	• Situation beyond the district capacity • State intervention is needed for management • Centre to watch and provide assistance if asked for
L3	National Level	• Large scale disaster, impact in a number of districts / states • Central assistance and support needed by state and districts for managing the situation

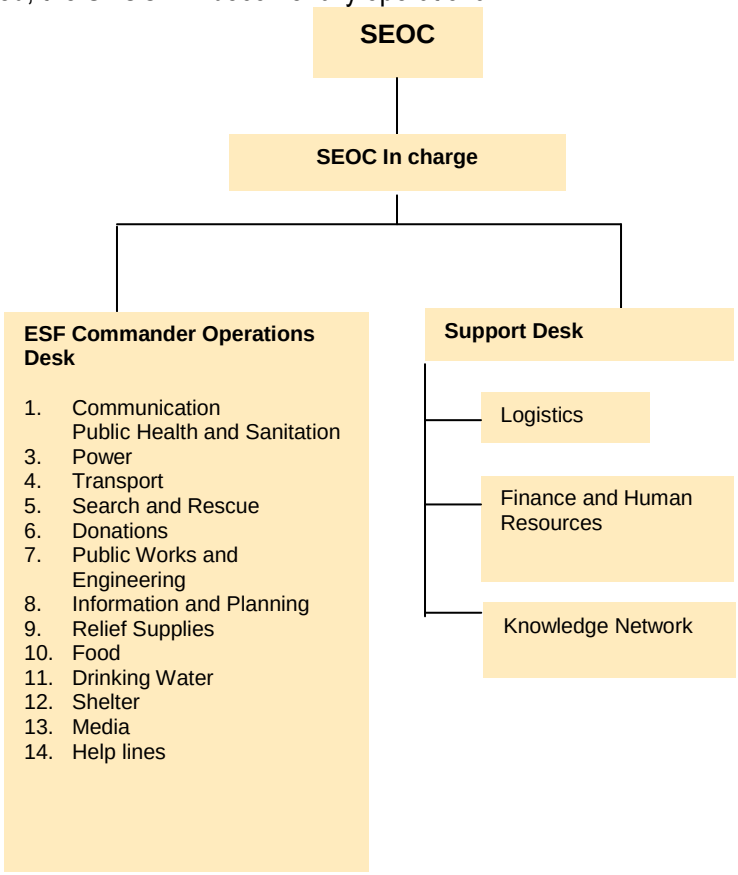
The State Emergency Operation Centre

The State Emergency operation Centre (SEOC) will be hub of all the activities related with disaster response in the state. The primary function of the SEOC is to implement the State Disaster Management Plan, which includes coordination, data collection, operation management, record keeping, public information, and resource management.

For the effective management of resources, disaster supplies and other response activities, focal points or centres will have to be established. These points will have to be well networked starting from the State to the District and finally leading to the disaster site.

Emergency Operations Centres at the State (SEOC) and the District (DEOC) and Incident Command Post (ICP) at the disaster site are the designated focal points that will coordinate overall activities and the flow of relief supplies from the State.

The State Emergency Operations Centre (SEOC) will be maintained and run round the clock which will expand to undertake and coordinate activities during a disaster. Once a warning or a First Information Report is received, the SEOC will become fully operational.



During a disaster situation, the SEOC will be under direct command of the Chief Secretary or the designated person by him as the Chief of Operations.

During non disaster times, the State Emergency Operations Centre stays operational throughout the year in preparedness mode, working during day time in order to take care of the extended preparedness activities of data management, staff awareness and training, which is essential for the smooth functioning of the SEOC during crisis situations and handling of emergency Toll Free Contact Lines. During an emergency, the SEOC will get upgraded and will have all emergency stakeholders manning it round the clock.

The aim of the EOC will be to provide centralized direction and control of all the following functions

- Emergency operations
- Communications and warning, which includes handling of 24 hrs emergency toll free numbers.
- Centralised state level disaster resource database
- Requesting additional resources during the disaster phase from neighbouring districts of the affected area
- Coordinating overseas support and aid.
- Issuing emergency information and instructions specific to departments, consolidation, analysis, and dissemination of Damage Assessment data and preparation of consolidated reports.

Organizational Setup of SEOC

The EOC will comprise the following:

SEOC In-charge

- During non-disaster times, the SEOC will work under the supervision of the relief commissioner.
- In a disaster situation, the SEOC will come under direct control of the Chief Secretary or the person designated by him as the Chief of Operations. He is the primary role player in the EOC, and is responsible for the overall coordination and decision-making. He will also report the status of the SEOC operations and the disaster situation to the Chief Secretary.

Operations Section

The Operations Section will ensure smooth and planned functioning of the SEOC. It will fulfil the following functions:

- Handle requests for emergency personnel, equipment and other resources
- Designate responsibilities and duties for management of the SEOC
- Manage storage, handling and set-up of incoming equipment and personnel
- Ensure medical care, feeding and housing for SEOC personnel
- Maintain documentation of resource inventories, allocation and availability.
- Manage finances for SEOC operations

Representatives in SEOC

Representatives of State Departments of the following departments will be present at the SEOC to take part in the operations and facilitate quick coordination between the SEOC command and their parent departments towards ensuring quick information availability and decision-making:

- Department of Public Works
- Department of Irrigation
- Department of Energy
- Department of Home
- Department of Revenue
- Department of Health
- Department of Agriculture
- Department of Industries

Emergency Support Functions (ESF) have been established, to support the SEOC functions. Each ESF is headed by a lead department for coordinating the delivery of goods and services to the disaster area, and it's supported by various departments and agencies.

During a disaster, the ESFs will be an integral part to carry out response activities.

After a major disaster or emergency requiring State response, primary agencies, when directed by the EOC will take actions to identify requirements and mobilize and deploy resources to the affected are and assist the State in its response actions under fourteen ESFs

Location of SEOC

The SEOC is established in the Department of Revenue. The layout of the SEOC is given below.

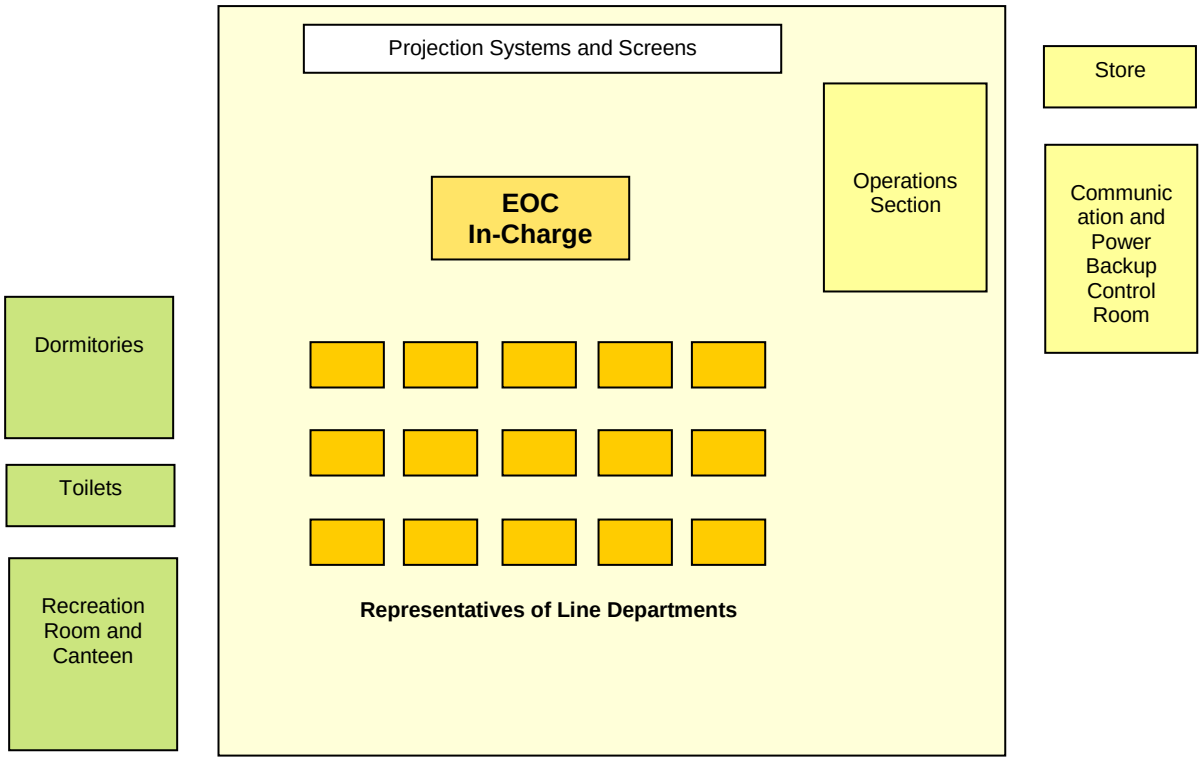
- The Chief of Operations will initiate the activation of emergency services of the SEOC.
- Activation of the SEOC should immediately follow the declaration of a State Level Emergency.
- The Individuals staffing the SEOC are responsible for establishing communications with their respective departments through radio and telephone etc.
- The SEOC Chief or designee will determine what staff he/she deems necessary to effectively operate the SEOC apart from the prescribed staff.
- The designated officers of the Police will provide security at the SEOC.

Back-up SEOC

It is recommended that an alternate SEOC must also be established. It is suggested to setup the backup SEOC within the secretariat building, as most of the departmental heads sits there.

SEOC Layout

A conceptual layout of SEOC is given below.



Equipment Requirements

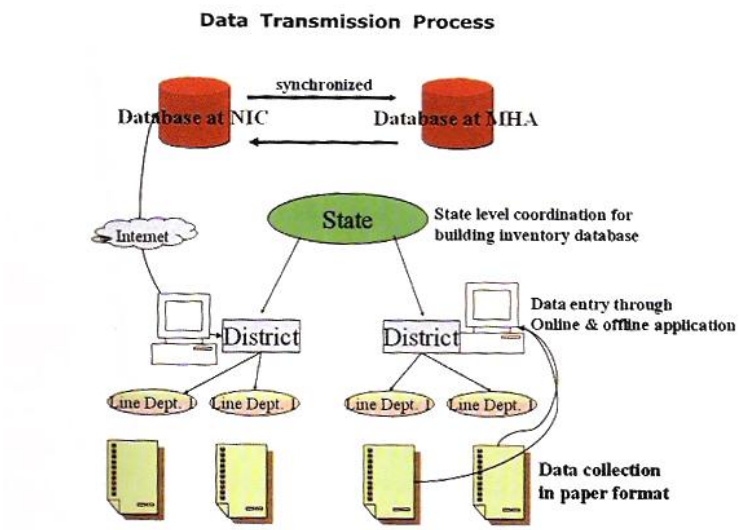
The SEOC will need to operate round the clock, and may itself be subjected to adverse conditions due to the impact of disaster. It needs to be equipped with the following hardware and software for its efficient functioning:

- Resource Inventories and databank of maps and plans at block, district and state level on a GIS platform for quick retrieval and analysis.

- State-of-art communication equipment for staying linked with the Chief Secretary's office, headquarters of line departments, district collectors, field teams, media, and national and international support agencies.
- A mobile command vehicle with communication equipment.
- Workstations and communication lines for all representatives of the line ministries.
- Radios and television sets tuned to different news channels and coverage.
- Video conferencing facility.
- Projection equipment and screens.
- Emergency power backup.
- Stock of drinking water, food, medicines, bedding and essential items required for personnel manning the SEOC for long time durations.

Resource Inventories

Resource inventories are useful in quick retrieval of vital information regarding availability and sources of rescue and relief material and personnel during times of emergency. Resource inventories are essential elements of EOC operations. Such inventories will be prepared and maintained through regular updating at the State and District levels. Inventories will include the following basic elements, and other locally relevant information:



- Contact details of all personnel and organisations concerned with emergency management
- List, with specifications and availability procedures, of all equipment that may be useful for responding to an emergency. This will include communication equipment, transport vehicles, earth moving equipment, cranes, and tools etc. that are available with agencies within the jurisdiction.
- List, with specifications and rate schedules, of relief material that can be sourced from local aid agencies and markets. This will include dry rations, tents and bedding, clothing, utensils, first-aid items and other basic necessity items

India Disaster Resource Network (IDRN)

When disasters strike, the disaster managers at the district/ State level respond with the resources at their command. The difficulty is that while the Disaster Manager (District Magistrate/ Collector) is generally aware of the resources at his command in the district, he is not aware of the resources available in the neighbouring districts within the State or in the neighbouring States. The disaster manager at the State level [the Relief Commissioner] does not have an inventory of resources available within the State. Therefore, all the resources available within the State are not brought to bear for saving lives, and when some specialist equipment is required, there is a lack of knowledge as to the whereabouts of the equipment either in the neighbouring district or in the neighbouring State. Lives can

be lost because of such delays/ lack of required resources. The IDRN addresses this lacuna in our disaster management system.

India Disaster Resource Network (IDRN) is one of the initiatives under the GOI-UNDP Disaster Risk Management Programme for disaster reduction. It is a nation-wide electronic inventories of essential and specialist resources for disaster response both specialist equipment and specialist manpower resources. The IDRN lists out the equipment and the resources by type and by the functions it performs and it gives the contact address and telephone numbers of the controlling officers in-charge of the said resources so that the equipment can be promptly mobilized. The IDRN is a live system providing for updating of inventory every year. Entries into the inventory are made at two levels – district and State level. The Objectives of IDRN are:

- To collect and collate information on resources available in the country for emergency response.
- To enhance the decision making capabilities of Government functionaries in quick response to emergencies.

IDRN is accessible to the Emergency officers, District Collectors, Relief Commissioners and other disaster managers at various levels of Government.

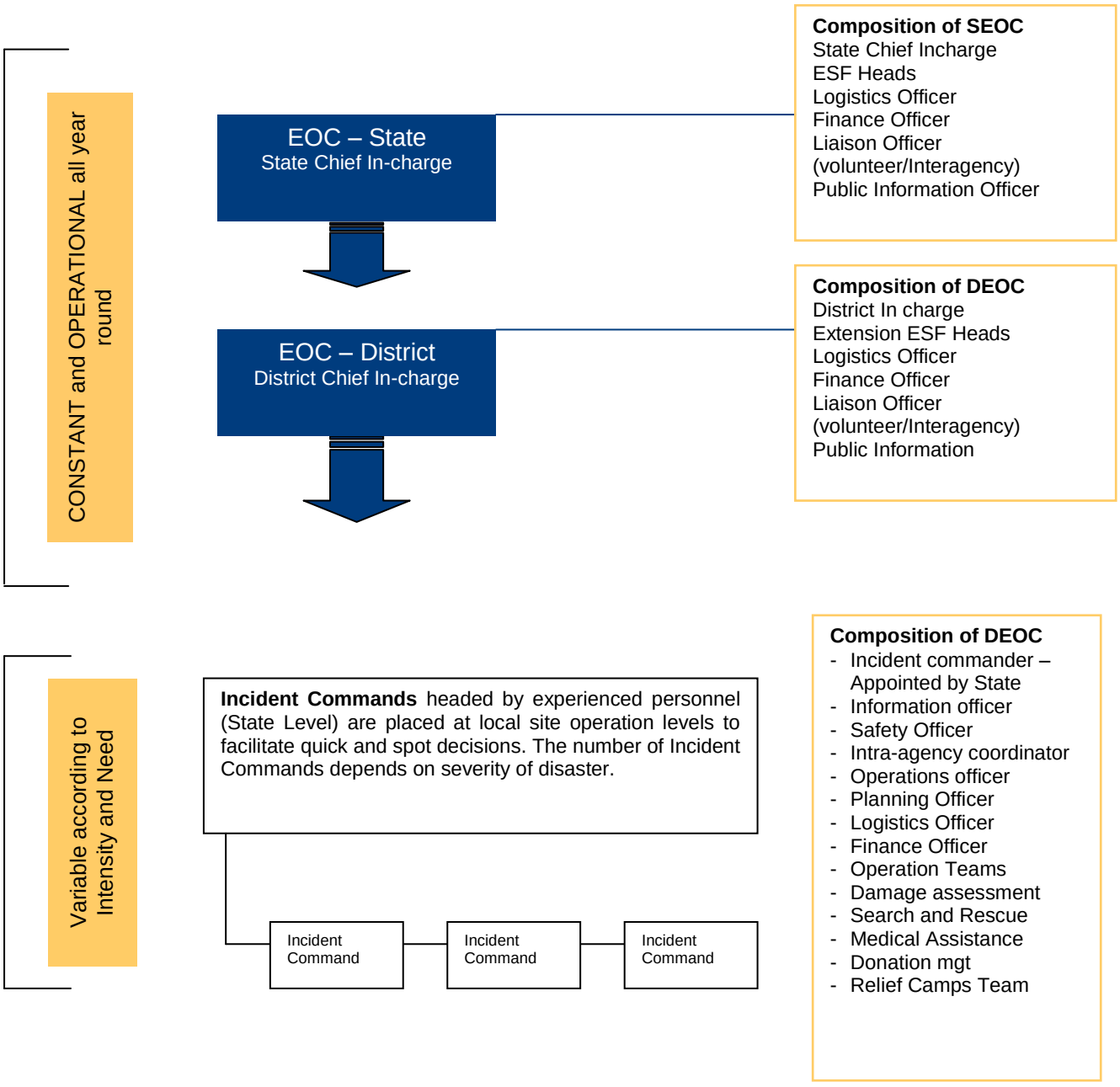
Incident Command System

The SEOC will need to field its own field teams and through them establish an Incident Command System. The system will comprise:

- Field command
- Field information collection
- Inter agency coordination at field level
- Management of field operations, planning, logistics, finance and administration

Rapid Assessment Teams and Quick Response Teams described below will be fielded by the SEC through the SEOC as part of the Incident Command System.

OVERALL COMMAND FLOW CHART (EOC and ICS)



Institutional arrangement of SEOC

Activities of the SEOC

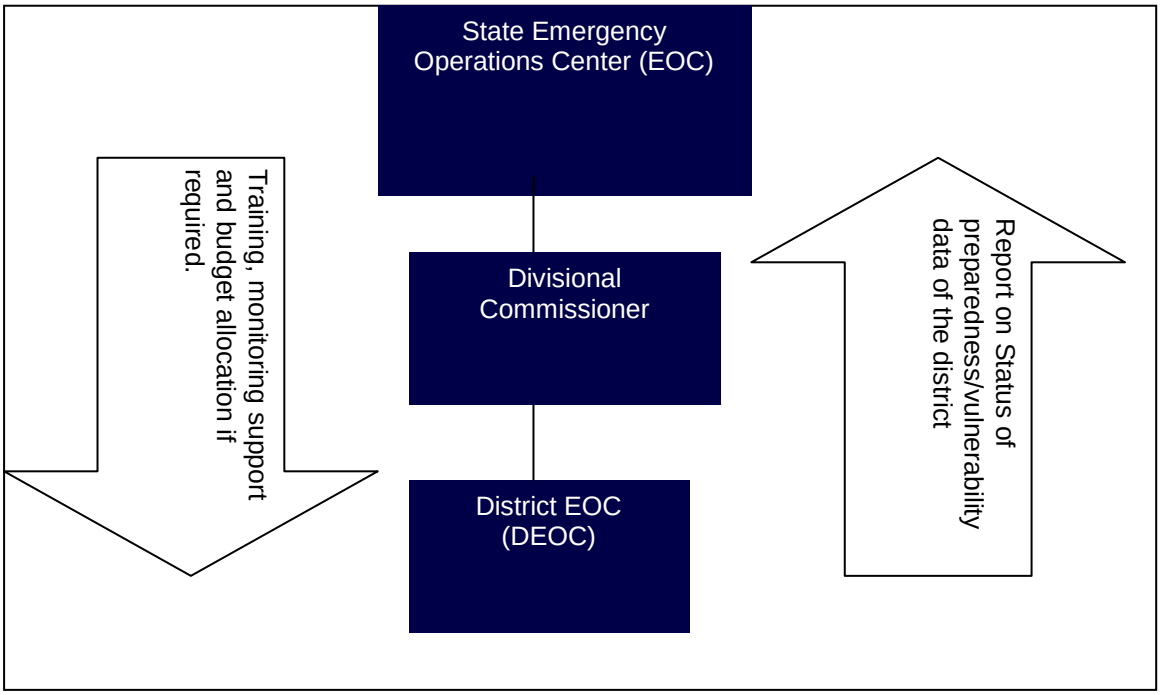
The responsibilities of SEOC at the state level shall be to provide centralized direction and control of the following activities:

Non-disaster time

During non-disaster times, the activities of the EOC will be under the supervision of the relief commissioner. Following are the activities during non-disaster times.

- Ensure that all districts prepare and regularly update the District Disaster Management Plans.
- Encourage districts to prepare area-specific plans for areas prone to specific disasters.
- Monitor training imparted to state level officials, private sector and NGOs in coordination with the HIDM.
- Keep record of the State and district disaster management plans.
- Disseminate information about the State DMP to other departments.
- Ensure that the warning and communication systems and instruments in the SEOC are in working conditions round the clock.
- Keep and update state level disaster resource inventory
- Establish functional facility of Toll free emergency numbers.

Flow of Information between SEOC and DEOC during normal conditions



Activation Procedure of the EOC

Once the Sub-Divisional officer/SDM deems a disaster to be beyond the management capacity of local authorities, the District Disaster Management Authority (DDMA) will declare it as a District Level Disaster and activate the DEOC. Once the DDMA deems a disaster magnitude to be beyond its management capability, it will forward the report to the SEOC for deliberation at the SDMA and subsequent appropriate State intervention. On verification of the magnitude of the disaster, and the scale of response required, the State Emergency Operations Centre will get activated and after declaring a State Disaster, will take control.

- **Step 1:** The State EOC is activated on orders from the SDMA. On receipt of a disaster warning or a FIR, the Chief Minister, after verification that the situation merits declaration of a State Disaster, will convene a meeting of the State Disaster Management Authority. Based on the ratification of the Authority, the Chief Minister, will declare a State Disaster.
- **Step 2:** SEOC is upgraded to emergency mode. The SEOC, till then operating in the preparedness mode, will be upgraded to the emergency mode. Concerned line departments will be informed to post their representatives at the SEOC on a round the clock basis with immediate effect. SEOC will be activated and all community preparedness measures will be put into operation and the ESF to be on full alert and activate their SOPs. The activation of the SEOC should be followed after the DDMA declares a major disaster.
- **Step 3:** Field Assessment Reports. The Chief Secretary/Relief Commissioner will assume the role of the Chief of Operations for Disaster Management. The Chief of Operations of the EOC will coordinate for setting up the ESFs and are asked to prepare and send the Field Assessment Report to the SEOC. The Chief of Operations of the SEOC will spell out the priorities coordinate services of the ESFs, including national and aid agencies.

Quick response teams of specialized personnel will have to be sent for effective management of disaster. Depending on the magnitude of the disaster, two different types of teams will be fielded by the SEOC: (i) Rapid Assessment Teams; (ii) Quick Response Teams

Rapid Assessment Teams

The Rapid Assessment Teams will be multi-disciplinary teams comprising four or five members. They will mainly comprise senior level specialized officers from the field of health, engineering, search and rescue, communication and one who have knowledge of disaster affected area, physical characteristic of the region, language etc. These officials should share a common interest and commitment. There should be a clear allocation of responsibilities among team members. To make a first / preliminary assessment of damage, the assessment report will contain the following basic elements or activities:

- Human and material damage
- Resource availability and local response capacity
- Options for relief assistance and recovery
- Needs for national / international assistance

Quick Response Teams / Rapid Response Teams

Deployment of search and rescue teams can help in reducing the numbers of deaths. A quick response to urgent needs must never be delayed for the reason that a comprehensive assessment has yet to be completed. The following teams must be sent to disaster site or disaster affected area as early as possible, even prior to First Information Report.

- First Aid Team
- Search and Rescue team
- Communication Teams
- Power Team
- Relief Teams
- Rehabilitation teams
- Transport Team

All other focal departments will keep ready their response teams, which may be deployed after receiving the first information report.

Chapter VII: Partnership with Other Stakeholders

Though the onus of disaster management rests with the government, the knowledge and expertise of other stakeholders should be mobilised for effective implementation of disaster management initiatives.

Role of Academic and Scientific Institutions

Academic institutions, and scientific and technical organisations can support the government by researching on various topics of risk reduction. The institutions can be involved to support the government in every phase of disaster management, from early warning to recovery. They can also be used for training and capacity building activities.

A suggested list of institutions may include the following.

- Technical institutes of higher learning including Medical and Engineering institutes
- Central and State Universities (government & private)
- State Council of Education, Research & Training
- Departments of government conducting research and training

Role of Communities

Communities can play a vital role in disaster response as well as risk reduction. It has been felt that a top-down approach to disaster management fails to concentrate on the specific local needs of vulnerable communities, as it does not take into account the potential of local resources and capacities. Though the approach of motivating individuals to understand disaster risks and taking action against the same has always existed, but streamlining it in the form of CBDM process has been very recent. The evolution of community-based processes can be traced back to the Great Hanshin Awaji Earthquake of 1995. In the wake of this tragedy, Hyogo Framework for Action was adopted in 2005. It promotes CBDM as one of the key lessons learnt from past disasters. Since then, the vitality of the community in the disaster management processes has been realized at various national and international forums.

As the community is the first respondent in any emergency situation, there is a need for building up the capacity of communities. By enhancing their skills and traditional coping mechanism the losses from disasters can be minimized. It is therefore necessary to raise their awareness on various hazards faced, and to encourage the community to assume a sense of responsibility to protect itself and to support public and institutional efforts geared towards disaster preparedness, management and mitigation. The aim should be to help the community to take a lead in the disaster management process.

The planning and coordination of the disaster management process can be more effective if there is active involvement of the Government agencies as well as the local NGOs. The district administration, in particular, plays a vital role as it acts as a critical link between communities and the State. With the adoption of the National Disaster Management Act, 2005 the Indian Government has displayed its commitment towards inducing disaster risk reduction into its policies and planning. The policies and programmes intended to develop mechanism for an integrated approach towards disaster management activities are implemented at the micro level through the District Disaster Management Authority. The DDMA is the core body responsible for strengthening the capacities of grass root level officials, community and other stakeholders.

It is important to impart training to the community and other stakeholders on the prevention, mitigation and response processes. These trainings are imparted through district government authorities involving local NGOs in the process. For sustaining the efforts, there is also a need of institutionalizing the process by empowering Panchayati Raj Institutions to take measures for prevention, mitigation and

response to the disasters. These efforts are sustained through continuous monitoring and evaluation on the part of the officials as well as the community.

Community should be involved in all phases of disaster management – risk reduction, preparedness, response, and rehabilitation activities. The following groups should be involved for effective disaster management.

- PRIs
- NGOs
- Community volunteers
- Schools
- Market associations
- Hotel associations
- Youth associations
- Women's groups

The State Disaster Management Authority should:

- Prepare an inventory of all research, academic institutions, NGOs, and other stakeholders in the State involved in DM.
- Facilitate their membership within the technical committee(s)
- Establish Partnerships with line departments and external stakeholders
- Coordinate periodic meetings
- Encourage and support NGOs for community mobilization.

Chapter VIII: Financial Arrangements

Funding for Disaster Relief

In India the policy arrangements for meeting expenditure on relief and rehabilitation is based on the recommendations of successive Finance Commissions. This arrangement is reviewed and revised after every five years based on the past experiences. The two main windows available for meeting the immediate relief expenditures are Calamity Relief Fund (CRF) and the National Calamity Contingency Fund (NCCF). In India the responsibility of providing immediate relief in a post disaster situation rests with the State Government concerned while Government of India supplements the efforts by providing requisite logistic and financial support to meet the situation effectively.

The funding arrangements available to provide assistance immediately after a disaster are in the form of subsidy and not for compensation of loss. The main objective of providing relief assistance is to support the affected person to meet up his immediate basic needs and regain back his livelihood. Although the current focus of the national government is on pre disaster preparedness and risk reduction planning which will help in minimizing the expenditure towards post disaster relief and rehabilitation in long run, the major challenge in present context is constitution dedicated funds for disaster mitigation and risk reduction. There has been an increasing emphasis on integration of disaster risk reduction elements into the ongoing development programmes and efforts are underway to develop suitable mechanisms for it.

Calamity Relief Fund (CRF)

Calamity Relief Fund (CRF) has been constituted for each State with an allocated amount, based on the recommendations of the Twelfth Finance Commission. The CRF is contributed by the Government of India and the State Government in the ratio of 3:1. The Central share is released in two instalments – first in the month of June and second in the month of December. The State level committee headed by the Chief Secretary is fully authorised to decide on all matters relating to the financing of the relief expenditure from the CRF, in accordance with the items and norms approved by Government of India. The first charge of relief expenditure is on the CRF. The CRF should be used for meeting the expenditure for providing immediate relief to the victims of cyclone, drought, earthquake, fire, flood and hailstorm.

National Calamity Contingency Fund (NCCF)

In the event of a calamity of a severe nature, in which the requirement of funds for relief operation is beyond the funds available in the State's CRF account, additional Central assistance is provided from National Calamity Contingency Fund (NCCF), after following the laid down procedure. As per this procedure, the State Government is required to submit a memorandum indicating the sector-wise damage and requirement of funds in the event of a calamity of a severe nature. On receipt of memorandum from the State an Inter-Ministerial Central Team is constituted and deputed for an on the spot assessment of damage and requirement of funds for relief operations, as per the extant items and norms of CRF and NCCF. The report of the Central Team is considered by the Inter-Ministerial Group (IMG) headed by the Home Secretary. Thereafter, the High Level Committee comprising of the Agriculture Minister, the Home Minister, the Finance Minister and the Deputy Chairman Planning Commission considers the request of the State Government based on the report of the Central team, recommendations of the IMG thereon, extant norms of assistance and approves the quantum of assistance from NCCF, subject to the adjustment of 75% of the balance available in the State's CRF for the instant calamity.

Community Disaster Resilience Fund (CDRF)

A community disaster fund that brings local priorities and capacities of disaster prone communities to DRR programming was one of the key recommendations that emerged from the workshop 'From National Frameworks to Local Action' organized by ProVention Consortium, GROOTS International and Huairou Commission at the First Global Platform on Disaster Risk Reduction in Geneva in June 2007. The initiative was formally announced by the National Disaster Management Authority of India with ProVention at the Plenary Session at the Second Asian Ministerial Conference on Disaster Risk Reduction held on November 7-8, 2007 in Delhi.

A Community Disaster Resilience Fund (CDRF) is being operated on pilot basis in 88 villages in 8 states by the National Alliance for Disaster Risk Reduction (NADRR). Other institutional partners include ProVention Consortium, GROOTS International, and National Disaster Management Authority of India (NDMA).

The Community Disaster Resilience Fund will allow communities to direct the use of the funds towards community led DRR initiatives that address their self-identified risks. The main purpose of the CDRF is to demonstrate community led initiatives in DRR; initiatives that are designed by communities and which enable them to increase their awareness of their vulnerabilities and to address these vulnerabilities through collective risk mapping, identification of priorities, planning, implementation, monitoring and evaluation. Objectives of the fund are (i) To develop community level capacities to identify and reduce risks through linkage with development programs; (ii) To enhance understanding of impact of community resources, resilience initiatives by doing action research, monitoring and impact studies; and (iii) To upstream lessons and leverage resources and partnerships for community led disaster resilience priorities.

Activities that have been started include baseline mapping, identification of vulnerabilities and local resources, training of trainers, capacity building for women's groups on DRR issues, formation of CDRF committee, transfer funds to CBOs and later to community groups etc. The fund will be used for various DRR measures such as addressing water and sanitation issues in flood prone area, developing eco shield and protect the environment and community from frequent floods, promoting SHG products through federation and proper marketing and sustainable livelihood income for flood affected community, promoting emergency fund to sustain the flood response, protecting environment, reducing soil erosion and addressing drinking water issues, dairy development through women's cooperatives, growing sevan grass to address drought issues etc.

The CDRF is a pilot initiative of an NGO network. Presence of such funding mechanism at district level and at community level will benefit all communities for capacity building for disaster risk reduction.

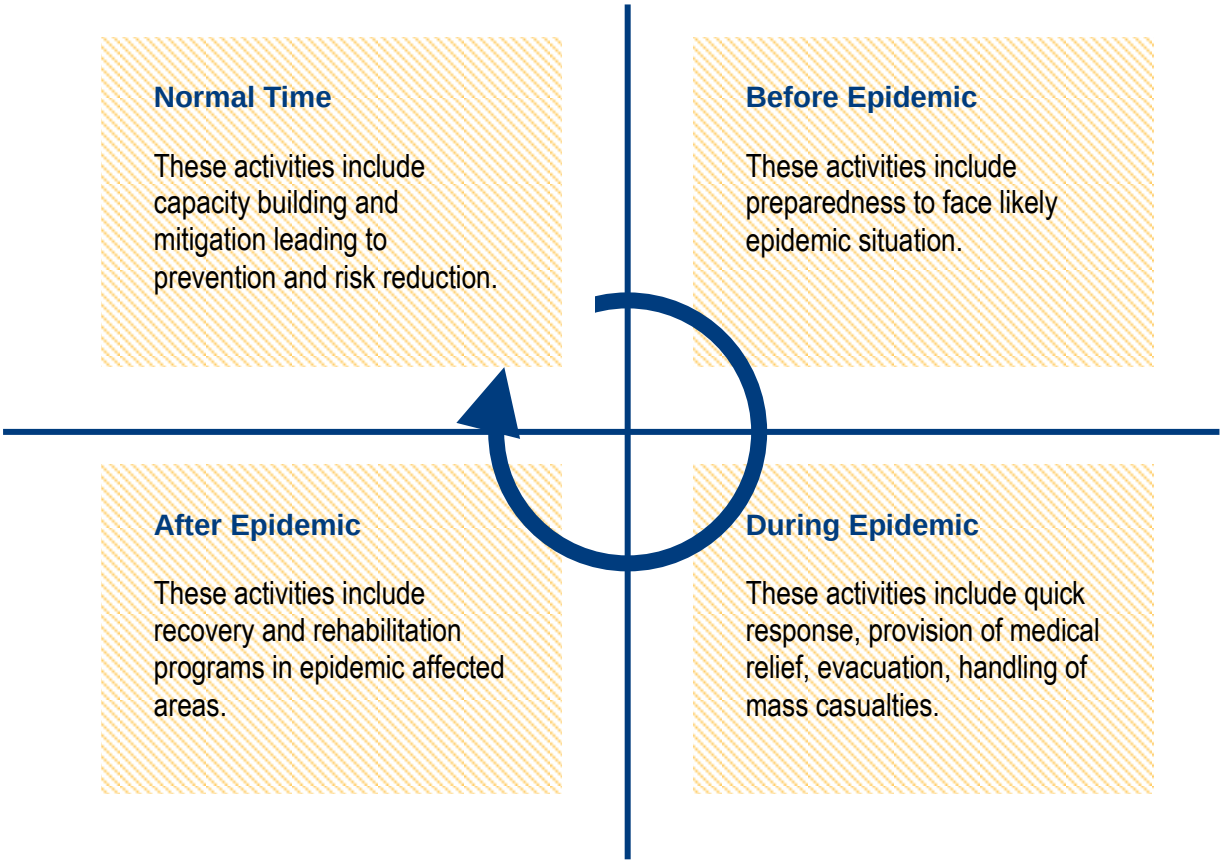
Funding for Disaster Mitigation & Preparedness

Disaster mitigation and preparedness activities in respect of epidemics will include the following activities as already discussed: Surveillance; Vaccination; Public education on hygiene and sanitation; control measures for water borne diseases and vector borne diseases, Improving access to health facility. The health department should include the budget needed for implementing the above activities in the annual plan.

Chapter IX: Action Plan for Epidemics

Disaster Management Cycle

For efficient execution of the State Disaster Management Plan, the Plan has been organized as per these four stages of the Disaster Cycle: Before, During, After, and Normal Time. In 'Before Epidemic' stage, preparedness activities to face an epidemic situation are undertaken. Activities during an epidemic include quick response, handling of mass casualties, providing medical relief to victims, and evacuation when needed. After an epidemic, recovery of the victims in the affected areas needs to be monitored. In normal times, capacity building and mitigation activities should be taken to reduce the risk of epidemics in the future.



Resources in the State

Health Infrastructure

Particulars	Required	In position	Shortfall
Sub-centre	26344	20521	5823
Primary Health Centre	4390	3660	730
Community Health Centre	1097	386	711
Multipurpose worker (Female)/ANM at Sub Centres & PHCs	24181	21900	2281
Health Worker (Male) MPW(M) at Sub Centres	20521	5732	14789
Health Assistant (Female)/LHV at PHCs	3660	2128	1532
Health Assistant (Male) at PHCs	3660	4061	-
Doctor at PHCs	3660	NA	NA
Obstetricians & Gynaecologists at CHCs	386	123	263
Physicians at CHCs	386	123	263
Paediatricians at CHCs	386	13	373
Total specialists at CHCs	1544	413	1131
Radiographers	386	NA	NA
Pharmacist	4046	NA	NA
Laboratory Technicians	4046	NA	NA
Nurse/Midwife	6362	NA	NA

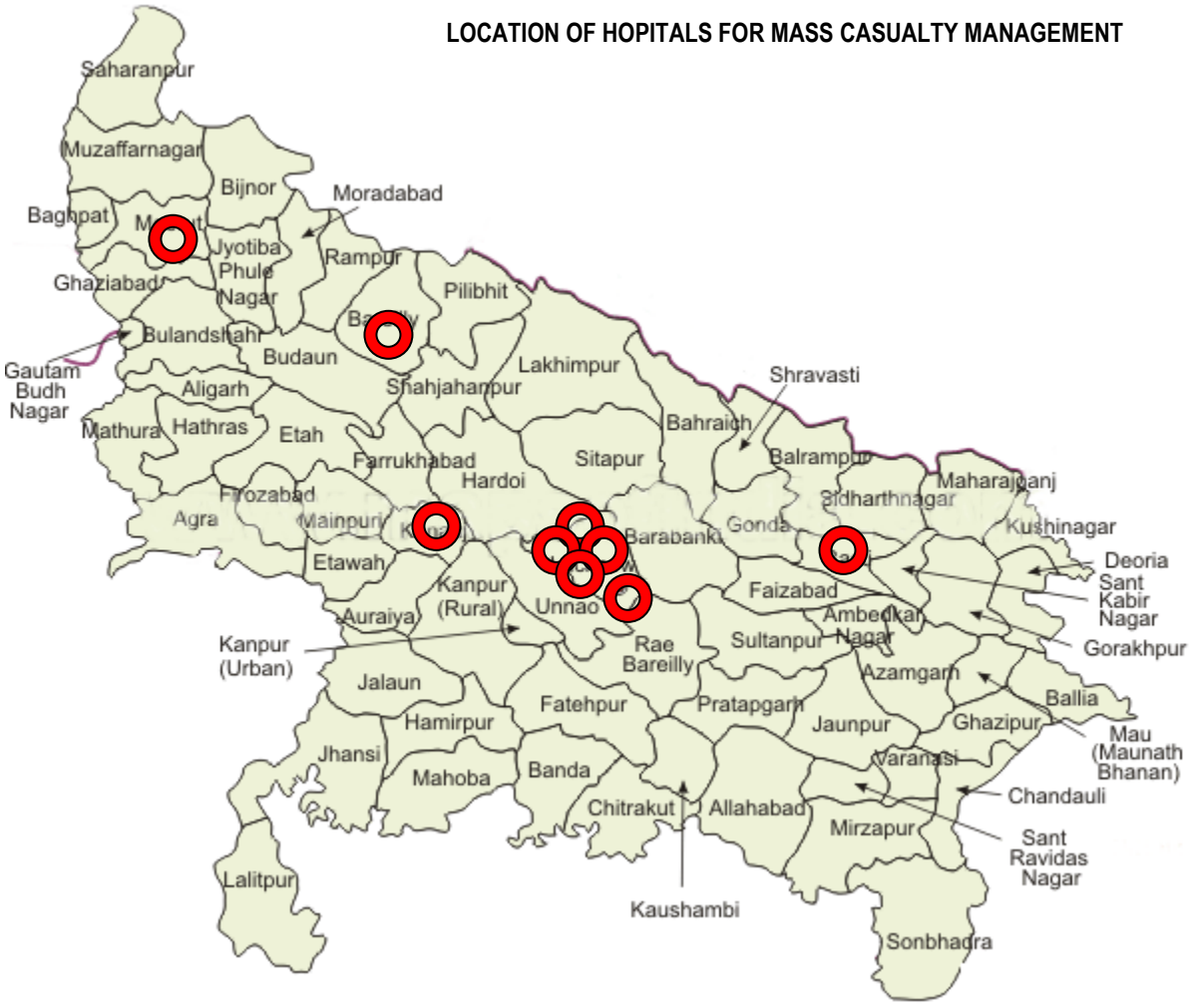
(Source: RHS Bulletin, March 2007, M/O Health & F.W., GOI)

Health Institutions

Health Institution	Number
Medical College	16
District Hospitals	74
Referral Hospitals	
City Family Welfare Centre	
Rural Dispensaries	
Ayurvedic Hospitals	1768
Ayurvedic Dispensaries	340
Unani Hospitals	204
Unani Dispensaries	49
Homeopathic Hospitals	1
Homeopathic Dispensary	1482

Hospitals for Mass Casualty Management		
S.No.	**Name of Hospital**	**No. of beds**
1	King George Medical College, Lucknow	800
2	Balrampur Hospital	600
3	Ram Manohar Lohiya Hospital, Lucknow	300
4	S.P. Mukherjee Hospital, Lucknow	300
5	S. G. PGI, Lucknow	400
6	Kelley Hospital, Basti	300
7	Bareilly District Hospital	200
8	Meerut District Hospital	200
9	Kanpur District Hospital	300

LOCATION OF HOPITALS FOR MASS CASUALTY MANAGEMENT



It is seen that the past incidences of epidemics in the state has been far widely spread across the state, whereas the location of hospitals capable of large number of patients is confined to only certain districts. Therefore there is a need to develop more hospitals for mass casualty management throughout the state. The existing district hospitals could be upgraded with more capacity for handling mass casualty.

Mitigation Action Plan

Disaster mitigation refers to the activities that need to be undertaken in order to avoid a future disaster or to reduce the negative impact of a future disaster. In this case, the government should plan for the following:

Hospital Buildings

- Identify the epidemic prone areas and assess the medical response capability in the area and assess the requirement and feasibility
- Set up new hospitals or upgrade existing hospitals
- Set up new PHCs, mobile units, etc.
- Conduct surveys for the structural safety of the health sector buildings in the earthquake prone areas. Identify the vulnerable buildings and making them safe by retrofitting.
- Similarly identify the health sector buildings in the flood prone areas. Take up necessary mitigation measures like relocation, or strengthening etc.
- Survey the health facility buildings for their non-structural safety. Take up necessary non-structural mitigation measures.

Name of the District	Facility to build/ repair/ retrofit/ upgrade/ non-structural mitigation work	Location	Size and requirements	Cost estimates	Reason for demand

Equipment & Vehicles

- Identify the requirements of equipment including vehicle for effective medical response and take stock of the existing equipment, vehicle etc., and arrive at the gap.
- Plan necessary strategy for closing the gap by purchase, hire, or even requisitioning them from private sources.

Equipment required	Purpose	Where is it to be given	Cost	To be procured	To be hired	To be requisitioned from private

Manpower

- Plan the personnel requirement including doctors, specialists, and support medical staff for effective management of epidemic situation.
- Assess the existing manpower and identify the gap.
- Work out the method of closing the gap by recruiting, hiring or taking private sector help including volunteers.

Type of personnel required	Number	To be recruited	To be made available from private	Volunteers	Estimated expenditure

Manuals & Guidelines

- Plan who will prepare manuals and guidelines and when.
- The following manuals are necessary:
    - First aid manual for health workers and volunteers
    - Emergency medical response manual
    - Manual for prevention of epidemics, etc.
    - Manuals for nurses, paramedical staff, doctors, volunteers, etc.
    - Manual for conducting mock drills

Type of manual required	For whom	How many to be printed	How to distribute	Estimated cost	Remarks

Awareness Materials

- Plan awareness activities such as preparation of awareness creation materials, do's and don'ts in the form of pamphlets, booklets, audio-visual material, etc., for various types of health related disasters targeting various groups of people such as women, community, children, etc.

	Target population					
	Community	Students	General public	Government employees	Women	Children
Type of material						
Pamphlets						
Booklets						
Video						
Audio						

Capacity Building

- Develop disaster management plan for all hospitals. Provide training to staff on hospital disaster management plan.
- Assess the existing capability of the officers, doctors and staff; identify the gaps for effective response and plan out the training programmes.
- Identify the agency that can give training for doctors, nurses, and other health workers. Plan for preparation of training materials and actual conduct of training.
- Plan training and capacity building programmes.
- Plan to conduct mock evacuation drills in hospitals.

Category which needs training	Type of training	Estimated cost	Remarks
Doctors			
Nurses			
Health Workers			

Budget

- Once all the above mitigation measures are identified the estimated budget for each activity should be done and finally the total budget for the entire mitigation phase should be arrived at. The sources of funding should also be worked out.
- Some of the activities can be taken up in the regular budget of the ministry and the additional requirement should be calculated and it should be taken up with the government for additional grant for mitigation activities.

Type of activity undertaken in mitigation	Estimated cost	Source	Additional funding requirement

Hospital Disaster Management Plans

It is understand that Disaster Management Plans have been prepared for the following hospitals:

- Balrampur Hospital, Lucknow
- Ram Manohar Lohiya Hospital, Lucknow
- Civil Hospital, Lucknow

All hospitals should have disaster management plans.

Trauma Centres

Presently, there are two trauma centers, generally for accident cases. These are located at:

- Shahjahanpur
- Rae Bareilly

Both are 20 bedded. Seven more trauma centres are planned in Phase-I in Basti, Lalitpur, Urai, Fatehpur, Etawah. Others are planned in Phase-II.

Preparedness Action Plan

Preparedness activities will comprise all activities that should be done in preparation to meet the response and immediate relief requirements in the event of a disaster. The Health Department will be required to quickly respond to outbreak of an epidemic in the aftermath of any disaster or due to seasonal changes. In this stage, the government should plan the following activities before an epidemics outbreak. The following preparedness actions should be taken before an expected epidemic season.

State Level Action

- Appoint one person as "NODAL OFFICER – Health Services at the State Level.
- Call for reports from district health officials on preventive actions planned in the districts.
- Identify gaps in district resources and list the supports needed for the districts.
- Issue instructions to district health officials to be observed for effectively managing the epidemic situation and ensure compliance.
- Supply the necessary stock of medicines and other medical supplies to district health facilities.
- Ensure availability of blood in the blood banks.
- Mobilize additional ambulances and place them in remote areas from where patients may have to be quickly shifted to hospitals.
- Instruct all staff not to avail leave during the emergency period.

District Level Action

- The Civil Surgeon will act as "Officer-in-Charge – Health Services at the District Level.
- Critically analyse the available medical resources within the district and share them with the neighbouring districts. This is aimed at the networking of facilities between districts including hospital facilities, ambulances, blood bank, special medical equipment, trained manpower like quick reaction medical teams (QRMT), specialist doctors, etc.
- Within the affected district / local govt. all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officers or those on leave may be recalled.
- All personnel required for disaster management should work under the overall supervision and guidance of the District Collector.
- Establish radio communications with Emergency Operations Centre, district and divisional commissioner, district control room and hospitals (including private) within the division.
- Ensure that personnel working within the district come under the direction and control of the Collector / Civil Surgeon.
- All district level officials of the department would be asked to report to the District Collector.
- The District Collector will provide Officer-in-Charge – Health Services, or the field staff as the need be, with all relevant authorisations with respect to the following:
    - Recruiting casual labourers
    - Procuring locally required emergency tools, equipment and materials
    - Expending funds for emergency needs

- The Officer-in-Charge – Health Services will ensure that all field staff and other officers submit the necessary reports and statement of expenditure in a format as required by the collector.
- Review and update precautionary measures and procedures, and review with staff, the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Fill department vehicles with fuel and park them in a protected area.
- Stock emergency medical equipments, which may be required after a disaster.
- Determine type of injuries illnesses expected and drugs and other medical items required, and accordingly ensure that extra supplies of medical items can be obtained quickly.
- Hold periodic meetings with NGOs, private sector, and experts outside the government. Allocate clear-cut roles and responsibilities.
- Provide instructions on administering vaccination or immunization depending on the requirements.

Hospital Level Action

- Provide information to all hospital staff about the disasters, likely damages and effects, and information about ways to protest equipment and property.
- Make space in the hospital for accommodating new patients expected due to epidemics or disaster. Discharge all ambulatory patients whose release does not pose a health risk to them. If possible, they should be transported to their home areas. Stop admitting non-emergency patients. Convert waiting areas and non-patient care areas into make shift wards. If necessary, be prepared for setting up extra beds in tents adjacent to hospital. Get support of private hospitals.
- Non-ambulatory patients should be relocated to the safest areas within the hospital. The safest rooms are likely to be:
    - On ground floor
    - Rooms in the centre of the building away from windows
    - Rooms with concrete ceilings.
- Equipment supplies such as candles, matches, lanterns and extra clothing should be provided for the comfort of the patients.
- Surgical packs should be assembled and sterilized.
- A large enough number should be sterilized to last four to five days.
- The sterilized surgical packs must be stored in protective cabinets to ensure that they do not get wet. Covering the stock with polythene is recommended as an added safety measure.
- All valuable instruments, such as surgical tools, ophthalmoscopes, portable sterilizers, CGS, dental equipments, etc., should be packed in protective coverings and stored in rooms considered to be the most damage-proof.
- Protect all immovable equipment, such as x-ray machines, by covering them with tarpaulins or polythene.
- Keep mobile medical units in preparedness.
- All electrical equipments should be unplugged when disaster warning is received

- Check the emergency electrical generator to ensure that it is operational and that a buffer stock of fuel exists. If an emergency generator is not available at the hospital, arrange for one on loan.
- All fracture equipment should be readied.
- If surgery is to be performed following the disaster, arrange for emergency supplies of anaesthetic gases (usually supplied on a daily basis)
- Check stocks of equipments and drugs, which are likely to be most needed after the disaster. These can be categorized generally as:
    - Drugs used in treatment of cuts and fractures, such as tetanus toxoid, analgesics and antibiotics
    - Drugs used for the treatment of diarrhoea, water-borne diseases and flu (including oral rehydrating supplies)
    - Drugs required to treat burns and fight infections
    - Drugs needed for detoxication including breathing equipments.
- Assess the level of medical supplies in stock, including:
    - Fissure materials
    - Surgical dressings
    - Splints
    - Plaster rolls
    - Disposable needles and syringes
    - Local antiseptics.
- Request central warehouse for immediate despatch of supplies likely to be needed to hospitals on an emergency priority basis.
- Fill hospital water storage tanks and encourage water savings. If no storage tanks exist, water for drinking should be drawn in clean containers and protected.
- Water purification tables should be stocked
- Prepare an area of the hospital for receiving large number of casualties
- Develop emergency admission procedures (with adequate record keeping)
- Orient field staff with EMRP standards of services and procedures including tagging.
- Hospital administrators should
    - Establish work schedules to ensure that adequate staff are available for in-patient needs
    - Organise in-house emergency medical teams to ensure that adequate staff are available at all times to handle emergency casualties.
    - Set up teams of doctors, nurses and dressers for visiting disaster sites.
- The equipment available should be checked once in a year and the competent authority should issue certificate of fitness.
- If equipments are found dysfunctional then repairs should be made and kept ready.

Type of equipment	Location	Checking and certifying authority	Time of testing	Requirement of repair	Estimated cost	Source of funds

Personal Protective Equipment (PPE)

Personal protective equipment (PPE) is any type of facemask, glove, or clothing that acts as a barrier between infectious materials and the skin, mouth, nose, or eyes (mucous membranes). When used properly, personal protective equipment can help prevent the spread of infection from one person to another. Emergency care personnel who provide medical care to victims of hazardous incidents have the responsibility of first protecting themselves by wearing adequate protective equipment. Whenever possible, they will select the level of equipment based on the known properties of the hazard. When the type of hazard is unknown, they will assume a worst-case exposure and use the highest level of adequate protection.

Doctors routinely use personal protective equipment to protect themselves against blood and body fluid exposure while caring for patients. They may use more specialized PPE when participating in pre-hospital response (usually as part of a specialized team) or when providing medical care to contaminated people at the hospital.

Many types of protective equipment are currently available, ranging from maximum protection with a positive pressure respirator and total body encapsulation to minimum protection with a simple surgical mask and a pair of latex gloves. These are the various types of protective respiratory devices and clothing.

Protective Respiratory Devices: The basic types of respirators are atmosphere supplying (self-contained breathing apparatus [SCBA], supplied-air respirator [SAR]) and air purifying respirator (APR).

- **Self-contained breathing apparatus:** SCBA consists of a full-face piece connected by a hose to a portable source of compressed air. The open-circuit, positive-pressure SCBA is the most common type. This self-contained breathing apparatus provides clean air under positive pressure from a cylinder. The air then is exhaled into the environment. SCBA provides the highest level of respiratory protection.
- **Supplied-air respirator:** SAR consists of a full-face piece connected to an air source away from the contaminated area via an airline. Because SARs are less bulky than SCBA, they can be used for longer periods. Supplied-air respirators are also easier for most hospital personnel to use. SARs, like self-contained breathing apparatus, provide a high level of respiratory protection.
- **Air-purifying respirator:** An APR consists of a face piece worn over the mouth and nose with a filter element that filters available air in the environment before inhalation. Three basic types of APRs exist: powered, disposable, and chemical cartridge or canister.

  Powered air-purifying respirators (PAPRs) deliver filtered air under positive pressure to a face piece mask, helmet, or hood, which provides respiratory and eye protection. Non-powered air-purifying respirators operate under negative pressure, depending on the effort of the wearer who is breathing in to draw air through a filter. Because PAPRs function under positive pressure, they provide high-level respiratory protection.

  A variety of chemical cartridges or canisters, which eliminate a variety of chemicals including organic vapors and acid gases, are available.

Disposable air-purifying respirators usually are half masks, which do not provide adequate eye protection. This type of APR depends on a filter, which traps particles in the outside air. The use of a high-efficiency particulate air (HEPA) filter alone or in combination with a chemical cartridge enhances disposable APRs. For exposures to biological agents in the air, PAPRs with HEPA filters are most efficient, followed by elastomeric half-mask HEPA filter respirators and non-HEPA disposable APRs. All air-purifying respirators are limited by the adequacy of their face seals, which may not fully seal tightly. Accordingly, APRs do not provide adequate respiratory protection in environments immediately dangerous to life or health

- **High-efficiency particulate air filter:** HEPA filters remove very small particles with an efficiency of 98-100%, efficiently excluding most aerosolized biological warfare agent particles. HEPA filters are incorporated into a variety of protective respiratory devices including PAPRs and elastomeric half-mask respirators.
- **Surgical mask:** Surgical masks in a medical setting are designed to protect the sterile field of the patient from contaminants generated by the wearer. Although surgical masks filter out large-size particles in the air, they offer no respiratory protection against chemical vapors and little against most biological aerosols.

Protective Clothing: Most protective clothing is aimed at protection against chemicals and chemical warfare agents. Skin (intact, not damaged) provides an effective barrier against all biological warfare agents except the trichothecene mycotoxins. This toxin is capable of causing burn like lesions on the skin.

- **Chemical-protective clothing:** Chemical-protective clothing consists of multilayered garments made out of various materials that protect against a variety of hazards. Because no single material can protect against all chemicals, multiple layers of various materials usually are used to increase the degree of protection. Aluminum-lined, vapor-impermeable garments increase the level of protection. Protection is maximized by total encapsulation (completely covering the wearer). An assortment of types of chemical-protective hats, hoods, gloves, and boot covers are used with the garments.
- **Barrier gown and latex gloves:** Barrier gowns are waterproof and protect against exposure to biological materials, including body fluids, but do not provide adequate skin or mucous membrane protection against chemicals. Latex gloves also protect wearers from biological materials but are inadequate against most chemicals. Barrier gowns, surgical masks, latex gloves, and leg and/or shoe covers (used in hospitals and in operating rooms) together are called universal precautions.

PPE used for Swine flu surveillance

The following personal protective equipment was used by the medical personnel while surveillance activities during the swine flue outbreak: gown extending below knee level, face mask N-95 variety (NIOSH 95), shoe cover, head cover, goggles, swab, and liquid viral transport medium. These quipment were provided by NICD.

Response Action Plan

Response activities will comprise all activities that should be done to reduce morbidities and mortalities. In times of disasters/epidemics, the district health systems, all of a sudden, have to provide medical facilities to an unusually large number of patients out of which many would require the first-aid treatment only. In order to provide medical facilities to the needy in time, it is necessary to screen out large number of minor injuries from the serious ones. With the above intention, mass casualty management at the district level should be planned in two stages (i) pre-hospital management; and (ii) emergency hospital organization.

Pre-Hospital Management

Objective of this stage is to render first aid to victims at the spot of disaster and their transportation to nearby hospital as a part of life saving measures. The Chief Medical Officer of the district is generally responsible for organising this. Following are the components needed at this stage.

First Aid Parties

The objective of the first aid party is to render First Aid to casualties at the place of incident and transport the casualties on stretchers to nearby First Aid Post. In addition to the pre-hospital first aid parties available from the government set up, additional requirements can be met by taking the services of other medical care providers such as the Armed Forces, Railways, Red Cross, NGOs and other private stakeholders.

First Aid Posts

Primarily First Aid Posts are meant for treating the lightly wounded casualties those not requiring hospitalisation, thus relieving congestion at the hospitals. They are also responsible for screening casualties sent by First Aid Parties, to sort out who need immediate hospitalisation. Cases demanding urgent medical attention should be sent directly to the networked hospital without delay. First Aid Post may be static or mobile. A mobile First Aid Post is meant to rush medical aid to the site of disaster for the treatment of casualties on the spot.

First Aid Post may be housed in existing government, local body, charitable, or private dispensary depending upon their situation and needs of the community. The location of these posts should be planned in advance and find a mention in the mass casualty management plan of the district. Where possible, these posts may be set up in the vicinity of a hospital as cases can be effectively screened and admitted to the hospital without delay.

The Post should ideally consist of three areas – Reception; Treatment area; and Waiting area. They should be located in such a manner that adjacent posts should not be more than 3 km apart so that no casualty has to travel long distance to get first aid.

The First Aid Post should be kept manned round the clock during emergency. A nominal role of doctors and nurses volunteering to man the First Aid Posts may be maintained in each post along with their addresses and telephone numbers.

Ambulance Services

An efficient ambulance service is an essential part of the casualty service for the transportation of casualties from the scene of disaster to First Aid Posts and Hospitals. Ambulance for lying cases may be improvised from trucks, lorries and buses with adequate stretcher fitments. Vehicles for First Aid Parties and sitting casualties may be improvised from private cars, vans, taxis, tempos and other similar light vehicles.

Mobile Surgical Units

Mobile surgical units are generally required in catastrophic disasters like earthquakes where the hospital itself might be victim of the disaster. Mobile surgical units might not be available with the district or the state authorities but if available there, number and location should be available with the district medical authority so as to call them whenever need arises. The district authority should also network with the existing health care providers like the Railways and Defence Services who already have their own mobile surgical units.

Mobile surgical units are small surgical teams along with operation theatre set up on wheels. These units are sent to the disaster sites for performing life saving emergency surgeries. The unit should function in close coordination with the first aid posts.

Each mobile surgical unit should have three doctors including one Anaesthesiologist. It should also have one fully trained nurse, one operation theatre assistant, two first aid assistants and a driver.

Emergency Response Management

Actions to be taken during a disaster or epidemic situation are:

- Ambulances should be arranged for the transfer of seriously injured patients from villages and peripheral hospitals to general hospitals. If roads are blocked, a method should be established to request helicopter transport.
- Send First Aid Teams to disaster/epidemics sites.
- Establish health facility and treatment centres (First Aid Posts) at disaster sites.
- The provision of medical services should be coordinated by the District Medical Officer (DMO) with district control room.
- Procedures should be clarified between
    - Peripheral hospitals
    - Private hospitals
    - Blood banks
    - General hospitals and
    - Health services established at transit camps, relief camps and affected villages.
- Maintain check posts and surveillance at each railway junction, bus depots and all entry and exit points from the affected area, especially during the threat or existence of an epidemic.
- An injury and disease monitoring system should be developed to ensure that a full picture of health risks is maintained. Monitoring should be carried out for epidemics, water and food quality and disposal of waste in transit and relief camps, feeding centres and affected villages.
- Plan for emergency accommodations for auxiliary staff from outside the area.
- Information formats and monitoring checklists should be used for programme monitoring and development, and for reporting to Emergency Operations Centre. This is in addition to existing reporting system in the department.
- Seek security arrangements from district police authorities to keep curious persons from entering hospital area and to protect staff from hostile actions.
- Establishment of a public information centre with a means of communication to assist in providing an organized source of information. The hospital is responsible for keeping the community informed of its potential and limitations in disaster situations.

- The local police, rescue groups and ambulance teams should be aware of the resources of each hospital.
- On the recommendations of the EOC ("NODAL OFFICER-Health Services") Collector / District Control Room / Public Health Department will
    - Send required medicines, vaccines, drugs, plasters, syringes, etc.
    - Arrange for additional blood supply.
    - Provide for sending additional medical personnel equipped with food, bedding, tents, etc.
    - Send vehicles and any additional medical equipment.

Chapter X: Review and Updating of Plans

Dissemination of the State Disaster Management Plan

The responsibility for dissemination of the plan will be with the SEC.

The SEC should also involve state-level NGOs in preparing suitable public awareness material to be distributed to the public.

The State Disaster Management Plan must be disseminated at three levels:

- National disaster Management Authority (NDMA), multilateral agencies (aid agencies), state line departments and defence services;
- To the district authorities, government departments, NGOs and other agencies and institutions within the state; and
- Through mass media to the general public.

The content of the plan should be explained through well-designed and focused awareness programmes. The awareness programmes should be prepared in the local language to ensure widespread dissemination.

Media should be extensively used for public awareness programs. These will include:

- Newspapers, TV
- Local cable networks
- Radio
- Publicity material

Schools, colleges and other public institutions should be specifically targeted.

Plan Evaluation

The purpose of evaluation of the state plan is to determine:

- The adequacy of resources
- Coordination between various agencies
- Community participation
- Partnership with NGOs

The plan will be updated when shortcomings are observed in:

- Organizational structures
- Available technology
- Response mechanism following reports on drills or exercises

A post-disaster evaluation should be done after the withdrawal of relief and rehabilitation activities in order to assess:

- The nature of state intervention and support,
- Suitability of the organization structure,

- Institutional arrangements,
- Adequacy of Operating Procedures,
- Monitoring mechanisms,
- Information tools,
- Equipment,
- Communication system, etc.

The impact studies on the above operations for long-term preventive and mitigation efforts are to be undertaken.

Evaluation exercises may be undertaken to understand the perceptions about disaster response in terms of

- Adequacy of training,
- Alert and warning systems,
- Control room functions,
- Communication plans,
- Security,
- Containment
- Recovery procedures,
- Monitoring

The evaluation will be done by UPAAM under the aegis of SEC.

Plan Update

The state disaster management plan is a "living document" and the SEC will update it every year taking into consideration:

- The resource requirements,
- Updates on human resources
- Technology to be used
- Coordination issues

The following guidelines would be adhered to while updating the State Disaster Management Plan:

- A system would be in place to update the plan on an annual basis to ensure that the items requiring updating are considered and are current. This will involve:
    - Submission of annually updated disaster management plans by all the DDMA's to SEC.
    - Copies of the received updated plans from the districts to be given to the Technical committees, which will be formed as sub-committees of the SEC and HIDM for review and suggestions.
    - Final annual meeting to be organized by the SEC, which will be participated by SEC members, Technical Committee members, HIDM and all chairpersons of the district DDMA's.

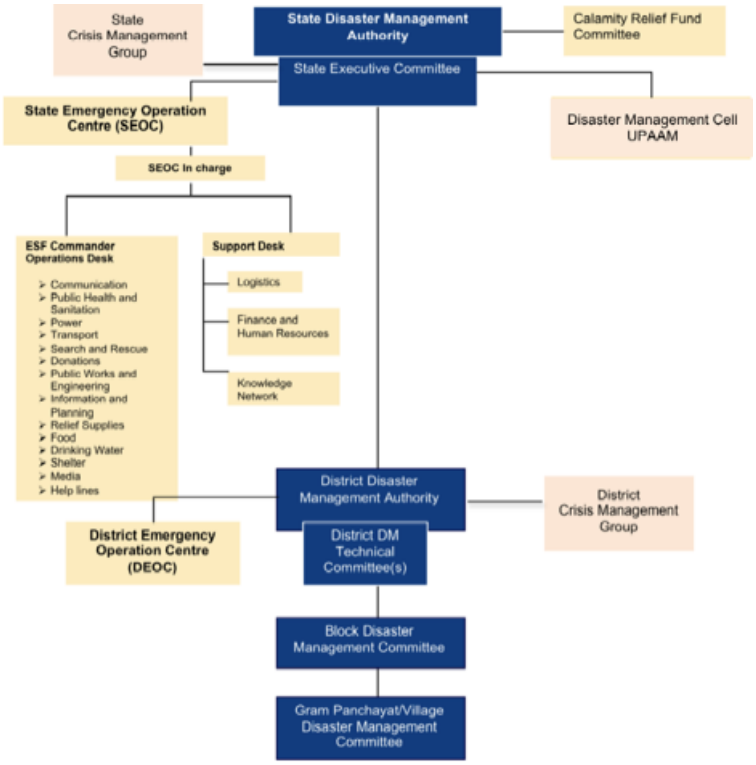
  - The updated plan will be placed before SDMA for approval.

- When an amendment is made to a plan, the amendment date would be noted on the updated page of the plan.
- Copies of the amendments made and approved by the SDMA needs to be circulated to all the concerned government departments and agencies.
- All the disaster management liaison officials in every agency would be designated to ensure that all plan-holders are notified of changes as soon as possible.

Chapter XI: Coordination and Implementation

Institutional Arrangement

The Uttar Pradesh State Disaster Management Act has been passed by the State Assembly in August 2005. Further, the State is also following the Disaster Management Act as enacted by the Govt. of India to provide effective management of disasters.



State Disaster Management Authority

The U.P State Disaster Management Authority (D.M.A) or Rajya Stariya Apda Prabandhan Samiti was formed in 2005 under the U.P Disaster management Act, 2005. The members of D.M.A are:

1. The Chief Minister of Uttar Pradesh: Chairperson.
2. Minister for Revenue Department: Member
3. Minister for Agriculture Department: Member
4. Minister for Irrigation Department: Member
5. Chief Secretary, Uttar Pradesh: Member
6. The Agriculture Production Commissioner: Member
7. Principal Secretary, Revenue: Member
8. Principal Secretary, Home: Member
9. Principal Secretary, Finance: Member

The State Disaster Management Authority (SDMA) has the following responsibilities.

i. Lay down the State disaster management policy
ii. Approve State Plan in accordance with the guidelines laid down by the National Authority.
iii. Approve the disaster management plans prepared by the Government of the State
iv. Lay down guidelines to be followed by the departments of the State Government for the purpose of integration of measures fro prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefore;
v. Coordinate the implementation of State Plan
vi. Recommend provision of funds for mitigation and preparedness measures
vii. Review the development plans of different departments of the State and ensure that prevention and mitigation measures are integrated therein;
viii. Review the measures being taken for mitigation, capacity building and preparedness by the departments of the Government of the State and issue such guidelines as may be necessary

The State Executive Committee, (SEC)

The State Executive Committee under the chairperson of Chief Secretary has been constituted by the Government of Uttar Pradesh with the following composition.

1. The Chief Secretary, Uttar Pradesh: Chairman
2. The Agriculture Production Commissioner: Member
3. The Principal Secretary, Home: Member
4. The Principal Secretary, Finance: Member
5. The Relief Commissioner and Secretary: Member/Convener

The responsibilities of the State Executive Committee are as follows:

i) Coordinate and monitor the implementation of the National Policy, the National Plan and State plan.

ii) Examine the vulnerability of different parts of the State to different forms of disasters and specify measures to be taken for their prevention or mitigation.

iii) Lay down guidelines for preparation of disaster management plans by the department of the Government of the State and District Authorities.

iv) Monitor the implementation of disaster management plans prepared by the departments of the Government of the State and District Authorities.

v) Monitor the implementation of the guidelines laid down by the State Authority for integrating of measures for prevention of disasters and mitigation by the departments in their development plans and projects.

vi) Evaluate preparedness at all government or non-governmental levels to responds to any threatening disaster situation or disaster and give directions, where necessary, for enhancing such preparedness.

vii) Coordinate response in the event of any threatening disaster situation or disaster;

viii) Give directions to any Department of the government of the state or any other authority or body in the State regarding actions to be taken in response to any threatening disaster situation;

ix) Promote general education, awareness and community training in regard to the forms of disasters to which different parts of the State are vulnerable and the measures that may be taken by such community to prevent the disaster, mitigate and respond to such disaster;

x) Advise assist and coordinate the activities of the Departments of the Government of the State, District Authorities statutory bodies and other governmental and non governmental organizations engaged in disaster management.;

xi) Provide necessary technical assistance or give advice to District Authorities an local authorities for carrying out their functions effectively;

xii) Advise the State Government regarding all financial matters in relation to disaster management.

Technical Committee(s)

The SEC has constituted various Technical Committees comprising disaster management experts, professionals and NGO field practitioners. They will be responsible for ensuring community participation in the disaster management activities. They will also advise the SEC on implementation of activities at State level. The Technical Committees are coordinated by Uttar Pradesh Academy of Administration and Management (UPAAM).

The State Emergency Operations Centre

The State Emergency operation Centre (SEOC) will be hub of all the activities related with disaster response in the state. The primary function of the SEOC is to implement the State Disaster Management Plan which includes coordination, data collection, operation management, record keeping, public information and resource management.

For the effective management of resources, disaster supplies and other response activities, focal points or centres will have to be established. These points will have to be well networked starting from the State to the District and finally leading to the disaster site.

Emergency Operations Centres at the State (SEOC) and the District (DEOC) and Incident Command Post (ICP) at the disaster site are the designated focal points that will coordinate overall activities and the flow of relief supplies from the State.

The State Emergency Operations Centre (SEOC) will be maintained and run round the clock which will expand to undertake and coordinate activities during a disaster. Once a warning or a First Information Report is received, the SEOC will become fully operational.

During a disaster situation, the SEOC will be under direct command of the Chief Secretary or the designated person by him as the Chief of Operations.

During non disaster times, the State Emergency Operations Centre stays operational through-out the year in preparedness mode, working during day time in order to take care of the extended preparedness activities of data management, staff awareness and training, which is essential for the smooth functioning of the SEOC during crisis situations and handling of emergency Toll Free Contact Lines. During an emergency, the SEOC will get upgraded and will have all emergency stakeholders manning it round the clock.

The aim of the EOC will be to provide centralized direction and control of all the following functions

- Emergency operations
- Communications and warning, which includes handling of 24 hrs emergency toll free numbers.
- Centralised state level disaster resource database
- Requesting additional resources during the disaster phase from neighbouring districts of the affected area
- Coordinating overseas support and aid.
- Issuing emergency information and instructions specific to departments, consolidation, analysis, and dissemination of Damage Assessment data and preparation of consolidated reports.

Crisis Management Group (CMG)

Crisis Management Groups at the State Level as well as at the District level have been formed with the following composition and roles.

Crisis Management Group at State Level: Composition

(1) Chief Secretary, Uttar Pradesh: Chairperson

(2) Principal Secretary, Home: Coordinator (Defence related emergencies)

(3) Principal Secretary, Revenue & Natural Disaster: Coordinator (Natural Disasters)

(4) Director General Police, U.P: Member

(5) Additional Director General Police (Information): Member

(6) Joint Director (I.P) Lucknow: Member

(7) Relief Commissioner: Member

(8) Any other member can be co-opted to the Group depending upon the nature of the disaster

(9) Any alternative officer can also be nominated as a member of the Group by a member in case of his/her absence

Crisis Management Group at State Level: Functions

- This group has to remain informed of all developments in case of any disaster/emergencies.
- The group has to send alerts to all districts and related persons of any activities/developments that have any impacts on the security or on normal functioning in any way.
- The group also has to provide advice and guidelines to other adjoining areas to avoid any negative impacts on them.
- This group has to co-ordinate with the central and other state governments. The group can ask for required assistance by coordinating with Central Para military forces, other Police forces, Intelligence and Security agencies.
- The Group has to report to the Crisis Management Group at Centre informing about its progress and developments.

Crisis Management Group at District Level: Composition

(1) District Magistrate: Chairperson

(2) Superintendent of Police / Inspector General Police: Member

(3) Local Representative of Intelligence Bureau: Member

(4) Additional District Magistrate (Finance & Revenue): Co-ordinator

(5) Any other member can be co-opted to the Group depending upon the nature of the disaster

(6) Task Force Commander of NSG is also to be co-opted in case NSG's support is taken

Crisis Management Group at District Level: Functions

- District Crisis Management Group is responsible for managing the situation in case of any Emergency/Crisis.
- The group will arrange for required assistance from all concerned agencies in case of any emergency.

- If some specialist team has been engaged for assistance by District/State Crisis Management Group, then the group has to consider the advice of the team. But the final decision rests with the District/State Crisis Management Group.

Crisis Management Group at Departments

Each Department shall have a Crisis Management Group headed by the Secretary of the Department for managing emergencies relevant to the subject dealt with by the department, and report to the State Crisis Management Group.

Uttar Pradesh Academy of Administration and Management

The Uttar Pradesh Academy of Administration & Management (UPAAM) has been established in 2003 to provide training to State Level/ National Level Civil Service Officers, consultancy, research capability and management training expertise for the PSU's departments of the State Govt. and the Private Sector. This academy came into existence by merging Institute of Management Development U.P. & Administration Training Institute. A Disaster Management Cell has been created in the UPAAM. The objectives of the DMC are to:

- Impart training in the field of disaster prevention, mitigation, preparedness, response, relief and rehabilitation to the various stakeholders.
- Undertake research, studies, documentation and development of database etc. in disaster management related aspects.
- Actively liaise with the State Department of Disaster Management or Relief/Revenue/Home department or any other department of the State Government, which has been entrusted with the nodal responsibility for disaster management in the State.

The Disaster Management Cell has developed the following manuals:

- State Disaster Management Manual – General
- State Disaster Management Manual – Flood
- State Disaster Management Manual – Drought
- State Disaster Management Manual – Epidemics
- State Disaster Management Manual – Earthquake
- State Disaster Management Manual – Man-made

The salient features of these manuals are that they not only specify the vulnerable areas of the State of UP but also stress on the various needs and checklists for stakeholders in preparing the community to meet an event of a disaster, so that its adverse effects are minimized.

District Disaster Management Authority

The District Disaster Management Authority (DDMA) will act as the district planning; coordinating and monitoring body in accordance with the guidelines laid down by the State Authority. In the Govt. of India – UNDP Disaster Risk Management Project, 13 districts of U.P. were covered. The State Government has decided to extend the DRM activities to all 71 districts.

While District Disaster Management Authority is yet to be functional, District Disaster Management Committees (DDMC) are in place. DDMC is headed by the District Magistrate, and other members are the concerned department heads or the nodal persons.

DDMA for every district in the State of Uttar Pradesh shall also be constituted, consisting of the following members:

1. District Magistrate: Chairperson
2. Superintendent of Police: Member
3. Chief Medical Officer: Member
4. Superintending Engineer (PWD): Member
5. Superintending Engineer (Irrigation): Member
6. Chief Development Officer (RD): Member
7. Chairperson of the Zila Parishad: Member

District Disaster Management Advisory Committee(s)

District level Disaster Management Advisory Committee(s) will be appointed by the District Disaster Management Authority to take advice on various subject specific fields within the overall context of disaster management. The committee will comprise disaster management experts, which may from government departments, research institutes or NGO's.

District Emergency Operation Centre

The District Emergency Operation Centre (DEOC) will be hub of all the activities related with disaster response in the District.

Block Disaster Management Committee

Subject to the directions of the District Authority, the block disaster management committee will be responsible for the development and implementation of block level disaster management plans.

Gram Panchayat / Village Disaster Management Committee

Subject to the directions of the District Authority, the Gram Panchayat Disaster Management committees will be responsible for the development and implementation of GP level disaster management plans.

Responsible Agencies

The primary agency and supporting agencies responsible for management of epidemics are:

Primary Agency

- Department of Health & Family Welfare

Supporting Agencies

- Department of Animal Husbandry
- Home Department: Police
- Home Department: Fire Service
- Energy Department
- Rural Engineering Services (RES)
- Public Works Department
- Department of Urban Development
- Local Self Governments
- Jal Nigam
- Jal Sansthan
- NGOs