Chapter-I Introduction

1.1 Vision of the Document

Almost in parallel with the paradigm shift in poverty reduction programs – from income poverty to human poverty -- the disaster management sector has also seen a paradigm shift. Disasters are no longer seen as extreme events created entirely by natural forces but as manifestations of unresolved problems of development. The disaster management practices have evolved from largely a top-down relief and response approach to a more inter-sectoral risk management approach. In the current paradigm of risk management approaches, there is more room than ever before for addressing the issues of risk reduction. Till a few decades ago, disasters were viewed as one-off events and responded by governments and relief agencies without taking into account the social and economic implications and causes of these events. With significant advancement in our understanding of the natural processes that underlie the hazardous events, a more technocratic approach came into existence which believed that the "only way to deal with disasters was by public policy application of geophysical and engineering knowledge". These approaches looked at disasters as exceptional events, not related to the ongoing social and developmental processes. Gradually this attitude changed to an emphasis on preparedness measures, such as stockpiling of relief goods, preparedness plans and a growing role for relief agencies such as the Red Cross.

In recent years, a more comprehensive approach that of disaster risk management has emerged. This approach has three distinct but interrelated components: *hazard assessment, vulnerability analysis* and *enhancement of management capacity*. It is closely integrated with ongoing development processes. Disasters are no longer viewed as extreme events created entirely by natural forces but as unresolved problems of development. It is now recognized that risks (physical, social and economic) unmanaged (or mismanaged) for a long time lead to occurrence of disasters.

This evolution of approaches from relief and response to risk management has begun to influence the way disaster management programs are now being planned and financed. There are initiatives aimed at reducing social and economic vulnerability and investing in long-term mitigation activities. Unfortunately such initiatives aimed at prevention and mitigation are few, poorly funded and insignificant in comparison with money spent by donors and development banks on humanitarian assistance and relief, as well as on post disaster reconstruction.

The main vision of this document is to initiate coordinated efforts to have an effective

disaster management strategy for the State, with focus on extremely quick, efficient and coordinated response and recovery to minimise impact of future disasters.

1.2 Evolution of the document

1.2.1 International precedence

The initiative for disaster management globally started with the member states of the United Nations General Assembly declaring the 90s as the International Decade for Natural Disaster Reduction (IDNDR). The international initiative was conceived to motivate concerted international action and cooperation that could "reduce the loss of life, property damage, social and economic disruptions caused by natural disasters, especially in developing countries." IDNDR is based on the understanding that there is sufficient scientific and technical knowledge that can save lives and property from natural and other disasters through more extensive application. International impact on the subject was expanded in May 1994 at the World Conference of Natural Disaster Reduction convened by the UN at Yokohama, Japan. Participating countries including India adopted the fundamental principles of natural disaster prevention, preparedness and mitigation embodied in the Yokohama Strategy and Plan of Action for a Safer World. The Yokohama Conference underlined the economic rationale for disaster reduction, complementing the scientific foundation with an essential commitment from public policy authorities.

The goals that were established for the IDNDR are:

- To improve the capacity of each country to mitigate the effects of natural disasters, in the assessment of disaster damage potential and in the establishment of early warning systems and disaster resistant capabilities.
- To devise appropriate guidelines and strategies for applying existing scientific and technical knowledge.
- To foster scientific and engineering endeavours aimed at addressing critical gaps in knowledge.
- To disseminate existing and new technical information.
- To develop measures for the assessment, prediction, prevention and mitigation of natural disasters through programmes of technical assistance and technology transfer, education and training and to evaluate effectiveness of programmes.

In essence, the decade's activities sought to shift the emphasis from post-disaster relief to pre-disaster risk reduction.

The main tasks identified for risk reduction are:

- Avoiding habitation in hazardous areas;
- Developing structures resistant to the onslaught of hazards;
- Developing the ability to rapidly evacuate hazardous areas and shift residents to

hazard- resistant structures;
- Reducing or eliminating natural hazards through technological intervention (e.g., dams, plantations, etc); and
- Establishing, through preparedness, the means to quickly recover from disasters with minimal additional suffering and loss of life.

Incidents of Radiation Disasters

The Chernobyl accident is an example of a criticality accident. This accident destroyed a reactor at the plant and left a large geographic area uninhabitable. In a smaller scale accident at Sarov a technician working with highly enriched uranium was irradiated while preparing an experiment involving a sphere of fissile material. The Sarov accident is interesting because the system remained critical for many days before it could be stopped, though safely located in a shielded experimental hall. This is an example of a limited scope accident where only a few people can be harmed, while no release of radioactivity into the environment occurred. A criticality accident with limited off site release of both radiation (gamma and neutron) and a very small release of radioactivity occurred at Tokaimura in 1999 during the production of enriched uranium fuel. Two workers died, a third was permanently injured, and 350 citizens were exposed to radiation.

- December 12, 1952 — INES Level 5 - Chalk River, Ontario, Canada - Reactor core damaged
- October 25, 1958 - INES Level needed - Vinča, Yugoslavia - Criticality excursion, irradiation of personnel. During a subcritical counting experiment a power build-up went undetected at the Boris Kidrich Institute's zero-power natural uranium heavy water moderated research reactor
- July 26, 1959 — INES Level needed - Santa Susana Field Laboratory, California, United States - Partial meltdown. A partial core meltdown took place when the Sodium Reactor Experiment (SRE) experienced a power excursion that caused severe overheating of the reactor core, resulting in the melting of one-third of the nuclear fuel and significant releases of radioactive gases.
- October 5, 1966 — INES Level needed - Monroe, Michigan, United States - Partial meltdown. A sodium cooling system malfunction caused a partial meltdown at the Enrico Fermi demonstration nuclear breeder reactor.
- 1966-1967– INES Level needed – location unknown – loss of coolant accident. The Soviet icebreaker Lenin, the USSR's first nuclear-powered surface ship, suffered a major accident (possibly a meltdown — exactly what happened remains a matter of controversy in the West) in one of its three reactors.
- May 1967 — INES Level needed - Dumfries and Galloway, Scotland, United Kingdom - Partial meltdown. Graphite debris partially blocked a fuel channel

causing a fuel element to melt and catch fire at the Chapelcross nuclear power station.

- January 21, 1969 — INES Level needed - Lucens, Canton of Vaud, Switzerland – Explosion.
- February 22, 1977 — INES Level 4 - Jaslovské Bohunice, Czechoslovakia - Fuel damaged.
- March 28, 1979 — INES Level 5 - Middletown, Dauphin County, Pennsylvania, United States - Partial meltdown. There were no fatalities. Follow up radiological studies predict at most one long-term cancer fatality.
- March 13, 1980 - INES Level 4 - Orléans, France - Nuclear materials leak. A brief power excursion in Reactor A2 led to a rupture of fuel bundles and a minor release (8 x 1010 Bq) of nuclear materials at the Saint-Laurent Nuclear Power Plant
- March, 1981 — INES Level 2 - Tsuruga, Japan - Overexposure of workers. More than 100 workers were exposed to doses of up to 155 millirem per day radiation during repairs of a nuclear power plant, violating the company's limit of 100 millirems (1 mSv) per day.
- September 23, 1983 — INES Level 4 - Buenos Aires, Argentina - An operator error during a fuel plate reconfiguration in an experimental test reactor led to an excursion of 3×1017 fissions at the RA-2 facility.
- April 26, 1986 — INES Level 7 - Prypiat, Ukraine (then USSR) - Power excursion, explosion, complete meltdown. A mishandled reactor safety test led to an uncontrolled power excursion, causing a severe steam explosion, meltdown and release of radioactive material at the Chernobyl nuclear power plant located approximately 100 kilometers north-northwest of Kiev. Approximately fifty fatalities (mostly cleanup personnel) resulted from the accident and the immediate aftermath. An additional nine fatal cases of thyroid cancer in children in the Chernobyl area have been attributed to the accident. The explosion and combustion of the graphite reactor core spread radioactive material over much of Europe. 100,000 people were evacuated from the areas immediately surrounding Chernobyl in addition to 300,000 from the areas of heavy fallout in Ukraine, Belarus and Russia.
- May 4, 1986 – INES Level needed - Hamm-Uentrop, Germany (then West Germany) - Fuel damaged
- November 24, 1989 —Greifswald, Germany (then East Germany) - Fuel damaged.
- April 6, 1993 — INES Level 4 - Tomsk, Russia – Explosion. A pressure buildup led to an explosive mechanical failure in a 34 cubic meter stainless steel reaction vessel buried in a concrete bunker under building 201 of the radiochemical works at the Tomsk-7 Siberian Chemical Enterprise plutonium reprocessing facility.
- June, 1999 —Ishikawa Prefecture, Japan - Control rod malfunction

- September 30, 1999 — INES Level 4 - Ibaraki Prefecture, Japan - Workers put uranyl nitrate solution containing about 16.6 kg of uranium, which exceeded the critical mass, into a precipitation tank at a uranium reprocessing facility in Tokai-mura northeast of Tokyo, Japan.
- April 10, 2003 — INES Level 3 - Paks, Hungary - Fuel damaged.
- April 19, 2005 — INES Level 3 - Sellafield, England, United Kingdom - Nuclear material leak.
- March 6, 2006 — INES Level needed - Erwin, Tennessee, United States - Nuclear material leak.
- Thirty-five liters of a highly enriched uranium solution leaked during transfer into a lab at Nuclear Fuel Services Erwin Plant. The incident caused a seven-month shutdown and a required public hearing on the licensing of the plant.
- June 23, 1942 – Leipzig, Germany (then Third Reich) – steam explosion and reactor fire.
- 13, 1950 – British Columbia, Canada – Non-nuclear detonation of a simulated atomic bomb.
- April 11, 1950, – Albuquerque, New Mexico, USA – Loss and recovery of nuclear materials. Three minutes after departure from Kirtland Air Force Base in Albuquerque a USAF B-29 bomber carrying a nuclear weapon, four spare detonators, and a crew of thirteen crashed into a mountain near Manzano Base. All thirteen crew members died.
- July 13, 1950; Lebanon, Ohio, USA – Non-nuclear detonation of an atomic bomb.
- November 10, 1950 – Rivière du Loup, Québec, Canada – Non-nuclear detonation of an atomic bomb
- November 29, 1955 – Idaho, USA – Partial meltdown
- July 27, 1956 – Lakenheath in Suffolk, UK – Nuclear weapons damaged
- July 28, 1957 – Atlantic Ocean – Two weapons jettisoned and not recovered
- September 11, 1957 – Rocky Flats Plant, Golden, Colorado, USA – Fire, release of nuclear materials. A fire began in a materials handling glove box and spread through the ventilation system into the stack filters at the Rocky Flats weapons mill 27 kilometres (17 mi) from Denver, Colorado. Plutonium and other contaminants were released, but the exact amount of which contaminants is unknown; estimates range from 25 mg to 250 kg.
- September 29, 1957 – Kyshtym, Chelyabinsk Oblast, Russia (then USSR) – Explosion, release of nuclear materials
- October 8–12, 1957 – Sellafield, Cumbria, UK – Reactor core fire
- January 31, 1958 – Morocco – Nuclear bomb damaged in crash
- February 5, 1958 – Savannah, Georgia, USA – Nuclear bomb lost
- March 11, 1958 – Florence, South Carolina, USA – Non-nuclear detonation of a nuclear bomb

- June 16, 1958 – Oak Ridge, Tennessee, USA –A supercritical portion of highly enriched uranyl nitrate was allowed to collect in the drum causing a prompt neutron criticality in the C-1 wing of building 9212 at the Oak Ridge National Laboratory Y-12 complex. It is estimated that the reaction produced 1.3 * 1018 fissions. Eight employees were in close proximity to the drum during the accident, receiving neutron doses ranging from 30 to 477 rems. No fatalities were reported.
- November 20, 1959 – Oak Ridge, Tennessee, USA – Explosion
- June 7, 1960 – New Egypt, New Jersey, USA – Nuclear warhead damaged by fire
- October 13, 1960 – Barents Sea, Arctic Ocean – A leak developed in the steam generators and in a pipe leading to the compensator reception on the ill-fated K-8 while the Soviet Northern Fleet November-class submarine was on exercise. January 3, 1961 – National Reactor Testing Station, Idaho, USA – Accidental criticality, steam explosion
- January 24, 1961 – Goldsboro B-52 crash – Physical destruction of a nuclear bomb, loss of nuclear materials
- May 1, 1962 - Sahara desert, French Algeria - Accidental venting of underground nuclear test
- January 13, 1964 – Salisbury, Pennsylvania and Frostburg, Maryland, USA – Accidental loss and recovery of thermonuclear bombs
- April 21, 1964 – Indian Ocean – Launch failure of a RTG powered satellite
- 8 December 1964; Bunker Hill Air Force Base, USA – Fire, radioactive contamination
- 11 October, 1965 – Rocky Flats Plant, Golden, Colorado, USA – Fire, exposure of workers.A fire at Rocky Flats exposed a crew of 25 to up to 17 times the legal limit for radiation.
- May 24, 1968 – location unknown – loss of cooling, radioactive contamination, nuclear fuel damaged
- August 27, 1968 – Severodvinsk, Russia (then USSR) – Reactor power excursion, contamination
- May 11, 1969 – Rocky Flats Plant, Golden, Colorado, USA – Plutonium fire, contamination
- April 12, 1970 – Bay of Biscay – Loss of a nuclear submarine
- December 18, 1970 – Nevada Test Site – Accidental venting of nuclear explosion
- December 12, 1971 – New London, Connecticut, USA – Spill of irradiated water
- December 1972 – Pawling, New York, USA – Contamination
- 1975 – location unknown – Contamination
- October 1975 – Apra Harbour, Guam – spill of irradiated water
- August 1976 – Benton County, Washington, USA – Explosion, contamination of worker

- 1977 – coast of Kamchatka – loss and recovery of a nuclear warhead May 22, 1978 – near Puget Sound, Washington, USA – spill of irradiated water
- January 3, 1983 – The Soviet nuclear-powered spy satellite Kosmos 1402 burns up over the South Atlantic.
- August 10, 1985 – About 35 miles (56 km) from Vladivostok in Chazhma Bay, Soviet submarine K-431, a Soviet Echo-class submarine had a reactor explosion, producing fatally high levels of radiation. Ten men were killed, but the deadly cloud of radioactivity did not reach Vladivostok.
- 1986 – The U.S. government declassifies 19,000 pages of documents indicating that between 1946 and 1986, the Hanford Site in Richland, Washington, released thousands of US gallons (several m^3) of radioactive liquids. Of 270,000 people living in the affected area, most received low doses of radiation from 131I.
- 1997 – Georgian soldiers suffer radiation poisoning and burns. They are eventually traced back to training sources abandoned, forgotten, and unlabeled after the collapse of the Soviet Union. One was a 137Cs pellet in a pocket of a shared jacket which put out about 130,000 times the level of background radiation at 1 meter distance.
- February 2003: Oak Ridge, Tennessee Y-12 facility. During the final testing of a new saltless uranium processing method, there was a small explosion followed by a fire. Three employees were contaminated.

Incidents of Radiation Disasters in India

In India, recently at Kaiga Atomic Power Plant in Northwest Karnataka, an incident of sabotage was reported whereby water cooler was found to be contaminated with radiation. However, the accident was contained before any damage could be done.

The Madras Atomic Power Station

In 1986, two years after the MAPS was commissioned, the inlets of both its reactors cracked. Zircalloy pieces were found in the moderator pump. In 1988, MAPS was shut down after heavy water leaked, exposing workers to radioactivity. Again, in 1991, tonnes of heavy water burst out from the moderator system exposing workers to high radioactivity. The emergency cooling systems are said to be inadequate. Heavy water leakage is frequent in this nuclear power station.

The Narora Atomic Power Station

In 1993, a major fire broke out in NAPS. It was triggered by broken turbine blades. Fortunately, the accident was handled efficiently, or else the fire could have led to a meltdown of the reactors and an explosion.

The turbine blades were manufactured by the US-based General Electric Company. It had found an error with the blades and provided the Department of Atomic Energy an alternative design. But the DAE never took any action. Soon after the fire, the Atomic Energy Regulatory Board ordered the closure of all heavy water reactors in the country.

The Rajasthan Atomic Power Station

The RAPS reactors developed innumerable problems and were de-rated from 220 MWe to 100 MWe. In 1976, the reactors flooded due to construction errors. The emergency core cooling system got obstructed, leading to a near meltdown. Again, the reactors were flooded in 1982. In 1992, four of its eight pumps caught fire. But despite such problems, the RAPS reactors continue to function without high-pressure emergency core cooling system.

The Tarapur Atomic Power Station

The Tarapur reactors, commissioned in 1969, are the oldest in the country and the world. There are many serious problems associated with the two reactors. Extensive tube failures have already resulted in the de-rating of the reactors from 210 MWe to 160 MWe. Both the TAPS reactors share the same emergency core cooling system. Experts warn that the reactors can meltdown.

The Kaiga Atomic Power Station

A faulty design led to the collapse of a concrete containment dome in 1994, exposing the workers to radioactivity. Then floodwater entered the condenser pit and turbine building basement. The accident resulted in four year's delay in commissioning this power station.

1.2.2 Disaster Management in India

India is vulnerable to varying degrees to a large number of natural as well as man-made disasters, ranging from earthquakes, floods, cyclones, tsunamis, droughts, avalanches, landslides etc. Further, the vulnerability to Nuclear, Biological and Chemical (NBC) disasters and terrorism has also increased manifold.

Disaster risks in India are further compounded by increasing vulnerabilities, due to a variety of factors. These include population, poverty, rapid urbanisation, increasing industrialisation, development within high-risk zones, environmental degradation, climate change etc. This increased vulnerability has seriously threatened national security and present & future course of development.

For planning and coordination of Disaster Management Activities in India, a High Powered Committee (HPC) on Disaster Management was constituted in August 1999 with the approval of the Prime Minister under the Chairmanship of Shri J.C. Pant, former Secretary to the Government of India. The HPC prepared comprehensive model plans for DM at the national, state and district levels. Though the original mandate of the HPC was confined to preparation of plans for natural disaster only, man-made disasters like accidents, industrial and chemical accidents, biological disasters, etc. were included to ensure a holistic approach for preparation of Disaster Management Plans.

The HPC constituted 5 sub-groups to develop detailed history of each type of disaster and the type of plans of actions needed to have the most effective preparedness, response and recovery strategies for each type of disaster. The five sub-groups were: Water & Climate related hazards, Geological hazards, Industrial, Chemical and nuclear hazards, Accidents, Biological Hazards.

Our national approach in disaster management received a boost with setting up of National Disaster Management Authority (NDMA) headed by the Prime Minister, through an Act of Parliament. This Act got the consent of the President on 23 December 2005. Its aim is to initiate a holistic and integrated approach to Diaster Management in the country. The holistic, multi-disciplinary and integrated approach of NDMA in DM at all levels aims to mainstream DM into development effort.

The DM Act, 2005, mandates a paradigm shift from a response and relief-centric approach, to a proactive, and comprehensive mindset towards DM covering all aspects from prevention, mitigation, preparedness to rehabilitation, reconstruction and recovery.

It also provides for:

- The creation of a policy, legal and institutional framework, backed by effective statutory and financial support.
- The mainstreaming of multi-sectoral DM concerns into the developmental process and mitigation measures through projects.
- A continuous and integrated process of planning, organising, coordinating and implementing policies and plans in a holistic, community based participatory, inclusive and sustainable manner.

Crisis Management in India

Crisis Management depends upon perceived crises and the communities' quest for suitable response. In India, considerable efforts are directed to manage crises of varying dimensions almost on regular basis and has always been a part of government

functioning. The nature and dimensions of crises have undergone a drastic change as a result of widespread terrorism and the dependence of economic life upon mega-industries. So far the governmental responses to these have been effective and swift. It is of paramount importance that the responses to emerging crises are evolved in a planned manner, through well prepared Contingency Plans taking into account various kinds of crises which may appear on the national horizon.

Management Structure

The Central government has constituted the National Crisis Management Committee to deal with different types of crises situations. The Committee consists of nodal and support Ministries to handle them. The list is as follows:

Crisis-Nodal Ministry

(a) Air accidents-Ministry of Civil Aviation
(b) Civil Strife-Ministry of Home Affairs
(c) Major breakdown. of any of the essential services widespread and protracted - concerned Ministries posing problems
(d) Railway accidents - Ministry of Railways
(e) Chemical Disaster - Ministry of Environment
f) Biological Disaster - Ministry of Health
(g) Nuclear accident inside or outside the country which poses health or other hazards to people in India- Deptt. Of Atomic Energy
(h) Natural Disasters: Min. of Agriculture

Responsibilities

a) Nodal & Support Ministries:

The Nodal Ministry is mainly responsible for taking all actions to deal with a particular crisis situations. Some situations may require action by more than one Ministry or Department. The Secretary of the Nodal Ministry coordinates activities of all support Ministries/Departments. Each Nodal Ministry has prepared detailed Contingency Plans for dealing with crisis situations falling in the areas of their responsibility. Copies of the Contingency Plans have been furnished by the Nodal Ministries to the CMG and the supporting Ministries and Departments. Simulated exercises need to be held periodically to assess the efficiency of the Contingency Plans. These Contingency Plans may be revised and updated from time to time.

b) Crisis Management Group:

Each Nodal Ministry has established a Crisis Management Group (CMG) for dealing with the crises which fall within the ambit of its responsibility. The Crisis Management

Group is mainly responsible for dealing with a crisis situation and for reporting all developments to the CMG seeking its directions and guidance as and when necessary.

c) Control Room of the Ministry:
By and large each nodal Ministry has established a control room, which is activated immediately after a crisis situation is reported. Senior officer from the existing hierarchy has been designated in charge of the control room who have draw up a plan for its manning during crisis situations, on a 24 hour basis. The control room have adequate communications facilities to communicate with the crisis point, the concerned State Government and with other concerned Ministries in the Government of India and in particular with the control room of the Cabinet Secretariat. Hot line facilities wherever necessary has been set up in consultation with Department of Telecommunications.

d) National Crisis Management Committee:
The National Crisis Management Committee(NCMC) is the apex body of high level officials of the Government of India for dealing with a major crisis which has serious or national ramifications. The composition of the committee would be as under:
1. Cabinet Secretary Chairman
2. Secretary of Nodal Ministries Member
3. Secretaries of Support Ministries Member

An officer of the Cabinet Secretariat has been nominated Convener of the NCMC.
In addition to these, the Secretary of the Nodal Ministry and/ or the Head of the Department directly responsible for dealing with a particular situation of crisis, are co-opted as member of the NCMC.

When a situation is to be handled also by NCMC it gives such directions to the Crisis Group of the nodal Ministry as deemed necessary. The Secretary of the Nodal Ministry is responsible for ensuring that all developments are brought to the notice of the NCMC promptly.

e) Initial Information:
As soon as a crisis situation develops and if warrants attention of the NCMC, it is the responsibility of the Secretary of the Nodal Ministry to report it to the NCMC.

f) District/State Plans:
Most of the actions in a crisis situation are taken at the field/district and state levels for which the district/State Committees has been set up and contingency Plans have been prepared by the State authorities. The Nodal Ministries has issued detailed guidelines to the State Governments for the preparation of local Contingency Plans.

State Governments have established a Sate Crisis Management Committee under the Chief Secretary, with Secretaries and Heads of the Concerned Departments/Organizations, as members.
State Governments have established a well-equipped Control Room for quick receipt of information and dissemination of command instructions.

g) Response System:
Immediately on the occurrence of a crises the local Action Plan is put into effect by the local/district and the State authorities. If the situation has wider ramifications and warrants response at national level, the State Government contacts the nodal Ministry of the Central Government and seek the required help. The concerned nodal Ministry activates its control room, summon a meeting of the Crisis Group and put into operation its contingency plan.

The Secretary of the nodal Ministry informs the Cabinet Secretary about my crisis situation and who if he considers it necessary, calls a meeting of the National Crisis Management Committee.

An overview of health contingency plan for crisis management
Frequency as well as intensity of natural disasters is increasing globally including in India. Disaster impact is felt more in developing countries due to borderline economic status of the vulnerable population with no or inadequate adjustment capacity. Additionally, disaster impact is felt by increasing number of population in a country with large population density. Impact on the Human population in the post disaster period is manifested in the form of injuries, deaths, diseases and disability. They also affect the services essential for human survival, shelter, water supply, food stock/food distribution system, sanitation and sewerage facilities. Time is an important factor in mobilizing resources and. administrative machinery to meet immediate public health needs of affected population.

Disaster management structure in health sector
a) National Level
The Emergency Medical Relief Division *of* Directorate General of Health Services in the Ministry- of Health & Family Welfare is the technical unit exclusively meant for management of crisis situations. The Division is headed by Director, Emergency Medical Services and Relief. For the purpose of the crisis situations, he reports/receives instructions directly from the technical chief (Director General of Health Services) and Administrative Head of the Ministry (Secretary Health & Family Welfare). The Secretary, Health & Family Welfare has empowered Director, EMR to represent the Dept. for crisis situations in different Crisis Management Groups.

Disaster Management requires multi-sectoral and multidisciplinary approach, which needs coordination at various levels from Central to District Level. In the Ministry of Health & F.W (Govt. of India) the mechanism of coordination is done *through* the office of the Director, Emergency Medical Services & Relief (EMR). The objective of the coordination is to review crisis situations from time to time and meet those needs, which State Governments cannot meet. For this purpose, continuous dialogue and communication are maintained with the Director of Health Services of the States, Stores Division under the Federal Government, vaccine producing institutes and National Institute of Communicable Diseases and Director, Malaria Unit.

b) State level:
Usually a Joint Director or a Deputy Director of Health Services under Director of Health Services in the state, is responsible for crisis management, coordination, monitoring and implementation. He has detailed information about key personnel involved in disaster management at State, District and Central level.

c) District/PHC level:
At district level, the chief medical officer/Civil Surgeon is responsible to implement and coordinate health sector activities. He has details of information about officer involved in disaster management at PHCS, District and State level.

Non Governmental Organisation
There are number of NGOs which are functioning in the field of disaster management. Most of them are small and work locally. However, Indian Red Cross Society and Ramakrishna Mission are the two organizations, which take very active part in disaster management. As a matter of fact these two organizations supplement government efforts. They have sufficient infrastructure to provide immediate facilities within shortest possible time.

a) Indian Red Cross Society:
The Indian Red Cross Society was established in the year 1920 to render medical and other assistance to the sick and injured during war and peace time and to manage the funds and gifts received from public for such purposes. Its activities include mother and child welfare scheme including nutrition programme, arrangements of relief to the victims of epidemics, earthquakes, cyclones, droughts, floods and natural and industrial calamities in India and abroad. They also provide paramedical education in fields like first aid, nursing and blood banking. Promotion of voluntary blood donation is one of the prime targets of the society and the Government is providing grants-in-aid to it to help in this programme. There is a network of 51 blood banks run by the Red Cross in 11 States.

Medical relief is extended to the community through their static and mobile units. Ambulance service is another activity of many branches. Some branches run Centres for physically and visually handicapped institutions for mentally retarded and maintain a pool of beds in specialized hospital for treatment of cancer and tuberculosis patients.

b) Ramakrishna Mission
This organisation has network of branches throughout the country through which they provide timely assistance to the affected population. Their dedication as well as quality of response has made them one of the most respectable organisations in the field. Their expertise lies primarily in the social sector. During normal period they are involved in providing educational services, employment generation activities and providing support to the old infirm and poor.

c) Other organizations
There are a large number of voluntary organisations out of which only a few have backup sustainable resources like Oxfam (India), *Lutheran* etc. However, during crisis period many others become visible for a short period.

Programme coordination
In the Ministry of Health and Family Welfare the coordination is ensured through the office of the Director, EMR among the Director of Health Services of the States, Stores Division under the Central Government vaccine producing units. This type of coordination is confined during disaster situations. In order to give a regular coordination mechanism for any epidemic situations, even during normal period, a structure has been framed at various levels of health infrastructure (Central, State and District) which will be put into operation shortly.

During disaster, the Director (EMR) contacts the Control Room and the officer concerned at the State level either by telephone, telex or wireless system (Police Control Room) between 10 and 12 Noon and gets a feed back on:
(a) the extent of disaster situation on a particular day;
(b) population affected; and
(c) health profile like number of patients, type of patients and any problem to deal with the situation.

- The disease surveillance is undertaken by the surveillance units of each State and coordinated at the Central level by the National Institute of Communicable diseases.
- In case, additional medical stores are needed, Director (EMR) directs different medical stores located at Karnal, Delhi, Bombay, Madras, Hyderabad, Calcutta and, Guwahati for immediate air-lifting of medical stores.

- The Central Research Institute at Kasauli (H.P.) under the Central Government, the Haffkine
- Institute at Bombay under the Government of Maharashtra, the King Institute of Guindy,(Madras) under the Government of Tamil Nadu and the Institute of Preventive Medicine at Hyderabad under the Government of Andhra Pradesh are kept in readiness to supply vaccines, particularly for typhoid and cholera. The major responsibility, however, is taken by the Central Research Institute, Kasauli for ensuring supply of vaccines.
- As a matter of clarification, it may be mentioned that inoculation for cholera is done only on social pressure. By and large, the initial re-deployment of medical team is done by the District Chief from PHCs under him followed by medical teams from other Districts by the State Directors of Health Services and by the Director General of Health Services through Director (EMR) at the Federal level. Federal deployment of manpower is done rarely as every State has adequate manpower.

Training and Research: Institutionalization of Health Sector Disaster Management in India

Experience shows that despite a good administrative set up a well formulated disaster management plan, disaster mitigation masers may not find the required direction and yield desired results in the field. Memories of disasters usually fade away after the acute phase of events. In India, the health sector disaster preparedness has been institutionalized with the objective to incorporate disaster plan in the health delivery system. With this intention, 6 institutions throughout the country have been identified. The broad functional responsibility of these institutions is:

1) NICD. Delhi, to undertake training and conduct case studiesin the epidemiological aspects of post disaster public health impacts

2) A.I.I. H & P. H, Calcutta, To undertake field level case studies and to undertake health sector training programme in the Eastern and North Eastern States.

3) JIPMER, Pondicherry, to undertake training and case studies in Southern States.

4) ASCI, Hyderabad, to acquaint general Administrators about relevance of health sector activities in practices of Disaster Management and the type of Administrative support needed.

5) SPIPA, Ahmedabad -do-

6) NEERI, Nagpur to undertake studies in the environment as a part of health sector preparedness for industrial / chemical disasters.

7) CHEB, Delhi to create community awareness about preventive measures.

The Gaps in the present system

Pre-disaster:

At the National level, most of pre, during and post disaster actions are undertaken except regular training of personnel. Out of 6 pre-disaster activities, 3 at district and 6 at PHC level are not performed. It means there is almost no preparedness activities at PHC level which is required to function during effectively during disaster and post disaster period (first 48 to 72 hrs) when outside help is not feasible due to inaccessibility communication breakdown.

During Disaster:

During Disaster phase, most of action are carried out at National and State level except during disaster control of non-communicable disease which any how are not supposed to be performed by them. In contrast, all required a actions are undertaken at district & PHC levels. It means health care are provided without any preparedness. In absence of any training to field level workers, actions are usually adhoc in nature quality of which may vary from individual to individual depending upon their knowledge and experience.

Post Disaster:

At National level, evaluation of performance is undertaken to identify deficiencies in order to improve the performance, which is usually absent at State, district and PHC level. Technical evaluation is not done at any level: It means experience gained remain unutilised thereby tendency of Adhoc response during successive disasters continues.

1.2.3 National 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 governmental agencies supported by NGOs.[1]

1.2.4 State Vision

[1] Source and reference: Management of Nuclear and Radiological Emergencies, NDMA

Uttar Pradesh Disaster Management Plan (UPSDMP) on Radiation Disaster is a result of this approach of preparedness to face this man-made calamity. UPSDMP has been prepared for its operationalisation by various departments and agencies of the Government of Uttar Pradesh and other stakeholders expected to participate in disaster management. This addresses the state's response to demands from the district administration and in extraordinary emergencies at multi-district levels.

1.3 Objectives of UP State Disaster Management Plan on Radiation Disasters

Radiation Disasters are characterised by some or all of the following:

- Though they are most times restricted to a facility or a confined area, in some cases they may cause disruption to individuals and communities;
- They are not part of day-to-day experience and are outside normal life expectations;
- They are unpredictable in occurrence and effects;
- They require a response for which normal local resources may be inadequate;
- They have a wide range of effects and impacts on the human and physical environment;
- There are complex needs in dealing with them as some effects may not be realized immediately but would emanate in future.
- They can be of sudden onset

Disaster preparedness and the promotion of disaster resilience have been recognised as essential components of all development strategies. The experience of coping with radiation disasters is limited in Uttar Pradesh, as there has been no precedence. However, with a nuclear plant at Narora; use of many radioactive elements in various medical treatments and threat from terrorist organizations, this emergency is a possibility and needs a proper planned approach to deal with such a disaster.

With this background, the objectives of UPSDMP on Radiations are as follows:

- To develop plans through a consultative approach involving all the stakeholders that will lead to a society wherein in case of occurrence of radiations emergency, risk to human health, life and the environment can be understood and minimised.
- To understand socio-economic vulnerability of people and integrate into disaster management activities in case of a radiation emergency;
- To strengthen existing organisational and administrative structures for radiation disaster management.
- To ensure that the following components of disaster management are organised to facilitate planning, preparedness, operational coordination and community participation.

  - Prevention: the elimination or reduction of the incidence or severity of disasters and the mitigation of their effects.
  - Response: the combating of emergencies and the provision of immediate rescue and relief services;
  - Recovery: the assisting of people and communities affected by disasters to achieve a proper and effective level of functioning.
- To channelize involvement of various government departments, research, specialised agencies, multilaterals, bilateral, non government organisations training institutes, Community Based Organisations etc.

Chapter-II Profile of the State

2.1 Overview

Uttar Pradesh is the land of multi-hued Indian Culture that has blossomed from times immemorial. Blessed with a variety of geographical land and many cultural diversities, Uttar Pradesh, has been the area of activity of historical heroes like - Rama, Krishna, Buddha, Mahavira, Ashoka, Harsha, Akbar and Mahatma Gandhi. Rich and tranquil expanses of meadows, perennial rivers, dense forests and fertile soil of Uttar Pradesh have contributed numerous golden chapters to the annals of Indian History. Dotted with various holy shrines and pilgrim places, full of joyous festivals, it plays an important role in the politics, education, culture, industry, agriculture and tourism of India.

Its area of 2,36,286 sq km lies between latitude 24 deg to 31 deg and longitude 77 deg to 84 deg East. Area wise it is the fourth largest State of India. In sheer magnitude it is half of the area of France, three times of Portugal, four times of Ireland, seven times of Switzerland, ten times of Belgium and a little bigger than England.

2.2 Location

Uttar Pradesh is a state located in the northern part of India covering a large part of the highly fertile and densely populated upper Gangetic plain. Situated between 23^{o} 52'N and 31^{o} 28 N latitudes and 77^{o} 3' and 84^{o} 39'E longitudes, this is the fourth largest state in the country. It shares an international border with Nepal and is bounded by the states of Uttarakhand, Himachal Pradesh, Haryana, National Capital Territory of Delhi, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand and Bihar.

2.3 Area and administrative division

With an area of 2,36,286 sq. km^2 , Uttar Pradesh is divided into 72 districts under 18 divisions: Agra, Aligarh, Allahabad, Azamgarh, Bareilly, Basti, Chitrakoot, Devipatan, Faizabad, Gorakhpur, Jhansi, Kanpur, Lucknow, Meerut, Mirzapur, Moradabad, Saharanpur and Varanasi.

A district is governed by a District Collector also known as a District Magistrate. DM is an officer from either Indian Administrative Service (IAS) or Uttar Pradesh Public Service Commission (UPPSC), and is appointed by the State Government of Uttar Pradesh. Each district is divided into subdivisions. A subdivision is governed by a sub-divisional magistrate (SDM). Other than urban units such as town municipalities, a subdivision contains 'community development blocks' (also known as CD blocks or

[2] **http://upgov.nic.in**
2. Map- Maps of India

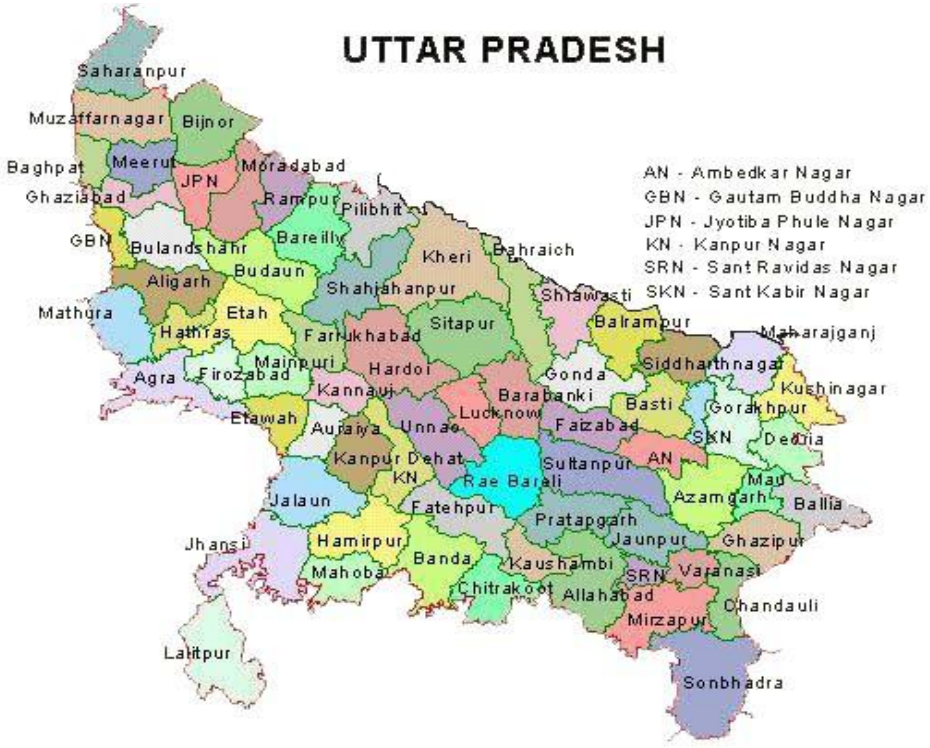
blocks). A block consists of urban units such as census towns and rural units called gram panchayats. A block is administered by a Block Development Officer (BDO). The Panchayati Raj has a three-tier structure with Zilla Parishad, Panchayat Samiti and Gram Panchayat.

A Senior Superintendent/ Superintendent of Police or SP, heads the District Police organization of Uttar Pradesh Police. For every subdivision, there is a Subdivision Police, headed by a Police officer of the rank of Assistant Superintendent of Police or Deputy Superintendent of Police. Under subdivisions, there are Police Circles, each headed by a Circle Officer. A Police Circle consists of Police Stations, each headed by an Inspector or Sub-Inspector of Police. The Allahabad High Court has the jurisdiction of the state of Uttar Pradesh.

2.4 Physical Regions

Uttar Pradesh can be divided into two distinct hypsographical regions:

1. The Gangetic plain in the centre: The most important area for the economy of the state is the Gangetic plain which stretches across the entire length of the state from



east to west. The entire alluvial plain can be divided into three sub-regions. The first in the eastern tract consisting of 14 districts which are subject to periodical floods and droughts and have been classified as scarcity areas. These districts have the highest density of population which gives the lowest per capita land. The other two regions, the central and the western are comparatively better with a well-developed irrigation system. They suffer from water logging and large-scale user tracts. The Gangetic plain

is watered by the Yamuna, the Ganga and its major tributaries, the Ramganga, the Gomati, the Ghaghra and Gandak. The whole plain is alluvial and very fertile.

2. The Vindya hills and Deccan plateau in the south: The Southern fringe is demarcated by the Vindhya Hills and plateau. It comprises four districts of Jhansi, Jalaun, Banda, and Hamirpur in Bundelkhand division, Meja and Karchhana tehsils of Allahabad district, the whole of Mirzapur District south of Ganga and Chakia tehsil of Varanasi District. The Betwa and Ken rivers join the Jamuna from the south-west in this region. It has four distinct kinds of soil, two of which are agriculturally difficult to manage. They are black cotton soil. Rainfall is scanty and erratic and water-resources are scare. Dry farming is practical on a large scale.

2.5 Climate and rainfall

Uttar Pradesh is located in the north-western part of the country. It spreads over a large area, and the plains of the state are quite distinctly different from the high mountains in the north. The climate of Uttar Pradesh can also vary widely, with temperatures as high as 47 °C in summer, and as low as 1 °C in winter.

The climate of Uttar Pradesh is predominantly subtropical, but weather conditions change significantly with location and season.

Tropical Monsoon Climate is marked by three distinct seasons:

- Summer (March-June): Hot & dry (temperatures rise to 45 °C, sometimes 47-48 °C); low relative humidity (20%); dust laden winds.
- Monsoon (June-September): 85% of average annual rainfall of 990 mm. Fall in temperature 40-45° on rainy days.
- Winter (October-February): Cold (temperatures drop to 3-4 °C); clear skies; foggy conditions in some tracts.

Rainfall: Rainfall in the State ranges from 1,000–2,000 mm (40–80 inches) in the east to 600–1,000 mm (24–40 inches) in the west. About 90 percent of the rainfall occurs during the southwest monsoon, lasting from about June to September. With most of the rainfall concentrated during this four-month period, floods are a recurring problem and cause heavy damage to crops, life, and property, particularly in the eastern part of the state, where the Himalayan-origin rivers flow with a very low north-south gradient.

2.6 Temperature

Depending on the elevation, the average temperatures vary from 12.5–17.5°C (54.5–63.5°F) in January to 27.5–32.5°C (81.5–90.5°F) in May and June. The highest temperature recorded in the State was 49.9°C (121.8°F) at Gonda on May 8, 1958.

2.7 Demographic profile

U.P. is the largest State in the country in terms of people living in it. Its population, at 16.62 crores in 2001, comprised 16.2% of India's population. Population density is 689 and sex ratio adverse at 898. Only about 60% of the people are literate. Infant mortality is still high at around 80. About one third of its people live below the poverty line.

The State reflects many contrasts such as fertile lands, very considerable water resources, good rainfall and massive manpower on one hand; and poverty, unemployment, poor incomes, relatively low productivity levels and low quality of life on the other. Per capita income as estimated in 1950-51 was only 3% below the national average. In 2001-2002, it had fallen to as much as 41% below the national average.

U.P. is facing a difficult demographic situation. It has both high people numbers and high population growth rate. During 91-01 decade its population went up by over 25.8%. Literacy rate in 2001 was more than 10% below the national average, at 57.36%. Similarly, sex ration at 898 was lower than the national figure of 933. According to the Economic Survey of India (2003-04) unemployment rate was 4.08%, having gone up in the preceding seven year by about 18%.

The density of population in U.P. at 689 per sq. km is much higher than that obtaining in many other States in the country. The high demographic growth rate has resulted in:

1. Rise in density of population per sq. km from 473 in 1971 to 548 in 1991, and 689 in 2001.
2. Pressure on land has tremendously increased. Land holdings, mostly small and marginal, have been further fragmented making modernisation of agriculture and capital investments on it very difficult.
3. Available financial resources have not matched the needs of sectors like health, education, housing, roads, energy etc., quality of life has remained poor. Unemployment rate is also high in the state.

2.8 Geology

Uttar Pradesh is characterised by rock formations ranging in age from the Achaean (the Bundelkhand Granitic gneisses) to the Recent (the Ganga alluvium). The Ganga plain which dominates the landscape and nearly covers three fourth of the geographical area of the State, lies between the rocky Himalayan belt in the north and the southern hilly tract comprised of mainly Pre-Cambrian rocks. Flexing of the Indian lithosphere in response to the compressive forces due to collision, and thrust fold loading produced the Ganga Plain foreland basin. It is filled with recent alluvial

sediments which are at places more than 1,000 m. thick and an amalgam of sand, silt, clay in varying proportions.

The southern hilly tract is roughly parallel to the Ganga-Yamuna lineament. The tract is underlain by granitic complex in Bundelkhand region and in Sonbhadra. It is overlain by rocks Mahakoshal (Bijawar) and Vindhyan Supergroup. The younger rock comprise of coal bearing Gondwana in south Sonbhadra and basaltic rocks in southern part of Lalitpur.

The granitic complex is considered to be potential for the search of metallic minerals like copper, lead, zinc, molybdenum, gold, nickel, Uranium and Platinum group of elements. The overlying sediments of Mahakoshal (Bijawar) and associated Iron Formation show a potential for the search of copper, uranium, and gold in Lalitpur and andalusite, sillimanite, gold, calcite, marble and clay in Sonbhadra. The lower Vindhyan sediments of Sonbhadra contain deposits of cement grade limestone, flux grade dolomites, building stone and are also potential for the search of gold and other metals. The Upper Vindhyan sandstones are suitable for making decorative slab/tiles or ballast. Deposits of silica sands and bauxite are available in Allahabad and Chitrakoot districts while coal deposits occur in the Gondwana rocks in south-western corner of Sonebhadra.

2.9 Economy

Uttar Pradesh is the second largest state economy in India after Maharashtra contributing 8.17% to India's total GDP. Between 1999 and 2008, the economy grew only 4.4% per year, one of the lowest rates in India. The major economic activity in the state is agriculture. UP has retained its pre-eminent position in the country as a food-surplus state. Uttar Pradesh is home to largest number of Small Scale units in the country.

2.10 Education

Uttar Pradesh has made significant contributions in the field of Education and Social Welfare. The State has made major investments over the past few years at all levels of education and has achieved significant success. U.P. has recognized & supported the continuing critical-role of private-sector in the expansion of education in the State.
Schools in the state are either managed by the government or by private trusts. Hindi is used as a medium of instruction in most of the schools except the schools which are affiliated to the Central Board of Secondary Education (CBSE) or Council for Indian Schools Certificate Examinations (ICSE) boards. A primary school is present at a distance of 1.5 Km. and upper primary school at 3 kms. A secondary school is present at every 8 km. in rural areas and there is a secondary school for girls in every block. Efforts are being made to establish at least one degree college in every block.

Uttar Pradesh has 4 central universities, 20 state universities, 8 deemed universities, one institute of national importance and several polytechnics, engineering colleges and industrial training institutes. Prestigious institutes like Indian Institute of Technology (IIT) - Kanpur and Indian Institute of Management (IIM) - Lucknow are known worldwide for their quality education and research in respective fields. This provides the State with a firm basis for providing opportunities for higher education to its youth.

Literacy Rate - 1951-2001

Year	Persons	Male	Females
1951	12.0199719	19.16798458	4.073312004
1961	20.87375426	32.08375688	8.364964365
1971	23.99010618	35.01017953	11.23066459
1981	32.64710258	46.65423278	16.74215631
1991	40.71182357	54.82489537	24.36601105
2001	57.36082487	70.22698833	42.97850169
Note: Literacy rates for 1951, 1961 and 1971 relate to population aged five years and above. The rates for the years 1981 to 2001 relate to the population aged seven years and above. **Source: Edunet.com*			

2.11 Health

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).
Please refer Annexure for figures of major health indicators.

Demographic, Socio-economic and Health profile of Uttar Pradesh State as compared to India figures

S. No.	Item	Uttar Pradesh	India
1	Total population (Census 2001) (in millions)	166.20	1028.61
2	Decadal Growth (Census 2001) (%)	NA	21.54
3	Crude Birth Rate (SRS 2008)	29.1	22.8
4	Crude Death Rate (SRS 2008)	8.4	7.4
5	Total Fertility Rate (SRS 2007)	3.9	2.7
6	Infant Mortality Rate (SRS 2008)	67	53
7	Maternal Mortality Ratio (SRS 2004 - 2006)	440	254
8	Sex Ratio (Census 2001)	898	933
9	Population below Poverty line (%)	31.15	26.10
10	Schedule Caste population (in millions)	35.15	166.64
11	Schedule Tribe population (in millions)	0.11	84.33
12	Female Literacy Rate (Census 2001) (%)	42.2	53.7

2.12 Forests

After the hill districts were constituted into a separate State of Uttaranchal, Uttar Pradesh now largely consists of fertile Gangetic plains in the northern part of the country. The major rivers flowing through the State are the Ganga, the Yamuna, the Ramganga, the Gomti and the Ghaghra.

Recorded Forest Area in Uttar Pradesh

Type	**Area**
Reserved Forest (RF)	11,078 sq. km
Unclassed Forest (UF)	2,425 sq. km
Protected Forest (PF)	3,323 sq. km
Of State's Geographic Area	*7.0 %*
Of Country's Forest Area	*2.2 %*

2.13 Agriculture

Uttar Pradesh is the most important agricultural state of India, not only it has the highest cropped area of 25,785 thousand hectares, but it has the highest number of over 21 million farm holdings as well. In the country, Uttar Pradesh is the largest food grain producing state. It produces more than 41.1 million tonnes of food grains which is about 20% of total food grains of the country. The details of production of different food grains are given in table 1.

Contribution of Uttar Pradesh to the Production of Some Agricultural Commodities, 2005-06

Name of Crops	**Production in lakh tons**		**Contribution of U.P. %**
	INDIA	**U.P.**	
Total Food grain	2086.00	404.10	19.37
Rice	917.90	111.30	12.13
Wheat	693.50	240.70	34.71
Jowar	76.30	2.40	3.15
Bajra	76.80	12.50	16.28
Maize	147.10	10.50	7.14
Total Pulses	133.80	22.30	16.67
Gram	56.00	6.60	11.79
Arhar	27.40	3.80	13.87
Lentil	9.90	5.00	50.15
Total Oilseeds	252.90	9.40	3.72
Groundnut	79.90	0.90	1.13
Rapeseed/Mustard	81.30	9.10	11.19
Sugarcane	2811.70	1254.70	44.62
Potato	239.10	99.90	41.78

Source – UP Government Website

2.14 Cropping Patterns

In Uttar Pradesh rice is grown on 19 percent (4.6 m ha) of its cropped area and represents about 12.4 per cent of the all-India area under this crop. Rice is concentrated in the eastern districts of Uttar Pradesh where the alternative crops are pulses, groundnut, sugarcane, bajra and jowar in the decreasing order of their importance. Tobacco is grown in some districts.

2.15 Livestock and Fishery

The state has 0.5 million crossbred cattle, 3.5 million non-descript cattle and 7.5 million buffaloes in milk, producing around 17.4 million tonnes of milk annually, and buffaloes are contributing the major share (12 million tonnes). Besides 11.7 million poultry are contributing 0.9 billion eggs per annum. There is also a sizeable number of goats (13 million) and pigs (2.3 million). The western part of the state has rich feed and fodder resources, which need to be judiciously utilized, whereas in the eastern region, there is a need to improve the bio-availability of feed resources[3]. The state has a high potential to enhance productivity of cattle, buffalo and goat, with the following technologies:

- Improved germplasm of goat (Jamunapari and Barbari) for enhanced milk and meat production
- Crystoscope assisted Artificial Insemination for 25% increase in conception rate
- Field based diagnostic kits and vaccines for major diseases
- Complete feed blocks, bypass protein technology for high yielders and area specific mineral (P, Ca, I, S) supplementation for 10-15% improvement in productivity
- Hormonal modulation of poultry in organized farms for 5% increase in egg production
- Value addition and improving shelf life of milk (low cholesterol ghee, herbal ghee, mango lassi, mozzarella cheese and flavoured milk), poultry products (chicken chunkalona, chicken patties, chicken idli) and mutton (nuggets, kebabs)

Fisheries

During the Tenth Plan, the production of fish increased from 2.49 lakh ton to 3.07 lakh ton while the productivity increased from 2.55 ton per ha. per year to 2.85 ton per ha. per year. During the Eleventh Plan, the growth rate of this sector is to be raised from 7.4% to 13% and productivity from 2.8 t/ha/year to 4 t/ha/year. Thus, it is envisaged that during the Eleventh Plan the total fish production will increase from 2.90 lakh ton to 5.32 lakh ton.

Importance of aquatic resources in our economy is well recognized. The need for protective food production has assumed vital importance. Hence, use of aquatic

[3] Source- dacnet.nic.in

resources for developmental purpose such as aquaculture and fisheries at par with the terrestrial resources for agriculture and animal husbandry, has attracted considerable attention in recent years. As a result of intensive efforts, aquaculture has become one of the fastest growing food production sub-sectors over the past two decades in India

Aquatic Resources in the U.P.- 2006-07

Resource	Percentage
Rivers & Canals	62%
Large & Medium Reservoirs	12%
Ponds	14%
Lakes	12%
Total	100%

Source: Official website of Govt. of India and Uttar Pradesh

2.16 Land Use pattern

The total cultivated area of the state is 166.83 lakh ha and the gross cropped area is 255.24 lakh ha. The cropping intensity in the state is 153 percent. The area sown during rabi is more compared to that in kharif. The area under sugarcane which is an annual crop is 0.38 lakh ha.

S. No.	Particulars	Uttar Pradesh (In Lakh Ha.)
1	Reporting Area	242.01
2	Forest	16.88
3	Barren Land	5.30
4	Non Agri. Use	6.49
5	Cultivable Waste	4.54
6	Pastures	0.64
7	Misc. Trees etc.	0.44
8	Current Follow	12.17
9	Other Follow	5.74
10	Net Area Sown	166.83
11	Area Sown more than Once	88.41
12	Gross Cropped Area	255.24
13	Cropping Intensity	153.00
14	Kharif	118.57
15	Rabi	128.39
16	Zaid	7.91
17	Area Under Sugarcane (annual crop)	0.38
18	Gross Cropped Area	255.24

Source: Official website of Govt. of India and Uttar Pradesh

2.17 Industry

There are different types of minerals and several industries have come up based on the minerals. There are cement plants in the Mirzapur area in the Vindhya region, a bauxite based aluminium plant in the Banda area. In the hills a number of minerals are to be found, mainly non-metallic minerals which are used as industrial raw materials. Coal deposits are found in the Singrauli area. The industries include a large printing establishment units engaged in manufacturing of scales, locks, letter boxes, furniture, badges and belts, leather goods, scissors etc. Handloom, carpet, glass, electrical goods, electro plating, building material industries are also found in the city.

2.18 Transport and Communication

Utter Pradesh has a well-defined transport system having an impressive network of roadways and railways that help commuters to move around within and outside the state. Flights also operate between major cities such as Lucknow, Varanasi, Agra, Allahabad and Kanpur.

Intercity Transportation in Uttar Pradesh

The cities of Uttar Pradesh are well linked through a network of road and railways. The best mode of transportation is trains. Almost all the major as well as minor towns in Utter Pradesh are linked through railways. Numerous Express and Super Fast trains ply between these stations. There are Intercity and Passenger trains too that are short distance trains whose routes are generally confined to 200 km. Though cheaper than Express trains, these trains are very slow and crowded. Commuters and small time traders generally use these trains. They tend to stop at every other station.

Uttar Pradesh State Transport Corporation has a fleet of buses that ply between different cities. The buses range from uncomfortable coaches for short distance to the Luxury coaches for the longer ones. Apart from that there are luxury coaches run by private operators too. Several Matadors, Mini-Buses and Diesel-run Autos are also available for relatively short distances, say between 50 to 100 km.

Intra-city Transportation in Utter Pradesh

Auto rickshaws and taxis are easily available in bigger cities such as Kanpur, Agra, Mathura, Lucknow, Varanasi, Ghaziabad and Allahabad. In other cities, Autos and Taxis that run on share basis are available. Rickshaws are another good mode to move around in the city. They are the chief transport option in smaller towns as well as congested alleys of large towns.

2.19 River System and Dams

Major Dams and Reservoirs

- Govind Ballabh Pant Sagar on Rihand River in Sonbhadra
- Kalagarh Dam on Ramganga River in Kalagarh

- Parichha Dam on Betwa River in Parichha (Jhansi District).
- List of Dams in Lalitpur District, Uttar Pradesh

(A) Matatila Dam constructed during 1952-1964 on Betwa River in Lalitpur District, Uttar Pradesh, Length 6.30 km, Height 33.53 Meters, Area 20,720 km^2, Storage 1132.68 m.c.m

(B) Jamni Dam constructed during 1962-1973 on Jamni River in Lalitpur District, Uttar Pradesh, Length 6.40 km, Height 19.18 Meters, Area 414 km^2, Storage 92.89 m.c.m

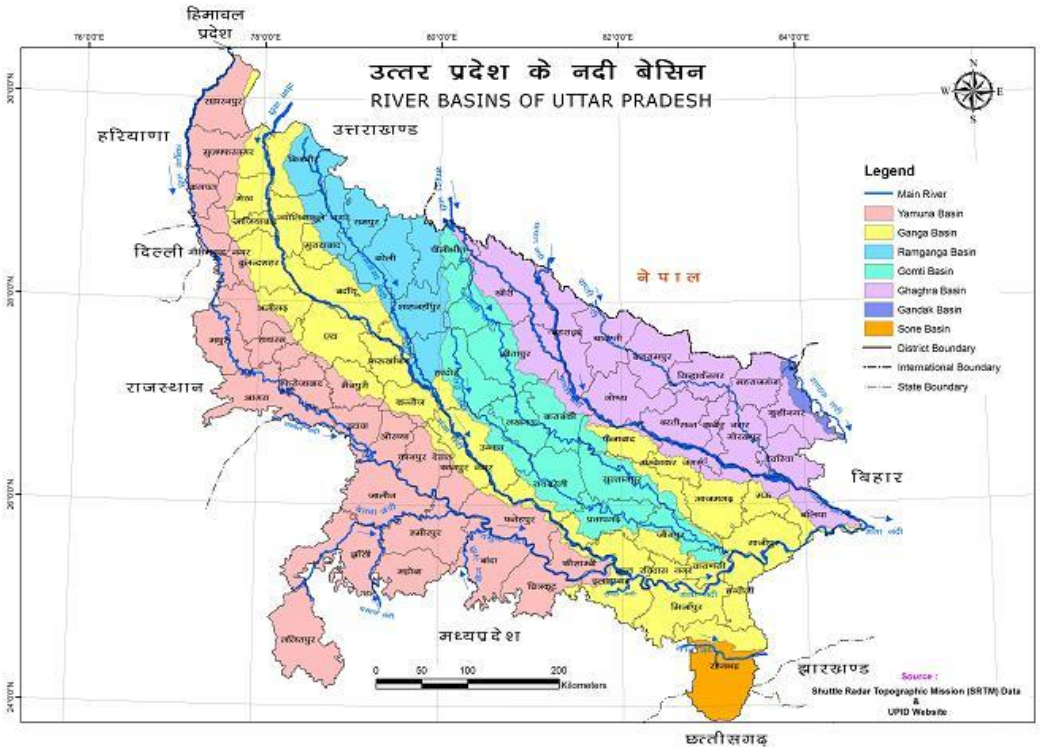
(C) Rohini Dam constructed during 1976-1984 on Rohini River in Lalitpur District, Uttar Pradesh, Length 1.65km, Height 15.50 Meters, Area 44 km^2, Storage 12.12 m.c.m

(D) Shahzad Dam constructed during 1973-1992 on Shahzad River in Lalitpur District, Uttar Pradesh, Length 4.16 km, Height 18.00 Meters, Area 514 km^2, Storage 130.00 m.c.m

(E) Govind Sagar Dam constructed during 1947-1953 on Shahzad River in Lalitpur District, Uttar Pradesh, Length 3.60 km, Height 18.29 Meters, Area 368 km^2, Storage 96.8 m.c.m

(F) Sajnam Dam constructed during 1977-1990 on Sajnam River in Lalitpur District, Uttar Pradesh, Length 5.15 km, Height 18.78 Meters, Area 290 km^2, Storage 83.50 m.c.m

(G) Sukma-Dukma Dam a below water construction on Betwa River near Jhansi District, Uttar Pradesh, Length 2.15 km, Height 20.78 Meters



Chapter III Radiation Disasters

3.1 Radiation Disaster – An Introduction[4]

Since time immemorial human beings have continuously been exposed to naturally occurring ionising radiation. With advancements, scientists gradually discovered nuclear technology. Since then, there has been an exponential growth in the application of nuclear science and technology in the fields of power generation, medicine, industry, agriculture, research and defence. As on date, 17 power reactors and five research reactors are in operation in India, one being in UP at Narora.

Nuclear technology should be used for development and not for destruction. In its peaceful use, there have been a few disasters, two of which have been documented, namely Three Mile Island, Pennsylvania, USA (28 March 1979) and Chernoboyl in Ukraine (26 April 1986). Both nuclear accidents started as a result of minor technical failures, which were accentuated into disasters due to human errors or wrong perception and reading of the situation. The one in India at Kalpakkam Nuclear Reprocessing Plant (KARP), Tamil Nadu on 21 January 2003 was reportedly successfully contained and a major disaster averted.

With proliferation as well as need of nuclear technology, accidents (incidental as well as deliberate) are a possibility. Any radiation incident resulting in, or having a potential to result in, exposure to, and/or contamination of the workers or the public, in excess of respective permissible limits can be termed as a radiation emergency.

3.2 Classification of Radiation Emergencies:

These emergencies, which are usually well within the coping capability of the plant/ facility authority (along with neighbouring administrative agencies, if required) can be broadly classified in the following manner:

1. An accident taking place in any nuclear facility of the nuclear fuel cycle including the nuclear reactor, or in a facility using radioactive sources, leading to a large-scale release of radioactivity in the environment.
2. A 'criticality' accident in a nuclear fuel cycle facility where an uncontrolled nuclear chain reaction takes place inadvertently leading to bursts of neutrons and gamma radiation.
3. An accident during the transportation of radioactive material.
4. The malevolent use of radioactive material as Radioactive Dispersal Device (RDD) by terrorists for dispersing radioactive material in the environment.

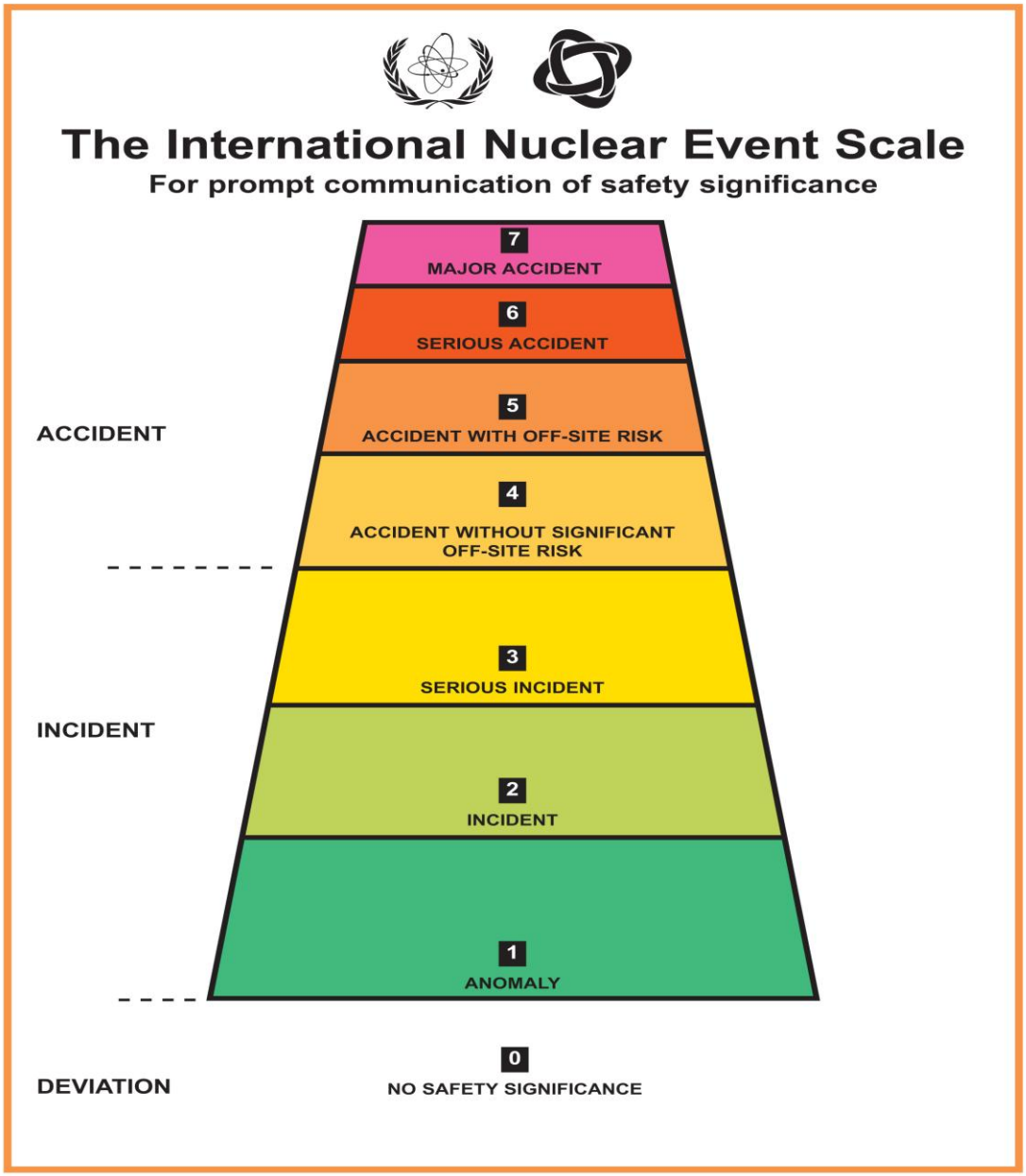
3.3 Classification of International Atomic Energy Agency

[4] Source: Management of Nuclear and Radiological Emergencies, NDMA

International Atomic Energy Agency classifies the above emergency scenarios under two broad categories – nuclear and radiological:

(i) A nuclear emergency refers to an emergency situation in which there is, or presumed to be, a hazard due to the release of energy along with radiation from a nuclear chain reaction (or from decay of products of chain reaction). This covers accidents in nuclear reactors, 'criticality' situations in fuel cycle facilities, nuclear explosions, etc.

(ii) All other emergency situations which have potential hazard of radiation exposure due to decay of radioisotopes are classified as radiological emergencies



The International Nuclear Event Scale (INES) is a means for promptly communicating to the public, in consistent terms, the safety significance of events reported at nuclear installations. BY putting events into proper perspective, the Scale can ease common understanding among the nuclear community, the media and the public. It was designed by an international group of experts convened jointly in 1989 by International Atomic Energy Agency (IAEA) ant the Nuclear Energy Agency (NEA) of the Organisation for Economic Cooperation and Development.

The communication process has therefore led each participating country to set up a structure which ensures that all events are promptly rated using the INES rating procedure to facilitate communication whenever they have to be reported outside. Events are classified on the scale at 7 levels, the upper levels (4-7) are termed 'accidents' and lower levels (1-3) 'incidents'. Events which have no safety significance are classified below the scale at level 0 and are termed 'deviations'. Events which have no safety relevance are termed 'out of scale'.

3.4 Reasons for Radiation Disasters

The nuclear emergency scenarios at various nuclear fuel cycle facilities may arise due to failure of multiple barriers, which include systems, equipment, and human errors. Though the possibility is remote, criticality situations may arise due to breach of safety procedures that lead to vital changes in system parameters like mass, volume and shape. All this could be dangerous to people working in close vicinity. The effects of these may confine usually to facilities, at time spreading to a small area surrounding the facility.

Terrorist use of a radiological dispersion device (RDD) often called "dirty nuke" or "dirty bomb" – is considered far more likely than use of a nuclear device in a war. These radiological weapons are a combination of conventional explosives and radioactive material designed to scatter dangerous and sub-lethal amounts of radioactive material over a general area. Such radiological weapons appeal to terrorists because they require very little technical knowledge to build and deploy, compared to a nuclear device. Also, radioactive materials, used widely in medicine, agriculture, industry and research, are readily available and easy to obtain, compared to weapon grade uranium or plutonium. Use of a nuclear device would probably be limited to a single smaller "suitcase" weapon.

Commercial nuclear reactor uses low grade nuclear enriched Uranium (four per cent U235) which can not explode like an atom bomb. Melt down may take place when a reactor 'melts' i.e. uranium fuel rods start to liquefy. In a commercial nuclear reactor, the chain reaction generated is controlled and there are stringent checks and counter

checks, to prevent leaks. Elaborate arrangements exist to take remedial measures within the complex, including immediate, short and long term. The responses are checked periodically to test the standard operating procedures. But errors do occur. In its long history of 67 years since 1938 when fission was first discovered, the problem of controlling this technology has been of central importance to the human race.

There is no way of knowing how much warning time there would be before an attack by a terrorist using a nuclear or radiological weapon. A surprise attack remains a possibility. If intelligence reports envisage threat of a nuclear bomb strike by terrorists, people living near potential targets could be advised to evacuate or they could decide on their own to evacuate to an area not considered a likely target. Protection from radioactive fallout would require taking shelter in an underground area, or in the middle of a large reinforced concrete building. But with the 'dirty bomb' in the hands of anti- national elements, no area in the country is safe.

As India's nuclear energy programme grows in both the power and non-power sectors, the radiation emergency management approach has to be so formulated that the radiation exposure to occupational workers and the public and the release into the environment are not significantly beyond the permissible limits.

3.5 Radiation Dose Limit

Presently the nuclear facilities, including those handling radioactive sources , are following the dose limits are given by ICRP in its report, ICRP-60, in 1991. With mirror modifications, these recommendations have been accepted by AERB and are in force in our country since 1991. The dose limits prescribed by ICRP in its report for application in occupational exposure are summarised in Table below:

Dose Limits	Dose Limits	
	Occupational	Public
Effective dose	20 mSv per year averaged over defined period of 5 years	1 mSv in a year
Annual equivalent dose in the		
• Lens of the eye	150 mSv	15 mSv
• Skin	500 mSv	50 mSv
• Hands and feet	500 mSv	-

Note 1: The limits apply to the sum of the relevant does from external exposure in the specified period and the 50-year committed dose (to age 70 years for children)from in takes in the same period.

Note 2: With further provision of ICRP that the effective dose shall not exceed 50 mSv in any single year, AERB has put a further restriction in India that effective dose shall not exceed 30 mSv in any single year. However, all other restrictions of ICRP apply.

3.6 Effects of Nuclear Radiation

Health Effects

The exposure to large doses of radiation or due to deposition of radioactive material externally or internally within the body may lead to injuries or radiation effects which manifest immediately or during the life time of an individual (such individual effects are called somatic effects) or hereditary effects, which may appear in the future generations. Immediate somatic effects could be radiation sickness, death of the individual and early or late expression of damages in radiosensitive organs. Such effects are termed as deterministic effects (Table 2) and include haematopoietic syndrome, gastrointestinal syndrome, Central Nervous System (CNS) syndrome, pneumonitis, cataract, sterility, skin erythema, skin burns, etc. Exposure during pregnancy can result into prenatal death, neonatal death, mental retardation, childhood cancer, etc. Induction of cancer and genetic disorder in the progenies of the exposed are the two main stochastic effects, (which do not have threshold of dose as the case with deterministic effects).

Early Effects of Radiation

- **Psycho-Social Effects**

Radiation exposure in a radiation accident or nuclear can result in numerous psychiatric disorder in exposed individuals, depending upon the type of accident distance of the patient from the site of the accident, etc. Common post-disaster disorder include anxiety, Acute Organic Brain Syndrome, Post Traumatic Stress Disorder (like flashbacks, nightmares, irritability, dysfunction in normal routine, etc.), depression, numbness, acute burst of fear, panic, or aggression,.

Dose (Gy)	**Effects**
Up to 1.5	No short term effects
1.5-2;5	Nausea and vomiting within 3-6 hours, lasting up to 24

	hours. Symptoms re-appear 10-14 days after irradiation and last for 4 weeks.
2. 5-3.5	Nausea and vomiting within 1-6 hours, lasting for 1-2 days. Symptoms re-appear 1-2 weeks after irradiation and last up to 6 weeks. Fatalities: 30 %.
3. 5-6	Nausea and vomiting within 1-6 hours, lasting for 1-2 days. Symptoms re-appear 1-4 weeks after irradiation and last up to 8 weeks. Fatalities: 30-90 % within 2-12 weeks.
6=10	Nausea and vomiting within 15-30 minutes, lasting for 2 days. Fatalities: 90-100 % within 1-6 weeks.
10-25	Nausea and vomiting within 5-30 minutes; no latent period at higher doses. Fatalities: 100 % within 4-14 days.
25	Immediate nausea and vomiting. Fatalities: 100 % within a day or two.

Chapter IV Vulnerability Assessment and Risk Analysis

4.1 Introduction

Disasters impede socio-economic development. Disasters affect population where there is physical, infrastructural, environmental or socio-economic vulnerability. The higher the individual and other vulnerabilities, the higher are the risks. A comprehensive understanding of the pattern of various hazards is crucial in order to have a focus and prioritise the scarce resources for ensuring sustainable development in areas and populations at risk. Similarly, identification of various disasters and the assessment of the consequent effects of such disasters are essential to adopt preventive, preparedness, response and recovery measures to minimise losses during disasters and ensure quick recovery. For a highly populous state like UP, it is essential to ensure that vulnerability and risk reduction aspects are taken into account for all developmental plans and programmes.

Effective risk management requires information about the magnitude of the risk faced (risk assessment), and on how much importance society places on the reduction of that risk (risk evaluation). Qualification of the level of risk is an essential aspect of both preparedness planning and mitigation.

There are three essential components to the quantification or estimation of risk:

- Hazard Occurrence Probability: the probability of occurrence of a specified hazard at a specified severity level in a specified future time period.
- Elements at risk: an inventory of those people or things which are exposed to the hazard
- Vulnerability: the degree of loss to each element should a hazard of given severity occurs

4.2 Hazard Occurrence Probability

With increasing use of nuclear technology for various purposes including generation of power, advanced medicine etc, use of radioactive materials has increased considerably and will continue to do so. There is a nuclear plant at **Narora** and for reasons ranging from research, to **applications** in life threatening diseases like Cancer, the use of radioactive isotopes has increased. A radiation disaster can occur due to an accident or deliberate attempt. The nuclear emergency scenarios at Narora Power Plant, Cancer Institutes, and Industries may arise due to failure of multiple barriers, which include systems, equipment, and human errors. Though the possibility is remote, criticality situations may arise due to breach of safety procedures that lead to vital changes in system parameters like mass, volume and shape. All this could be dangerous to people working in close vicinity. The effects of these may confine usually to facilities, at time spreading to a small area surrounding the facility.

Chances of hazard occurrence at the Narora Power Plant are very remote as the plant has all the inherent safety features in the design of the nuclear reactors. The reactors are placed in the double wall buildings making it safe. The plant is has the ISO 14001/17025 and IS 18001 certification. According to officials, the safety is accorded overriding priority in all the activities. The nuclear facility is sited, designed, constructed, commissioned and operated in accordance with strict quality and safety standards. Principles of defence in depth, redundancy and diversity have been followed in the design of the nuclear reactors and their systems/components. The regulatory framework by Atomic Energy Regulatory Board (AERB) is being monitored and all the safety provisions are being enforced.

Hazard occurrence from other industries and hospitals using nuclear devices is also very remote as these equipments have inherent safety features.

There is very high possibility of use of 'dirty bombs' by the terrorist groups in the state, specially at the time of festivals and Kumbh Mela.

4.3 Elements at Risk

The Narora Plant is situated at the borders of district Badaun, Bulandshar and Aligarh. As per the information provided by the Power Plan officials, 1.6 Sq. Km. of plant area is exclusive areas where entry is prohibited for the local population or outsiders. The 5 Sq. Km. area around the plant is sterilised area where no new habitation is allowed and old habitations are persuaded to move to other areas. The impact area is marked 16 Sq. Km. of the plant area. The entire area is divided into 18 zones for management of emergencies. There is on-site as well off-site emergency plans are available and district Collector of Bulandshahar district is the Incident Commander in the event any mishap. Regular mock-drills are being organised within the Plan and outside in the villages to educate the masses. In case of any emergency the entry and exit of the population is regulated. Propeledic Iodine (Potassium Iodide) tablets are available at the plant and has been made available in all the PHCs and Sub-Centre in the 16 Sq. Km. area.

However in the event of a radiation disaster, 1150 employees of the Plant and about 900 contractual workforces may be affected. Besides the population within the plant, a population of about 10,000 from the surrounding areas (emergency planning zones of 16 sq. km.) may be affected.

Though the dirty bomb will itself not affect large areas, but disruption due to such explosions may lead to stampede which will result into large causalities if the act of terrorism is done in densely crowded place or festival and functions.

4.4 Vulnerability

The degree of loss would depend on various factors including direction of air, type of disaster, amount of radiation, etc. However, hundreds of workers and pupation living in the vicinity of the plant will be subject to radiation above the permissible limit. In case of radiation in the industries and hospital the impact would be limited to a few hundreds.

Following is the list of Major Cancer Institutes and Medical Colleges which use the Radiological Instruments and Radiation Therapy. This may pose threat to the workers, patents and medical staff in the hospital premise. However the probability of such accidents is very low due to safety considerations taken while designing these equipments.

S. No	Name of the Hospitals /Cancer Institutes	District
1	Kamla Nehru Memorial Hospital	Allahabad
2	Laxmi Pannalal Radium Institute, S.N. Medical College	Agra
3	J.K. Cancer Institute, C.S.V.M. Medical College	Kanpur
4	K.G. Medical College & Hospital	Lucknow
5	Sanjay Gandhi Post Graduate Institute of Medical Sciences	Lucknow
6	Indian Rly. Cancer Institute & Research Centre	Varanasi
7	Institute of Medical Sciences, Banaras Hindu University	Varanasi
8	J.N. Medical College & Hospital, A.M.U.	Aligarh
9	Lala Lajpatrai Memorial Medical College	Meerut
10	Hanuman Prasad Poddar Cancer Hosp. & Res. Centre	Gorakhpur
11	Keshlata Cancer Hospital Delpar	Bareilly
12	Kamyani Patient Care (I) Ltd.	Agra
13	Dharam Shila Cancer Institute	NOIDA

List of Major Fertiliser Industry in the State

Name of the Plant	Location
Tata Chemicals	Babrala, Badaun
IFFCO	Aonla, Barielly
KRIBHCO Shyam Fertilisers	Shahjahanpur
Fertiliser Corporation of India	Gorkahpur
Duncuns Fertilisers Ltd	Kanpur
Indo-Gulf Fertilisers	Sultanpur
Meerut Agrochemicals	Meerut
IFFCO	Phulpur, Allahabad

Location of Major Fertiliser Plants in the State

Chapter V Preventive Measures and Preparedness

5.1 Approach for Prevention and Preparedness

Three major functional areas were recognised as necessary components of a comprehensive approach: prevention, response and recovery. The tragedy and the lessons learnt from the past have changed the mindset and the focus of disaster management has shifted from "Rescue, Relief and Restoration" to "Planning, Preparedness and Prevention".

Within these areas, the key responsibilities of agencies include:

- Planning: the analysis of requirements and the development of strategies for resource utilisation.
- Preparedness: the establishment of structures, development of systems and testing and evaluation by organisations of their capacity to perform and their allotted roles.
- Co-ordination: the bringing together of organisations and resources to ensure effective disaster management.

Through proper planning and preparedness, radiation disasters, be they natural or man-made, can be prevented or mitigated. Different aspects of BDM are: prevention, mitigation, preparedness, response, relief, rehabilitation and recovery. All important stakeholders including Atomic Energy Regulatory Board, Ministry of Science and Technology, State Departments, NGOs along with the community, medical care and public health professionals shall prepare themselves to achieve this objective. The preparedness and response plan is to be drawn at the centre, state and district levels with the role and responsibilities of various stakeholders clearly outlined.

5.2 Measures for Prevention and Preparedness for Radiation Disasters

As the nuclear technology is advancing, the chances of radiation disasters has been minimised to a commendable extent. Modern Nuclear Plants are equipped with technology which has negligible scope for errors.

5.2.1 Strategy for Radiation Disaster Management

- Support the nuclear emergency management framework on some prominent mainstays of strength like prevention, mitigation, compliance with regulatory requirements, capacity building etc.
- Strengthen the existing legal framework through various legal and regulatory means
- Institutionalise the Disaster Management framework by identifying various agencies with their respective responsibilities in a people-centric, top-down

approach in case of a nuclear disaster arising either from a large-scale release of radioactivity from a nuclear facility or from a nuclear weapon attack.

- Implement the nuclear emergency management framework through close monitoring of the existing action plans or those to be prepared at the national, state and district levels.

5.2.2 Plant Facility Emergency

In the 'Plant Facility Emergency', the accidents are expected to be limited to the plant facility only. Guidelines to the District Collectors will be issued to ensure adequate safety measures to save workers and machinery.

5.2.3 Site Emergency

The second type, the 'Site Emergency', wherein the consequences of an accident are not expected to cross the site boundary i.e. 'Exclusion Zone', which means that there will be no radiological emergency in public domain. It will ensured that the response plans that are approved by highest nuclear authority. They are tested during exercises and drills and corrective measures taken. As part of trigger mechanism, the Crises Management Group in Department of Atomic Energy (DAE) is automatically alerted even when a 'Plant Emergency' exercise takes place. This is repeated even in a 'Site Emergency' exercise.

5.2.4 Off Site Emergency

For the last type of emergency, which is highly unlikely, detailed response plans have been drawn up at the Narora Plant. The local district administration crisis management group will be involved only in this last type of Emergency. Narora Plant officials are carrying out the mock drills with help of local administration involving health department. Till date 9 such exercises have been carried out.

In case of transport of nuclear material, mandatory design specifications for the packaging, systems and procedures for handling and transport is in place, to ensure that there is no release of radioactivity in the public domain, in the unlikely event of such an accident.

It is, however, recommended that for monitoring the movement of radioactive material, global positioning system (GPS) or equivalent gadget should be used by the transporting vehicle as well as sending and receiving agencies and the ECR.

The important means for prevention against Radiation Disasters include the following:

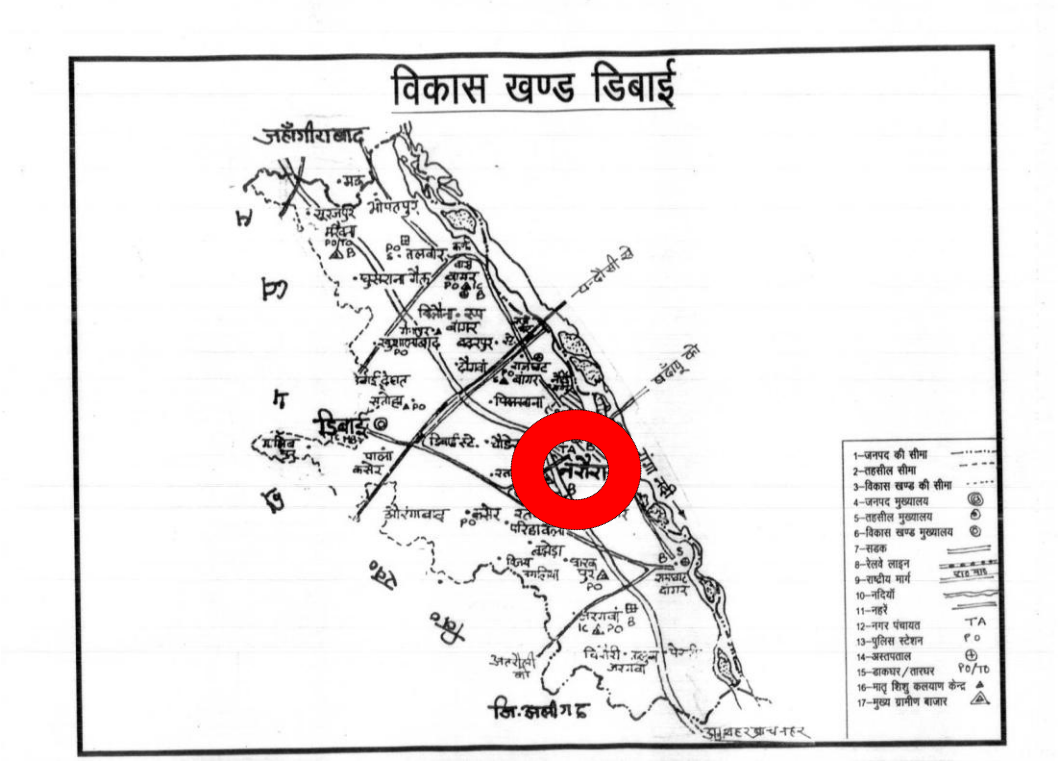
5.2.5 Medical Preparedness

There is fully manned first-aid facility with a mobile medical van in the Plant to respond to radiation disasters. Potassium Idote tablets are available with all the PHCs and Sub Centres including Plant Premise. However, there is no advance laboratory facility in the districts adjoining the plant. Following medical facilities are proposed to be created in the Narora district hospital:

1. Creation of Decontamination Room
2. Nuclear Ward fitted with Dust-Filter
3. Radioactive Bio-Waste Disposal Facilities
4. Radio Bio-Dosimetry Laboratory having Facilities like Fluorescence in-situ Hybridization (FISH) to Study Chromosomal Aberration
5. Haematology Laboratory with cell Separator for Granulocyte Concentrate Genetic Laboratory
6. Molecular Laboratory
7. Immunology Laboratory
8. Bone Marrow Bank, Bone Marrow Transfusion and Stem cell Harvesting Facilities

5.3 Resource Inventory

Base map of Debai Block where Narora Plant is Located



There is severe lack of trained manpower to respond to radiation disasters. First Responder such as Medical Team, Police Force, Revenue officials have not been trained in the handling of emergency situations.

List of Equipment and Emergency Personal Available with the UP Government

Item Name	Qty	Item Name	Qty
Communication		**Rescue**	
GPS Handsets	27	Control Van	6
Mobile Phone GSM	19982	Hydraulic Platform	4
Mobile Phone CDMA	776	DCP Tender	5
INMARSAT	1	Hazmat Van	1
Mini-M3	10	Extension Ladder	339
V-SAT	13	Clothing - Chemical protective (A, B, C)	66
Video Phone Set	2	Suit - NBC	2
VHF Sets Static	2669	Basket Stretcher	83
VHF Sets Mobile	1724	Pneumatic Rope Launcher	6
UHF Sets Static	103	Defibrillator	26
UHF Sets Mobile	24	Mechanical ventilators	78
Willkie Talkie Sets	2858	Fire Tender	225
HF Sets Static	127	Foam Tender	34
Transport		Rescue Tender	25
Bus	3988		
Tractor	242732	**Drinking Water**	
Trailer	4788	Water Tanker - Medium capacity	2065
Heavy Truck	6357	Water Tanker - Large capacity	133
4 wheel drive vehicle	38104-	Water filter	4240
Matador	613	Water tank	131888
Truck	13765	Reservoirs treatment tank	29
RTV	4068		
Mini Bus	962		
Light Ambulance Van	432		
Medium Ambulance Van	226		
Equipment Toeing Tender	29		
Mobilization Truck	74		

Health Infrastructure of Uttar Pradesh

Particulars	Required	In position	Shortfall
Sub-centre	26344	20521	5823
Primary Health Centre	4390	3660	730
Community Health Centre	1097	386	711

Particulars	Required	In position	Shortfall
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

The other Health Institution in the State are detailed as under:

Health Institution	Number
Medical College	16
District Hospitals	74
Ayurvedic Hospitals	1768
Ayurvedic Dispensaries	340
Unani Hospitals	204
Unani Dispensaries	49
Homeopathic Hospitals	1
Homeopathic Dispensary	1482

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

There are specialized medical institutions like Sanjay Gandhi Post Graduate Institute of Medical Sciences situated at Lucknow, which have all the testing facilities including the advanced ones as well, but this is one of its kind and is already under severe pressure. More such centres spread over Uttar Pradesh should be settled which take lead in case of disasters.

5.4 Roles and Responsibilities for Preparedness and Mitigation

Lay down policies and plans for Radiation Disaster management in the State.	U.P. Disaster Management Authority (UPDMA)
Provide policy directions and integration of Disaster Management programmes in the state development framework.	U.P. Disaster Management Authority (UPDMA)

Maintain record of the disaster inputs for the CRF planning. Ensure that the agreed percent is allocated for the vulnerability reduction fund. Deployment of calamity relief fund	Calamity Relief Fund Committee (CRFC) Department of Revenue
Capacity Building of Medical and Para-medical staff, Police, Civil Defence and Revenue staff	Department of Medical Health and Family Welfare Department of Home Uttar Pradesh Academy of Administration and Management (UPAAM)
Implementation of State Disaster Management Plan on Radiation Disaster	State Executive Committee for Disaster Management (SEC)
Community Awareness on Radiation Disaster	Department of Medical Health and Family Welfare Department of information
Establishment of Laboratories and Procurement of necessary items	Department of Medical Health and Family Welfare
Maintenance of Stock piles including antidotes and medicines	Department of Medical Health and Family Welfare
Security of Nuclear Power Plant and Institutions using radioactive materials against Radiation Disaster	Department of Home
Inspection and Safety measures at the Industrial Units using radiation emanating devises	Directorate of Factories
Safety Audits of the hospitals using radiation therapy	Department of Health and Family Welfare
Early Warning System, dissemination of education and awareness messages for preparedness actions and coordinated response. Establishment of emergency communication systems	Department of Information Department of Home Department of Health and Family Welfare
Funds for Training and Capacity Building	Department of Planning Department of Revenue
Training of PRIs on Radiation Disaster	Department of Panchayati Raj Institutions

List of Instruments and Equipments, and Protective Gear for Specialised Response Teams

S. No.	Equipment and Instruments
1	Ambulance with radiation monitoring and decontamination facility
2	Portable Gamma ray spectrometer for isotope detection
3	Requirement for aerial survey monitoring (a) Aerial monitoring system (b) Monitors, protective equipment, PC/laptop, etc.
4	Environmental Radiation Monitor with Navigational Aid (ERMNA) with monitoring vehicle
5	Alpha, beta and gamma counting setup
6	Digital dosimeter
7	GPS for monitoring van
8	T.L. dosimeter
9	Portable contamination monitor
10	CBRN suit with respirator, rubber clothes, gloves and gum boots
11	Dust mask
12	Comfo respirator
13	Decontamination kit including monitoring facility
14	Potassium Iodide/ Potassium Iodate tablets
15	Operational manuals for all equipments training and guidance literature
16	Protective coverall, cotton gloves, caps, socks and shoes
17	Electric Generator
18	Torch
19	Binoculars
20	Miscellaneous sampling kits: (a) Charcoal papers and cartridges (for iodine sampling/ protection) (b) Plastic sheets (for packing of contaminated material) (c) Spare batteries
21	Micro R survey Meter
22	Mini Rad meter
23	GM Survey meter
24	Teletector
25	Portable Alpha Contamination monitor
26	First Aid Kits
27	Radiation tags/symbols
28	PA system
29	Battery operated air sampler with filter paper
30	Cordoning tape
31	Tongs (2 ft) lead flask of 1” thickness and 2” diameter
32	Breathing apparatus set with spare cylinders

Chapter VI Response

6.1 Response Management Arrangements

The response management task is to optimise the outputs, given the resource constraints. Response management is based on the three key management tasks of command, control and coordination. These roles and responsibilities are defined as follows:

Command depicts the hierarchical managerial order. It elucidates the type and amount of resources that would be handled at different levels in the performance of that organisation's roles and tasks.

Control provides the direction for best possible utilisation of resources and most advantageous deployment of manpower. Control system will be developed on the basis of laid down policy of the Govt.

Coordination involves the bringing together of agencies and elements to ensure effective response to emergencies. It is primarily concerned with the systematic acquisition and application of resources (agencies, personnel and equipment) in accordance with the requirements imposed by emergencies. Co-ordination aims at bringing out synergy in operation.

Support Agency is defined as a government or non-government agency, which provides essential services, personnel, or material to support or assist a control or another support agency or persons affected by an emergency.

6.2 Short Term Response

Response to Radiological Emergencies

Short-term response plan contains the actions to be taken immediately after a disaster. Once information reaches designated officers, it has to be verified soon for authenticity. Once the information is found correct, it has to be reported to the Incident Commander who will take the following actions:

1. Disseminate warning/alert to the potential victims
2. Disseminate information to vertical and horizontal administrators for Disaster management
3. Declare disaster based on severity / vulnerability

For off-site nuclear emergencies at all nuclear power plants/facilities, the district collector of the affected area will take charge as the incident commander. The collector himself will be responsible for this task and will not delegate responsibility to anyone lower. Similarly, for radiological emergencies at metros/big cities, the state

authorities will nominate in advance an accident commander specifically for handling radiological emergencies, if any, and this task will not be then delegated to anyone lower.

NEC will ensure that the functions and responsibilities of the nuclear facility operators and response organisations are clearly defined and understood by all stakeholders. The MHA and the NEC will also determine the actions that need to be performed by each organisation during an emergency and whether it has the necessary resources and capabilities needed for the purpose. The advice of NCMC will also be sought in this matter.

Based on the guidelines of NDMA, NEC will evolve an overall pattern for development of the response capacity to be built up for various emergencies/disasters including nuclear ones. Such a capacity will developed at he the community, district, state and NEC levels. NCMC will have a significant role to play in planning, preparedness, and response to a large scale nuclear emergency/disaster. The national disaster response plans will be developed by NEC in consultation with all stakeholders and guidance of NDMA. The national plan will clearly identify the responsibilities for each level of nuclear emergency/disaster. The NCMC will be kept informed of all developments to enable them to intervene, if required at any stage. The national plans will be intergraded with the state plans for efficient transition from a particular level of emergency/disaster to the next, if the need arises.

The structure of the capacity will developed on a brick system so that the capacity developed at various levels is complementary to one another, thereby increasing the national capacity for relief operations.

Based on the regulatory guidelines for nuclear emergency preparedness, the concerned nuclear facilities have their own detailed emergency response plans and procedures for handling plant and site level emergencies. All emergency response plans and procedures are periodically reviewed and updated.

In the event of the competent authority in the country receiving information about an incident elsewhere, which might have the potential of radiological impact within India, the national nuclear/radiological emergency plan would be activated.

In accordance with international commitments, information will be provided to the concerned authorities/agencies in the event of trans-boundary effects of a major incident.

All nuclear facilities have their emergency response committees comprising experts from within the facility which is headed by the head of the facility who is also identified to handle the nuclear emergency. This committee ensures mitigation of the consequences of the emergency situation, notification and communication to district authorities and CMG of DAE.

The driver of the vehicle carrying radioactive material, or the person in charge of the convoy, will carry a TERM CARD issued by the concerned regulatory authority that will have details about handling of any accident that may occur during transportation. The CMG of DAE is the nodal agency which is activated in case of any accident during the transportation of radioactive material.

Warning

In case of the emergency beyond control at site (Narora Plant) the site in-charge informs the District Collectors of the adjoin districts. After the assessment he would declare the off-site emergency and reported to the AERD. In side the plant siren is blown and communicated to each village through phone and PAS.

There is no such system in the cancer hospitals, scan centres that also use radioactive machines. Communication system to report such incident to the district collector will be established in each district.

Response Plans

State

At the State level, the Crisis Management Group, chaired by the Chief Secretary with representatives of emergency services, other relevant organisations, which focus on specific aspects of response planning will be the apex body. The Group will be responsible for the State Emergency Response Co-ordination on:

- The level of response preparedness;
- Development of detailed planning and co-ordination arrangements; and
- Policy guidance and planning support for the district level institutions.

District

Each of the Collectors in the 71 districts will function as the District Coordinators and in-charge of response co-ordination. The District Collector will be responsible for: the preparation of a District Contingency Plan (Response Plan), and establishment of a district response planning committee.

Each district shall have a response planning committee, chaired by the District Collector as co-ordinator, with memberships drawn from various line departments,

district-level personnel of emergency services specially armed forces and local intelligence departments/offices. The role of the district committee will be:

- Prepare and maintain a district response plan;
- Report on the level of response capability for the district to the UPDMA for handling nuclear emergencies;
- Ensure the operationalisation and review of district plans;

Operational Coordination

Emergency response is based on a set of arrangements, which are in position at all times. Accordingly, there is no need for activation of response. *Agencies* or *strategies* may be activated when a need is evident. However, to ensure effective, efficient, quick and coordinated response, the plan shall include dates of drills and practices for various emergencies and a review report on the efficiency and performance of such drills.

Emergency response arrangements in case of radiation disasters operate in respect of any emergency, no matter how small, in which more than one organisation are involved. Under response arrangements, primary responsibility rests at the district level.

Under response arrangements, incident control is vested in the department of Revenue that will be primarily responsible for responding to specific emergencies. Support agencies that would include Department of Home, Department of Transport, Department of Health and Family Welfare, Department of Animal Husbandry provide services, personnel or material to support or assist control agency or affected persons.

In the event of radiation emergencies, the CMG will;

- Contact AERD, NDMA and BARC and seek their assistance for assessment and in response to the disaster.
- Contact National Disaster Response Force and Para-military forces such as Industrial Security Force, who have been trained in handling such situations.
- Ensure that effective control has been established in responding to an emergency;
- Ensure effective co-ordination of resources and services;
- In the event of uncertainty, determine which agency is to perform its statutory response role within a district or other specified area, where more than one agency is empowered to perform that role;
- Arrange for the provision of resources requested by control and support agencies;
- Review and dispatch situation reports;
- Ensure that consideration has been given to:

- Alerting the public to existing and potential dangers arising from a serious emergency direct or through the media;
- Any need for evacuation.
- Advise recovery agencies of the emergency.

Evacuation

Radiation disasters will require evacuation of staff and in cases where it spreads to areas surrounding it – may require evacuation of communities. It is important to understand the nature of threat and the procedures to be adopted. All agencies involved in evacuation must have a common understanding of their roles and responsibilities in order to avoid confusion and panic behaviour. Different situations demand different priorities and hence the responsibility for ordering evacuation is assigned to different agencies. The evacuation work will be conducted by only trained personnel wearing protective gears to avoid contamination and impact on the rescue and response teams.

The evacuated persons will be kept at an isolated place before being transferred to camps. Checks will be conducted to assess whether the population that is being evacuated are contaminated or not.

All evacuations will be ordered only by the Collector. For appropriate security and law and order evacuation should be undertaken with assistance from community leaders.

Depending on the scale of radiation disaster, people in the surrounding area may be asked to stay indoors or evacuate the area.

The following steps should be taken for evacuation:

- Ensure proper evacuation by seeking community participation
- Families should be encouraged to take along water, food, clothing and emergency supplies to last at least three days
- People should listen to a battery-powered radio and follow local instructions
- In case of marooned persons, evacuation must be carried out as soon as possible and the persons transferred to transit camps. If evacuation is not possible within 3 hours of the disaster, marooned people must be provided with water, medicines, first-aid and cooked food. Emergency transport for the seriously injured can be arranged through speed boats or helicopters. A senior medical officer should accompany the rescue team along with required medical kits and ensure priority shifting of those seriously injured or requiring immediate medical attention.

Legal and Operational Considerations

- The designated response agencies will make an assessment of the situation and will recommend evacuation and assist evacuation of affected people through a safe and efficient evacuation process with the support of radiation experts from BARC, NDMA, DRDO etc. The decision to recommend that people evacuate will rest with the CMG and District Collectors, in conjunction with police and other expert advice, unless time constraints prevent this consultation.

6.3 Emergency Response Structure

Declare emergency situation in case of State level disaster and the end of it.	U.P. Disaster Management Authority (UPDMA)
Department of Revenue and Relief	Overall coordination, implementation of the EOC activities and documentation and reporting to the CMG.
Deployment of Team of Experts from State Head Quarters	Department of Medical Health and Family Welfare
Monitoring Emergency Plans	EOC Department of Medical Health and Family Welfare
Maintenance of public infrastructure, safer places for evacuations and isolation of victims	Department of Public Works (PWD)
Security, evacuation, emergency assistance, search and rescue, first aid, law and order, communication, shifting of people to hospitals, traffic management and burial work of dead bodies.	Department of Home Civil Defence Para Military Forces
Power supply for public facilities such as hospital, police stations, telecommunication building and meteorological stations.	Department of Power and Energy
Critical communication links with disaster sites	Department of Information and Communications
Arrangement of Ambulances, medical care, staff, medical professionals, equipments, vaccines, medicines and para-medical staff	Department of Health
Financial Arrangements	Department of Revenue
Fodder needs assessments, supply and management during disaster	Department of Animal Husbandry Department of Panchayati Raj District Administration

Ensure that Standard Operating Procedures are adhered to	Department of Health
Management of the disaster at district level including mobilising resource, recovery and implementation of district disaster management plan	The District Disaster Management Authority (DDMA), International Agencies/NGOs
Transport and vehicles arrangements for evacuation, rescue and relief	Department of Transport
Assistance in response	NGOs and INGOs

6.4 Disaster Management during Post - Disaster Phase

The post-impact Disaster Management will include the following tasks:

- Assessing primary and secondary impacts in the affected and in adjacent locations
- Monitoring immediate assessment of physical, environmental, social, economic, and psychological impacts on various socio- economic groups at affected locations;
- Monitoring emergency response activities at different levels including rescue, food relief, medical aid, emergency shelter, emergency needs of vulnerable individuals/ families /social groups,
- Monitoring quality of emergency response activities and quality of relief aid provided;
- Monitoring deployment of emergency agencies and equipment;
- Monitoring role of external/non-government agencies involved in emergency management process;
- Documentation of all response activities and compilation of data/information for rehabilitation and recovery activities
- Management of necessary data and information for post-impact rehabilitation/recovery planning;
- Monitoring all recovery/rehabilitation activities carried out by different departments and agencies; and
- Documentation of response and recovery activities for learning.

Chapter VII Recovery Plans

The State Disaster Recovery Plan places the affected community as the focus of recovery management and provides a structure for the management of all the inputs into the recovery process in a way that is appropriate to the needs of the community.

7.1 Definitions of Recovery

Recovery can be defined as "the assisting of persons and communities affected by emergencies to achieve a proper and effective level of functioning". Recovery is an enabling and supportive process that allows individuals, families and communities to attain a proper level of functioning through the provision of information, specialist services and resources. Recovery includes all aspects of mitigation and also incorporates the continuation of the enabling process, which assists the affected persons and their families not only to overcome their losses, but also to achieve a proper and effective way to continue various functions of their lives. The Recovery process is therefore a long-terms process in which everyone has a role – the Government including the self-government institutions, the NGOs, and especially the affected people, their families and the community.

7.2 Recovery after a Radiation Disaster

In case of a radiation disaster, the effect is very much localized. The affected people can quickly be moved to safer areas. Assistance is required in terms of providing temporary shelter, food, other basic necessities and ensuring that they are immediately provided medical care.

7.3 Recovery Management at State Level

The Relief Commissioner will be in charge of recovery management at State level. Its overall responsibility will be:

- Develop policy issues on recovery management;
- Conceive and solicit programmes from Govt. departments, district administration and NGOs;
- Prioritise projects. Decide on the terms and conditions of execution. Mobilize resource for operations;
- Liaise and co-ordinate with the implementing agencies;
- Facilitate and Monitor operations;
- Suggest norms for the recovery projects at GP and Block level;
- Represent the Government in the affected community;
- Present the interests, concerns and needs of affected communities to the State Government; and
- Support the local management of recovery by ensuring State co-ordination of resources from all sources;

7.4 Components of Recovery Plan

Medical Treatment

- Medical treatment would be provided to those suffering from radiation sickness.
- Treatment for acute radiation syndrome would include the prevention and treatment of infections, stem cell and platelet transfusions, psychological support, and careful observation of skin injury, weight loss, and fever.
- Exposed and contaminated people will be safely handled by **trained responders and medical personnel**. If people ingest or inhale fallout, treatment could include the use of various diluting or mobilizing agents that help rid the body of radioactive elements. Potassium iodide or KI pills are not a general cure-all; they are only effective in blocking the uptake of inhaled or ingested radioactive iodine into the thyroid gland if taken before or just after inhalation or ingestion.

Monitoring and Clean-up of Affected Areas

Clean-up activities would focus on areas near ground zero contaminated with long-lasting radioactive isotopes, such as certain plutonium and uranium isotopes. There are temporary measures that can be taken to "fix" radioactive materials in place and stop the spread of contamination.

These include "fixative" sprays such as flour and water mixtures, road oil, or water that can be used to wet ground surfaces. In the days and weeks following the attack, officials will:

- Establish a plan for careful monitoring and assessment of affected areas.
- Impose quarantines on contaminated areas as necessary to prevent further exposures.
- Remove contamination from areas where people might continue to be exposed.
- Keep citizens informed about the situation.

Control of Contaminated Food Supplies

Public health officials should be able to identify contaminated water and food, such as milk and produce, and replace them with clean food from outside the area.

Chapter VIII Capacity Building

8.1 Capacity Building for Preparedness

The important components of preparedness would include planning, evacuation plans, capacity building, well-rehearsed hospital DM plans, training of doctors and paramedics, and up-gradation of medical infrastructure at various levels to reduce morbidity mortality. The primary objective of preparedness is to have a better response mechanism from all stakeholders, that is, participation of health officials, doctors, various private and government hospitals, and the public at the national, state and district levels. Central and state government health departments also need to be equipped with state-of-the-art tools for rapid curtailment of radiation disaster.

8.2 Components of Capacity Building

The incident command system needs to be encouraged and instituted so that the overall action is brought within the ambit of an incident commander who will be supported by logistics, finance, and technical teams etc. Emergency Operation Centres will be established in the Department of Home with an identical nodal person as Director (Emergency) for coordinating a well orchestrated response.

8.3 Capacity Development for Radiological Emergencies

The UP Disaster Management Cell with active support of Ministry of Home Affairs, GoI, Ministry of Home, Government of Uttar Pradesh, UP Education Board and CBSE will introduce relevant curricular activities in the schools and colleges to build the capacity of students on radiological related disasters.

The responsibility for awareness generation, education and training of the community will rest with DDMAs and SDMA including the local bodies along with the nuclear installations, industries using radioisotopes, user hospitals of radioisotopes, institutions involved in radiation research and DM authorities at the district and state levels.

For community participation programmes to be successful, nuclear facility operators will involve the agencies like civil defence, fire services, health, NGOs, and youth organisations like NCC, Nehru Yuva Kendra and NSS as part of their emergency management programme.

The various first responder groups at the state like police force, civil defence personnel, disaster, medical teams, etc. will be trained extensively on radiation disaster related issues and management through the regular courses conducted by CBRN trained personnel of the NDMA, with assistance from agencies like BARC, AERD

and DRDO. There will be regular refresher courses to keep them up to date with new developments in the field of nuclear safety and security.

With assistance from NDMA the state level administrative personnel from the department of home, police, health and family welfare, Jal Nigam, rural development, animal husbandry and other relevant departments of the state governments will be trained in various aspects of the management of radiation disasters, including its preparedness and response requirements. It will be a part of the training curriculum of the comprehensive disaster management in the state.

In case of emergencies, all information to the media will be routed through the district information officer under the supervision of district collector and Crisis Management Group at the state level.

Since the number of radiation applications in medicine, industry, agriculture, and research will significantly increase in the coming years, AERB is considering establishing regional regulatory centres/authorities to handle the increased volume of regulatory work by decentralising and delegating regulatory powers to these regional centres.

While the regulations are largely comprehensive, the AERB will continue to review its codes and standards in the light of emerging new technologies and develop additional codes, wherever requires.

UPDMA will network with corporate bodies to strengthen and formalise their role in the DM process so that they can make greater contribution in planning and preparation to handle an off site emergency. Some of the other areas in which public-private partnership contribution/collaboration would be stressed upon are communication, mobile hospitals, heli-ambulances, transportation facilities, DM education, additional radiation care units in hospitals to treat radiation injuries, resuscitation activities, medical institutions for studies on radiation effects, environmental protection, evacuation shelters, etc.

District hospitals at Meerut, Allahabad and Gorakhpur will be upgraded with the laboratory and other equipment facilities similar to the Sanjay Gandhi Post Graduate Institute, to response and provide necessary medical support to the affected population from nearby districts in case of Radiation disasters.

8.4 Constitution of State Disaster Response Force

The Disaster Management Act has mandated the constitution of a Specialist Response Force to a threatening disaster situation or a disaster. Following the line of Central Government, A State Disaster Response Forces (SDRF) will be created out of the existing police force, Fire Services, Civil Defence and Provincial Armed Constabulary (PAC) to assist the civil administration in search and rescue operations, relief line clearance and overall disaster management. In the first phase three units of the SDRF will be created. These units will be based at Gorakhpur, Allahabad and Meerut. This Force will function under the Disaster Management Authority which will be vested with its control, direction and general superintendence. This will be a multi-disciplinary, multi-skilled, high-tech force for all types of disasters capable of insertion by air, water and land. All the units will be equipped and trained for natural as well manmade disasters including nuclear, biological and chemical disasters. Each unit of SDRF will have specialist search and rescue personnel, emergency responders, engineers, technicians, electricians, dog squad and paramedics. The NDRF will be headed by an officer of the rank of Deputy Inspector General of Police.

The State Disaster Response Force will be the first responders in case of Radiation Disasters and will be trained by the National Disaster Management Authority and specialist organisations such as DRDO and Indian Army in the basics of disaster management on lines of the NDRF. The SDRF personnel will be trained in the following courses as mandated by the NDMA.

- TOT & Master Trainer Course in CBRN Emergency
- Understand Radiological Emergencies & their consequences
- Perform the responder actions and decontamination.
- Evaluate the requirements of the Shelters.
- Operate radiation detection equipments and donning & doffing of PPE.
- Radiation Safety Officer Course
- Practical Training Handling equipments in CBRN Emergency.
- MFR & CSSR, US&R courses
- Flood Water Rescue
- Swift Water Rescue Training
- Deep Diving
- Basic & Advance Rock Climbing
- Heli-Slithering
- Dog Handling
- Earthquake Response
- Rescue from High Rise Building

• Response level training in all kinds of natural and manmade disasters in addition to above training and courses.

Besides these general course, one of the unit of the SDRF will be specially trained in handling and responding to the nuclear disasters. The unit will be trained in following courses offered by the National Civil Defence College, Nagpur and defence training centres.

- Radiation and Radioactive material.
- Health Effects of Ionization and Radiation.
- Radiological weapons and their effects.
- Protection against Radiation and Safety practices.
- Organisation of CD services in Radiological Emergencies.
- Assessment of Shelter protection.
- Improvised individual/ family shelter.
- Management of Shelters by Volunteer population.
- Radiation Detection Procedures & instruments.
- Personal Protective Equipment (PPE)
- Civil Defence Operations in Radiological emergency.
- Decontamination : Gross & Technical

As Uttar Pradesh State is large having substantial population of the country and vulnerable to most natural and manmade disasters, a State Training Centre will be set up to provide specialised training to first responders, rehabilitation and reconstruction teams.

8.5 Human Resource Development

Control rooms should be nominated/established at different levels in order to get all the relevant information and transmit it to the concerned official. The addresses and telephone numbers of the district collector, CMO, hospitals, specialists from various medical disciplines like radiation contamination, paediatrics, anaesthesia, microbiology etc., and a list of all stakeholders from the private sector should be available in the control room.

The control rooms would be managed by the trained personnel from the representatives of the emergency support functions. The Nodal Officers from each department will be trained in emergency response and management by the National Disaster Management Authority and other specialised training organisations such as National Civil Defence College.

In order to build capacities for planning, organizing and co-ordinating disaster management of Nodal officers from the department of Home, Revenue, Animal Husbandry, Public Works, Rural Engineering Service, Urban Development, Rural Development, Agriculture, Power Corporation, Fire Brigade, Transport, Supply and Health at state level, training programmes will be organised at specialised organisations. These officers will be trained in following disciplines:

- Disasters Created by Weapons of Mass Destruction
- Principles of Disaster Management
- Response, mitigation and preparedness.
- Incident Management system.
- Scope of Emergency Operations
- Plan and organize Emergency Operation Centre
- Management and operations of EOCs.
- Impact of Weapons of Mass Destruction
- Radiation disasters
  - Health effects of Ionization and Radiation
  - Radiation Detection procedures and instruments
  - Personal Protective Equipment
  - Selection, Assessment and Management of Shelters
  - Mass Decontamination procedures
- Communications and warning system
- Fire related emergencies and prevention methods
- Trauma counselling
- Communication networking and GIS.
- Public information and media
- Roll of different departments, international and national agencies and NGOs in response and recovery

8.6 GIS Mapping of the State

GIS mapping of the entire State will be done with the help of the Department of Science and Technology which has already developed village wise maps of the State for flood control and assessments. The GIS maps will carry village wise information and data including list of specialised hospitals, police posts, government offices, schools, private hospitals, sub-centre, PHC, CHC, District hospitals, road links, highways, NGOs, veterinary hospitals, clinics, dams, water resources, canals, ponds, crops, etc. to help the planner and responders to get all the information at the one click on computer which will be available with the District Collector, Emergency Operation Centres, Disaster Management Authority, Relief Commissioner, Office of the Chief Secretary and Crisis Management Group.

8.7 Training and Education

Dos and don'ts and periodic training capsule on handling nuclear disasters will be given. The necessary training/refresher training will be provided to SDRF personnel, police force, medical officers, nurses, emergency medical technicians, paramedics, vets, civil defence, NGOs/CBOs, ambulance drivers etc. to handle radiation specific disasters which may arise in a particular area.

Community Preparedness: Community members including public and private health practitioners are usually the first responders. These people would be sensitized through public awareness.

Areas of emphasis for Community participation

a. The creation of public awareness by industries and the district administration/DDMA and local authorities regarding possible accidents is a statutory requirement.
b. NGOs and Private Voluntary Organizations should be involved in educating and sensitizing the community.
c. Supporting activities like street shows, dramas, posters, distribution of reading material, school exhibitions, electronic media and publicity etc. must be undertaken.

8.8 Research and Development

Appropriate cells or units will be established within the research and development organisation in the state on the pattern of ENVIS (Environment Information Systems) to take up R&D works in the field of Radiation disaster and management of after effects and causalities. Innovative technologies will enhance the ability to respond quickly and effectively. This will require targeted and balanced fundamental research, as well as applied research for technology development to acquire medical capabilities. In case of radiation disasters it is necessary to collaborate, update and adopt developing new approaches to detect, evaluate and decontaminate radioactive materials.

8.9 Communication and Networking

Information and monitoring tools for agencies during preparedness, alert or warning, activation of plan, damage assessment and relief and recovery stages are crucial for effective DM. The tools are evolved keeping in view the requirements of an effective administrative response, efficiency in decision making, evaluation and assessment of on-going disaster stages and requirements of future preparedness. These tools are also expected to help administration in identification and reaching out to the most vulnerable and devastated groups.

Chapter IX Institutional Arrangements and Roles & Responsibilities

9.1 Institutional Arrangement at the Centre

In accordance with the provisions of the DM Act 2005, the central government will take all such measures, as it deems necessary or expedient, for the purpose of DM and will coordinate actions of all agencies. It will ensure that central ministries and departments integrate measures for the prevention and mitigation of disasters into their developmental plans and projects, make appropriate allocation of funds for pre-disaster requirements and take necessary measures for preparedness to effectively respond to any disaster situation or disaster. The nodal ministry for the disaster management in case of biological attack is the Ministry of Home Affairs (MHA), along with other department is responsible for the technical aspects the disaster.

- **National Disaster Management Authority**

The Disaster Management (DM) Act 2005 lays down institutional, legal, financial and coordination mechanisms at the national, state, district and local levels. The new institutional framework is aimed at ensuring operationalisation of the national desire for a paradigm shift in DM from a post event and relief-centric syndrome to a regime that lays greater emphasis on preparedness, prevention and mitigation, leading to a more prompt and effective response to disasters.

NDMA concentrates on prevention, preparedness, mitigation, rehabilitation, reconstruction and recovery and also formulate appropriate policies and guidelines for effective and synergised national disaster response and relief. It will also coordinate the enforcement and implementation of policies and plans.

- **National Executive Committee**

The National Executive Committee (NEC) comprises the secretary to the GoI in the ministry or department having administrative control of the subject of DM, as the chairperson and the secretaries to the GoI in the ministries/departments of Agriculture, Atomic Energy, Defence, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science and Technology, Space, Communications, Urban Development, Water Resources and the Chief of the Integrated Defence Staff to Chairman of the Chiefs of Staff Committee as members.

It is the executive committee of the NDMA, and is statutorily mandated to assist the Authority in the discharge of its functions and ensure compliance of the directions issued by the central government, apart from preparing the National Plan and securing its approval by the NDMA and performing such other functions as required by the NDMA. Based on the policy and guidelines, the NEC will be responsible for preparing the national plan, getting it approved by the NDMA and then operationalising it. The NEC will also require any department or agency of the government to make available

such men or material resources for the purposes of handling threatening disasters, emergency response, rescue and relief, as required by the NDMA. It will coordinate the response in the event of any threatening disaster situation or disaster. It will also perform such other functions as the NDMA may require it to perform.

- **National Disaster Response Force**

For the purpose of specialised response to a threatening disaster situation or disasters both natural and man-made, the DM Act, 2005 has mandated the creation of a National Disaster Response Force (NDRF). The general superintendence, direction and control of this force shall be vested in and exercised by the NDMA and the command and supervision of the NDRF shall vest in an officer to be appointed by the central government as the Director General of the NDRF.

- **National Institute of Disaster Management**

The National Institute of Disaster Management (NIDM), which functions within the framework of the broad policy and guidelines laid down by the NDMA, has capacity development as one of its major responsibilities, along with training, research, documentation and the development of a national level information base. It networks with other knowledge-based institutions and assist in imparting training to trainers, DM officials, etc. It is also be responsible for synthesizing research activities and will be geared towards emerging as a 'centre of excellence' at the national and international levels.

9.2 Institutional Arrangement at the State-level

State Guidelines on Disaster Management Road Map

- Setting up a State Disaster Management Authority (Has already been established)
- Establishments of department of Disaster Management
- State/District/Block/village Disaster Management plans
- Setting up of Emergency Operations Centre at the State (Has already been established)
- Having Specialised Search & Rescue teams---each team consisting of one coy of State Armed Police and Civil Defence trained in Rescue & Relief operations, one mobile engineering unit with necessary equipment, one Medical assistance team, to function as a single unit under a designated officer
- Control rooms in State and Districts to coordinate both law& order as well as disaster management
- Annual Plans, Five-year plans to specifically address disaster mitigation concerns and such plans to be given priority.
- Funds available for ongoing schemes to be used for mitigation preparedness.

- State on-line inventory of resources, both private & public to be made available for easy mobilization of resources in time of emergencies.
- Development of early warning systems
- GIS based database for Disaster Management
- Both in service training as well as initial training Curriculum to include Capsules on disaster management.
- Disaster management in school curriculum, engineering courses, certification for practicing engineers, builders, architects
- Hospital Preparedness and Emergency Health Management in Medical Education
- Strengthening of Civil Defence

Keeping in view the above guidelines, the Govt. of UP has initiated major steps towards disaster preparedness.

Uttar Pradesh Disaster Management Authority (UPDMA)

The Authority set up under the UP Disaster Management Act, 2005, is headed by the Chief Minister as its Chair person and has a 14 member Governing Body, The Authority clearly allocates responsibilities among various stakeholders and is primarily responsible for the following:

- Promoting an integrated and coordinated system of disaster management and acts as a central planning, coordinating & monitoring body for disaster management and post disaster reconstruction, rehabilitation, evaluation and assessment as well as promoting general awareness /education.
- Evolving a total Disaster Management Support System by making use of Satellite Remote Sensing and imagery data, GIS. The UP Remote Sensing Agency, Lucknow has been designated as the special Advisor to the Authority.
- Allocation of responsibilities to the various stakeholders and coordination in carrying out their responsibilities.
- Acting as repository of information concerning disasters & disaster management
- Ensuring establishment of communication links and setting up of emergency communication and early warning systems in the State
- Developing guidelines for preparation of disaster management plans at all levels -state, district, block & village level.
- Dissemination of information and awareness building among the public.
- Setting up Crisis Management Group
- Supervising state of preparedness
- Laying down guidelines for subordinate plans
- Establishing disaster management information systems
- Coordinating disaster management training

Members of the UP Disaster Management Authority

1 The Chief Minister of Uttar Pradesh
2 The Minister for Revenue Department
3 The Minister for Agricultural Department
4 The Chief Secretary, Uttar Pradesh
5 The Principal Secretary and Agriculture Production Commissioner
6 The Principal Secretary, Revenue
7 The Principal Secretary, Finance
8 The Principal Secretary, Home
9 The Principal Secretary, Energy
10 The Principal Secretary, Urban Development
11 The Principal Secretary, Health
12 The Principal Secretary, Irrigation
13 The Director General of Police
14 The Relief Commissioner

Special Invitees

1 The Principal Secretary, Agriculture
2 The Principal Secretary, Panchayati Raj
3 The Principal Secretary, Forest
4 The Principal Secretary, Environment
5 The Principal Secretary, Science and Technology
6 The Director Remote Sensing Application Centre, Uttar Pradesh

Major Initiatives by Govt. of UP

- **UP Disaster Management Act, 2005, enacted**--- third State do so after Gujarat and MP. It provides legal backing to all preparatory and post disaster measures and responses & allocates major responsibilities to all the stakeholders.
- **Setting up Uttar Pradesh State Disaster Management Authority**
- **Emergency Operations Centres** has been set up at State level in Bapu Bhawan & in 13 district HQs.
- **Closed User Group Mobile Phone Network** of the Police Department has been extended to cover all Revenue Officials at the State, Commissionery, District and Tehsil level and Fire Services etc. so that there is better connectivity during relief operations.
- Natural Resources related **GIS mapping** of districts.
- **UP Academy of Administration and Management**, Lucknow, is the Nodal Institute for all Training programmes related to Disaster Management.
- **Disaster Management Module** adopted for all in-service training programmes in the State.
- **Fire Service Training Institute**, Unnao, declared as the Nodal Institute for training in specialized Search & Rescue operations.
- **Emergency Operations Centres** has been set up at State level in Bapu Bhawan & in

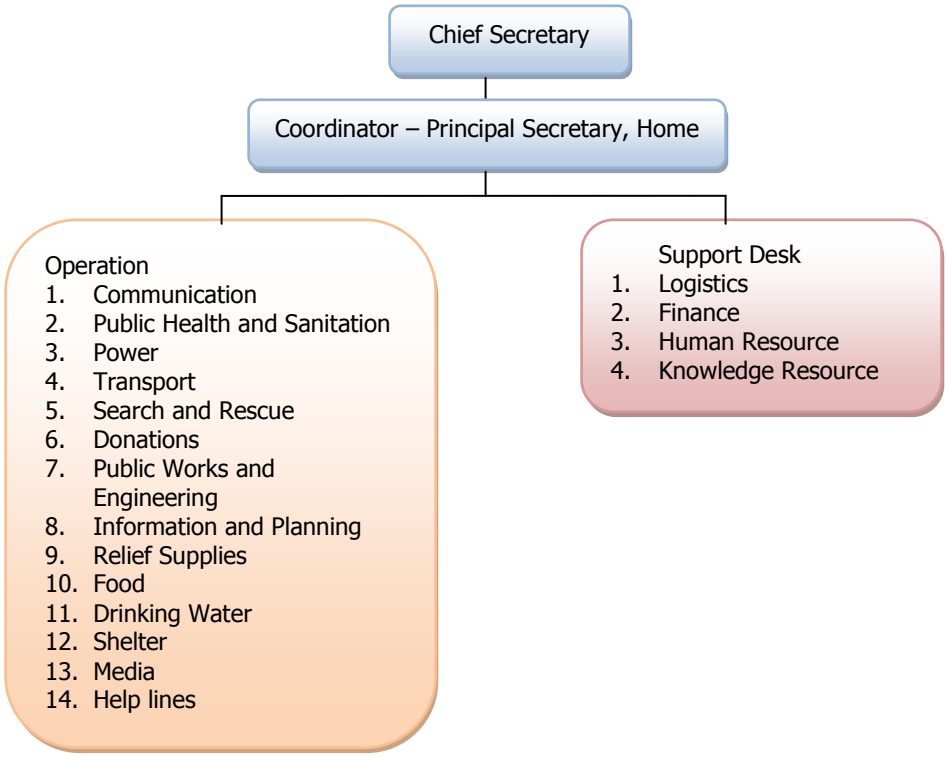
The State Emergency Operation Centre (SEOC) is the hub of all disaster related activities. The primary function of the SEOC is to implement the State Disaster Management Plan which includes coordination, data collection, operation management, record keeping, public information and resource management.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

SEOC has representatives of State Departments - Public Works, Irrigation, Energy, Home, Revenue, Health, Agriculture, Industries, Animal Husbandry and Science & Technology form SEOC. 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.

The layout of the SEOC is given below.

- 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, landline and telephone, mobile network and wireless.
- 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.
- 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.

Structure of the Emergency Operation System



Emergency Support Functions

This would help in proper coordination among different agencies involved in DM:

S. No	Function	Responsibility
1	Communications	• Will ensure the provision of state wide telecommunication, support to the state, and district in response efforts
2	Public health and sanitation	• Provide coordinated assistance to supplement state and local resources in response to public health and medical care needs following significance natural or man made disaster. • Resources will be furnished when the state and district resource are overwhelmed and medical and public health assistance is requested from the State government.
3	Power	• Power To facilitate restoration of energy systems after a natural disaster
4	Transport	• Provide coordination of state transport support and local government. • Coordinate the use of transportation resources to support the need of emergency support forces requiring transportation capacity to perform their emergency response, recovery and assistance missions. It will work with outside agencies for transportation, coordination and preparedness resource request for assistance when needed.
5	Search and Rescue	• Provide specialized life saving assistance to state and local authorities in the event of a major disaster or emergency. Its operational activities include locating, extricating and providing on site medical treatment to

S. No	Function	Responsibility
		victims trapped in collapsed structures.
6	Donations	• Donation management is necessary to control the flow of goods and services into a disaster area. If trucks, trains, and planes are allowed into the disaster area to draw their donations, they can easily interfere with other ongoing disaster response operation. Uncontrolled donations can also put undue burden on disaster response operations, as they require scarce response resources. Above all it is necessary to manage the flow of donated gods to be sure that the needs of disaster victims are being met as effectively as possible. • Expedite delivery of voluntary goods and services to support relief effort in a coordinated manner
7	Public works and Engineering	• Provides technical advice and evaluation engineering services, contracting for construction management and inspection, contracting for emergency repair of water, and waste water treatment facilities, potable water, emergency power, real state support to assist the states in meeting the goals related to life sustaining actions, damage mitigation and recovery activities following a major disaster. Provide PW and engineering support to assist need related to life saving or protecting prior to, during and immediately following an event. Perform immediate damage assessment of the infrastructure
8	Information and Planning	• To collect, process and disseminate information about an actual or potential situation. To facilitate the overall activities of all responders in providing assistance to an effected area. Should maintain a database of all related disaster related information inform of GIS that will allow easy access and retrieval of information during a disaster.
9	Relief Supplies	• Coordinate activities involved with emergency provisions of temporary shelters, emergency mass feeding, and bulk distribution of coordinated relief supplies for victims of disasters. In some instances services may also be provided to disaster workers and logistical and resource support to local entities involved in delivering emergency and recovery efforts, shelter, food and emergency first aid following a disaster. • Operate disaster welfare information, to collect receive and report the status of victims and assist family reunification; and coordinate bulk distribution of emergency relief supplies.
10	Food	• To identify the basic needs of food in the aftermath of a disaster or emergency. To obtain appropriate supplies and transporting such supplies to the disasters area and identify secure, and arrange to transport food assistance to the affected areas and authorize food stamp assistance following a major disaster or emergency requiring state response
11	Drinking water	• To provide a minimum quantity of clean drinking water and to reduce the spread of diseases through water during disaster times and to allow to people to perform daily task.
12	Shelter	• To meet the physical needs of individuals, families and communities for safe, secure and comfortable living space. To meet primary social needs

S. No	Function	Responsibility
		incorporating self-management in the process.
13	Media	• To provide and collect reliable information on the status of disaster and disaster victims for effective coordination of relief work at sate level.
14	Help lines	• To collect, process and disseminate information about welfare of citizens of the affected area and managing the tremendous flow of information. The speed with which information is received with which it changes requires that assistance be developed to ensure accuracy as well as easy and appropriate access. The help lines will be responsible for providing, directing, and coordinating, logistical resource operations.

- *During non-disaster times the ESF will operate in preparedness mode for their respective departments.*
- *Each ESF is headed by a primary agency, which has been selected based on its authority, resources and capabilities to support the functional area.*
- *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.*

Role of SEOC

During non-disaster times	During Disaster times
SEOC stays operational through-out the year in preparedness mode, in order to take care of the following: • 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. • 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 • Report on Status of preparedness/vulnerability data of the	The aim of the SEOC 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. • Handle requests for emergency personnel, equipment, state level disaster resource database and other resources • 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 • Maintain documentation of resource inventories, allocation and availability • Manage finances for SEOC operations

During non-disaster times	During Disaster times
district Training, monitoring support and budget allocation if required.	

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.

Incident Command System

The SEOC will therefore 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 will be fielded by the SEC through the SEOC as part of the Incident Command System.

Responsibilities of Incident Management Team

(i) Incident Commander

Incident Commander (Chief Secretary at the state and District Magistrate at the District level) shall rush to the Emergency Operations Centre (EOC) where technical experts and Nodal Officers of the Departments for the Emergency Support Function shall join him. He shall remain in the contact of EOC to know the updated status of incident.

- In consultation to technical experts Incident Command Post (ICP) shall be selected near incident site. Site selection shall be on the basis of the wind prevailing directions and probability of secondary hazards etc.
- Obtain updates of the incident situation from ICP and establish a link for continuous communication through dedicated telephone lines with speaker phones, set of walkie-talkies, computer link etc. with the help of coordinator.
- Supervise the overall management of each function through respective Nodal Officers of the ESF Departments and expediting response whenever required
- Identify the hazardous and threatened areas based on map and information received ICP
- Take a decisions on requirement and priorities of evacuation and organize the resources to execute the same
- Based on the inputs from the first responders, and experts available at ICP, identify the additional resources requirement and initiate mobilization with the help of Nodal Officers.
- Coordinate with the other district authorities and state authority
- After making required arrangement, Incident Commander shall visit incident site to supervise the situation
- He shall also take decisions in demobilizing the resources after the incident

(ii) Coordinator:

Most preferred rank for the operation chief is the Principal Secretary (Home). Following are the duties designated for Operation Chief:

- Responsible for the management of all operations directly applicable to the primary mission. He will activate the Emergency Support Functions and coordinate with the teams leaders of ESFs.
- Activates and supervises organization elements in accordance with the
- Incident Action Plan (IAP) and directs its execution
- Determine need and request additional resources
- Review suggested list of resources to be rebased and initiate recommendation for release of resources
- Make expedient changes to IAP as necessary
- Report Information about special activities, events or occurrences to Incident
- Commander
- Maintain Unit / Activity details

Coordinator shall be assisted by the following positions to perform above mentioned duties:

ESFs shall be activated under Coordinator. On the receipt of information Nodal Officers would take up following actions

a. On the receipt of information Nodal Officers will activate their own Emergency Support Functions (ESFs)

b. Nodal Officers will join IC and Coordinator in EOC to ensure coordination and to provide assistance

c. Nodal Officers would also move to the site for better operational control

d. Nodal Officers will call their department's emergency team and immediately deploy the quick response teams (QRTs) from the location of nearest to the incident site

e. They will further reinforce their teams by deploying additional resources from surrounding areas so the effective first respond can be rendered at site

f. A high alert would be notified to move additional resources and manpower to the incident site

g. According to the feedback report Nodal Officers will take decision of movement of more team and manpower. In some of cases Nodal Officers may need to mobilize resources from nearby districts or states. In such cases Nodal Officers will organize this through respective head quarters

(iii)Planning Chief- Secretary (Home)

Planning chief shall be responsible for performing following duties:

- Collection, evaluation, dissemination and use of information about the development of incident and status of resources. Information is needed to
- Understand the current situation
- Prepare alternative strategies and control operations
- Supervise preparation of Incident Action Plan (IAP)
- Provide input to IC and Coordinator in preparation of IAP
- Reassign out of service personnel already on site to other positions as appropriate
- Determine need for any specialized resources in support of the incident
- Establish information requirements and reporting schedules for Planning Section Unit.
- Compile and display incident status information
- Oversee preparation and implementation of Incident Demobilization Plan.
- Incorporate Plans (e.g. Traffic, Medical, Site Safety, Communication) into IAP.
- Maintain Unit / Activity details.

Following would be assisting planning chief in his operation

a. Resource Unit Leader- Relief Commissioner

Responsible for maintaining the status of assigned resources (Primary and support) at an incident. This is achieved by overseeing the check-in of all resources, maintaining a status keeping system indicating current location and status of all resources and maintenance of a master list of all resources e.g. by key supervisory personnel, primary land support resources etc.

- Establish check-in function lat incident locations.
- Prepare Organization Assignment List & Organization chart.
- Maintain & post the current status and location of all resources
- Maintain master list of all resources checked in at the incident.

(b)Check-in/Status Recorder-Section Officer

Needed at each check-in location to ensure that all resources assigned to an incident are accounted for:

- Prepare check-in form, resource status boards and status display board.
- Establish communications with the communications Centre and Ground Support unit.
- Post signs so that arriving resources can easily find the check in locations
- Record check-in information on check-in lists
- Transmit check-in information to Resources Unit on regular pre-arranged schedule/ as per need.
- Receive, record and maintain status information for single resources, striketeams, task forces, overhead personnel
- Maintain file of check-in lists.

(c) Situation Unit Leader-Deputy Secretary (Home)

- Begin collection and analysis of incident data as soon as possible.
- Prepare, post or disseminate resource and situation status information as required, including special requests.
- Prepare incident status summary
- Provide photographic services and maps if required.

(d) Display Processor *(Section Officer-Computer trained):* Responsible for display of incident status information obtained for field observers, resource status reports, aerial photographs etc.

- Determine:-

1. Location of work assignment
2. Numbers, types and locations of displays required
3. Priorities
4. Map requirements for incident
5. Time limits for completion
6. Field observer assignments & communication means

- Obtain necessary equipment and supplies
- Obtain copy of LIAP for each period
- Assist SITL in analyzing and evaluating field report

• Develop required displays in accordance with time limits for completion.

(e) Field Observers- To be deputed by Incident Commander

Responsible to collect situation information from personal observations at the incident & give it to situation team leader.

Determine:-

o Location of assignment
o Type of information required
o Priorities
o Time limit for completion
o Method of communication
o Method of transportation

Obtain copy of IAP for the operation period

Obtain necessary equipment & supplies for his use.

Collect data like

o Perimeter of location of hot spots etc.
o Be prepared to identify all facilities location (e.g. division boundaries)
o Report information to SITL

(f) Documentation Leader: Section Officer

Arranging for complete documentation of proceedings at the incident site

Maintaining record of what happened and what actions were taken

i. Recovering response costs and damages

ii. Setting the record straight where there are charges of negligence or mismanagement resulting from the incident

iii. Reviewing the efficiency and effectiveness of response actions

iv. Preparing for future incident response

v. Videotaping of the entire combat the rescue operations

(g). Technical Coordinators

Two to Four experts in geo-sciences, fire safety, industrial safety and health shall be nominated as technical experts. Major issues shall be addressed by them are:

a. Formulation of response objectives and strategy

TC shall assess the incident before taking actions and formulate realistic response objectives. The assessment shall be based upon following points:

- Pre-incident plans
- Information related to material involved, container involved, vehicle and structure involved and atmospheric conditions affecting the incident
- Environmental monitoring and sampling data (if available)
- Public protective actions to be initiated

- Resource requirements (trained manpower, specialized protective gear and other equipments)
- Hazards posed to the nearby areas

On the bases of above-mentioned points they will formulate a defensive strategy to protect the public and environment from the immediate spill or discharge area.

b. Identification of Hazard Zone

Technical experts shall be able to determine hazard zone on the basis of the nature and frequency of the disaster.

c. Establishment of Hazard Control Zones at Incident Site

Technical expert should determine the safe and unsafe zones varying according to the severity of hazard.

d. Action plan, list of equipments, protective cloths and other requirements and instructions should be designed on the basis of nature of disaster. Special concern sought for fire and chemical disasters.

(iv) Logistics –Secretary (Revenue)

Logistic section chief shall be an officer of rank of Secretary. He shall be responsible for providing facilities, services and materials at incident site. He will participate in preparation and implementation of Incident Action Plan (IAP) and activates & supervise Logistic section.

• Assign work locations & tasks to section personnel
• Participate in preparation of IAP
• Identify service and support requirements for planned and expected operations
• Coordinate and process requests for additional resources
• Provide input to / review communication plan, Traffic plan, medical plan etc
• Prepare service and support elements of IAP
• Recommend release of unit resources as per incident management plan
• Maintain Unit/ Activity details

Following are the team members who will assist him in the process under service and support function.

(a) Communication Unit Leader: DIG Communications

• Prepare & implement incident wireless communication plan
• Ensure that incident communication centre & Message centre are established
• Establish appropriate communication distribution/ maintenance locations within base/ camps

• Ensure communication systems are installed and tested
• Ensure equipment accountability system is established
• Ensure personal portable wireless sets from cache is distributed as for incident wireless communication plan
• Provide technical information required on
    ◦ Adequacy of communication system currently in operation
    ◦ Geographic limitation on communication system
    ◦ Equipment capabilities / limitations
    ◦ Number and types of equipments available
    ◦ Anticipated problems in the use of communication equipments
    ◦ Ensure equipments are tested and repaired
    ◦ Recover equipments from released units.
    ◦ Responsible to receive and transmit wireless and telephone messages among to between personnel to provide dispatch services at the incident
• Set up message centre location as required
• Receive and transmit messages within and external to incident
• Maintain files of general messages
• Maintain a record of unusual incident occurrences.

(b) Medical Unit Leader- Secretary (Health and Welfare)

Responsible for
• Development of medical response plan
• Respond to requests for medical side and transportation for injured & ill incident personnel medical supplies.

(c) Food Unit Leader- (Secretary – Civil Supplies)

Responsible for supply needs for the entire incident including camps, staging areas.
• Determine food & water requirements
• Determine method of feeding to best fit each facility or situation
• Obtain necessary equipment & supplies and establish working facilities
• Order sufficient food & potable water from the supply unit
• Maintain an inventory of food, water
• Maintain food service areas & ensure that all appropriate health & safety measures are being followed.
• Supervise caterers, cooks and other food unit personnel.

(d) Supply Unit Leader- Officer of the Rank of IG/Head of the SDRF

Primarily responsible for ordering personnel, equipment & supplies receiving and storing and storing all supplies for the incident maintaining an inventory of supplies servicing non-expendable supplies to equipment.
• Determine the type & amount of supplies en route
• Order, receive, distribute and store supplies & equipment
• Receive and respond to requests for personnel, supplies and equipment

• Maintain inventory of supplies & equipment.
• Service reusable equipment

(e) Ordering Manager- Officer of Rank of DIG

• Obtain necessary order forms
• Establish ordering procedure
• Establish name and telephone number of personnel receiving orders
• Get names of incident personnel who leave ordering authority
• Check on what has been already ordered
• Orders when possible
• Place orders in a timely manner
• Keep time and location for delivery of supplies
• Keep receiving and distribution manager informed of orders placed

(f) Receiving & Distribution Manager- Officer of Rank of DIG

• Organize physical layout of supply area
• Establish procedures for operating supply area
• Set up a system for receiving and distribution of supplies and equipment
• Develop security requirement of supply area

(g) Facilities unit leader: To be deputed by the Incident Commander

• Primarily responsible for the layout and activation of incident facilities e.g. base, camps, ICP.
• Provides rest and sanitation facilities for incident personnel
• Manage base and camp operations (to provide security and general maintenance)

(h) Ground support unit leader- To be Deputed by the Incident Commander

• Support out of service resources.
• Transportation of personnel, supplies, food & equipment.
• Fueling, service, maintenance and repair of vehicles and other ground support equipment.
• Implementing traffic plan for the incident

(v) Finance and Administration Chief – Joint Secretary (Revenue)

An Officer of the Rank of Joint Secretary shall be deputed on this responsibility. Finance and Administration chief will take decisions related to financial and cost related matters under given time frame.

Following units would be helping him in conducting his duties:

(a) Time Unit: Responsible for status recording and equipments time taken recording

(b) Procurement: Responsible for administering all financial matters pertaining to vendor contracts

(c) Cost: Responsible for collecting all cast data, performing cost effectiveness analysis & providing cost estimates & cost saving recommendations for the incident

Desk Arrangements

EOC will expand to include desk arrangements with responsibilities for specific tasks. The desk arrangement may continue to operate from EOC till the time long term plan for rehabilitation being finalized. The desk arrangements provide for divisions of tasks, information gathering and record keeping and accountability of the desk officer to the Incident Commander.

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, the Chief Minister, after verification that the situation merits declaration of a State Disaster, will convene a meeting of the Crisis Management Group and based on the ratification of the CMG, 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, agriculture, animal husbandry, 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 number of casualties. A quick response to urgent needs would never be delayed for the reason that a comprehensive assessment has yet to be completed. The following teams would be sent to the 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.

Name of the team	Responsibility	Roles
First Aid Team	Nodal Officer- Department of Health Nodal Officer –	• Establishing a command post to coordinate emergency activities, monitor the utilization of available

	Department of Animal Husbandry (Having toxicologists, lung and respiratory specialists, ophthalmologists, haematologists, and occupational health physicians)	resources, and prevent role conflicts. • Promptly assessing the disaster's magnitude and the number, location, and urgent requirements of casualties. • Selecting an area or zone to be used for first-level classification (triage) and identification (tagging) of casualties prior to their removal to medical care centres. If the magnitude of the disaster so warrants, one or several additional spaces at the site of the catastrophe should be designated for second-level classification of the wounded. • Administering first aid to the wounded, including stabilization, haemorrhage control, clearing air passages, and, in some cases, blood-volume replacements. In administering first aid, the priorities assigned in the triage area must be observed. • Establishing lines of communication with regional hospitals or satellite units to alert them of the need to activate and implement their respective emergency plans for mass care of the wounded.
Search and Rescue team	Department of Home (Police and Fire Brigade)	• Damage assessment including type of injuries, number of people affected and possible assistance needed • Provide situation report to the EOC • Ensure timely response to the needs of the affected victims • Conduct search and rescue operation of the victims tapped • Transport injured to first aid station

		• Determine missing persons • Coordination with the local people, industry authorities, local factory inspectors, district level officers • Work effectively with the other teams conducting first aid, trauma counselling, law and order, debris clearance, damage assessment and water and sanitations • Maintain communication with other agencies
Communication Teams	Barat Sanchar Nigam Ltd. and Department of Information	• Identify operational telecom facilities • Identify requirement of additional of telecom facilities • Plan action of private telecom companies • Establish temporary mobile exchanges on priority • Coordinate the requirement of temporary tele communication in the affected areas • Temporary communication facility for Public • Activation of HAM- Radio/V-Sat network • Facilitate support for planning efforts in response operations. • Coordinate with State actions to assure quick action. • Coordinate communications support to all governmental, non-governmental & volunteer agencies as required. • Set-up of toll free numbers for emergency information assistance. • Will coordinate, collect, process, report and display essential elements of information and facilitate support for planning efforts

		in response operations
Power Team	UP Power Corporation	• Quick damage assessment • Review the total extent of damage to the power supply installations by a reconnaissance survey • Dispatch emergency repair teams equipped with tools, tents and food • Hire casual labour for the clearing of damaged poles etc. • Assess assistance required from other sources • Provide support and coordinate with other state support units until the local supporting agencies are prepared to handle all power related problems • Identify requirements of external equipment required • Report the quick damage report to the EOC
Relief Teams	The Relief Commissioner	• Quick assessment and identifying the area for the establishment of the relief camps • Identifying the population which can be provided with support in their own place and need not be shifted reallocated • Provision of safe temporary shelters • Assessment of requirement of food for affected population • Supply and control on quality and quantity of Food, safe drinking water and milk • Support to local authorities • Report to EOC on the basis of quick assessment the requirements
Transport	Nodal Officer, Ministry of	• Will report the situation and

Team	Transport	requirement of vehicles to the EOC after a quick assessment of the situation with other teams. • Arrange transportation to the affected area for evacuation, supply of materials and equipment and movement of rescue and relief teams • Maintenance of reserves

The first responders to the attack would have sufficient information, education, training and experience to be able to assess quickly whether they can deal with the situation, or whether additional support (such as persons with particular expertise) should be summoned. Systems would be available which would provide for immediate, on-the-spot access to information that could be used to assess and respond to an emergency. In addition, systems would be in place for the collection, dissemination and updating of information that is to be made available to health/medical personnel and other relevant parties as the emergency response progresses, including medical information or advisories given to the public *via* the media. It would be ensured that First Responders are aware of any known special needs a person has that may influence the First Responder's priorities or method of assisting. Similarly all the members of the quick response team would be trained in chandelling the hazards posed by chemical or gas leak. Only trained personnel will be members of the quick response teams. Necessary gear such as masks and special clothing's will be provided to the members of the team by the State Disaster Response Force or the Fire Brigade depending on the availability of the funds.

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

Crisis Management Group

Suggested framework for Crisis Management Group at State:

1. Chief Secretary, Uttar Pradesh
2. Principal Secretary, Home
3. Principal Secretary, Revenue
4. Director General Police
5. Additional Director General Police (Intelligence)

6. Joint Director (I.B) Lucknow: Member
7. Relief Commissioner: Member

Crisis Management Group at State Level: Functions

- This group has to remain informed of all developments in case of any nuclear attacks.
- 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
(2) Deputy Inspector General Police/Senior/Superintendent of Police/In-charge of the District
(3) Local Representative of Intelligence Bureau
(4) Additional District Magistrate (Finance & Revenue)

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.

District Disaster Management Authority

At the cutting edge level, the District Disaster Management Authority (DDMA) headed by the District Magistrate, with the elected representatives of local authorities as members will act as the planning, coordinating and implementing body for DM and take all necessary measures for the purposes of DM in the district in accordance with the guidelines laid down by the NDMA and UPDMA. It is responsible for preparing the district DM plan including the response plan for the district, coordinate and monitor the implementation of the national policy, the state policy, the national plan, the state plan and the district plan and ensure that the guidelines for prevention, mitigation, preparedness and response measures laid down by the NDMA and the UPDMA are followed by all departments of the government at the district level and the local authorities in the district.

Local Authorities

These include Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs), such as municipal corporations, municipalities, district and cantonment boards and town planning authorities for control and management of civic services. PRIs and ULBs will ensure capacity building of their officers and employees in DM, carry out relief, rehabilitation and reconstruction activities in the affected areas and will prepare DM plans in consonance with the guidelines of the NDMA, UPDMA and DDMA.

Chapter X Partnerships with other Stakeholders

10.1 Role of Community

While all the stakeholders do have some role or the other to play in all the four stages, the role of the community is most pronounced in all the stages. Particularly, the communities have to meet the challenges on their own during and immediately after a disaster. The community during a disaster has a shared responsibility of providing physical and psychological support to each individual, particularly to the vulnerable sections.

10.2 NGOs

They will be involved for community education and sensitization. They could play a role in rumour surveillance, reporting of events, implementation of non-pharma interventions, and sensitization of public through the supporting role of the media. Community-based social workers can assist in first aid, psychosocial care, distribution of food, water, and organization of community shelters under the overall supervision of elected representatives of the community.

10.3 International Cooperation

Agencies like World Health Organisation (WHO) and Red Cross play an important role in mobilizing relief work. They provide help with the following:

- Establishment of a mechanism to enhance the level of interaction between state and non-state actors and NGOs
- A web-based forum for continuous interaction of experts to develop necessary strategic measures that need to be integrated with present global practices
- Stockpiling of various vaccines, antidotes and essential drugs under the guidance of global health organizations will become more cost effective by regional level planning
- Conducting joint international mock exercises, based on vulnerability assessment of different areas to enhance the level of coordination between various national and global players
- Pooling of medical logistics, trained human resource, and essential supplies

10.4 Public Private Partnership

The private sector has substantial infrastructure capabilities and can play a major role in enhancing the state's preparedness by integrating its capacities with government organizations such as NDMA, BARC, DRDO, DRDE and NICD. They may also provide facilitation for:

- Collaboration with international pharma agencies and other technical laboratories for meeting the peak requirement of drugs, antidotes and vaccines during radiation disasters
- Sourcing and procurement of counter measures available with manufacturing capacities in a ready state to enable their continuous supply
- Developing a PPP system for stockpiling, distribution and cold chain system for sophisticated diagnostic kits, vaccines and antibiotics
- Private sector facilities are required to be included in district-level DM plans and collaborative strategies evolved to effectively utilize their manpower and infrastructure.

10.5 Mass Media

The role of media is vital in educating the people about disasters; warning of hazards, gathering and transmitting information about affected areas, alerting government officials, relief organisations, and the public to specific needs and facilitating discussions about disaster preparedness and response leading to greater transparency in the whole operation. A regular and effective working relationship with the media will be developed. Regular, routine interaction, before a disaster is important for effective working relationships in the aftermath of a disaster. Media and the disaster mitigation organisations will be encouraged to take advantage of opportunities to work together, to provide relevant training for reporters and field personnel to enhance disaster preparedness, mitigation and relief efforts and the timeliness, quality, and accuracy of reporting about radiation hazards.

Chapter XI Financial Arrangements

11.1 Financial Resources for Implementation

Expenditure on relief, rescue and rehabilitation far exceeds the expenditure on prevention and management. This should therefore, be the underlying principle for allocation of adequate funds at industry and government level for prevention, mitigation and preparedness rather than concentrating on their management at the time of a disaster. The basic principle of return on investment may not be applicable in the immediate context but the long-term impact would be highly beneficial. Thus, financial strategies should be worked out such that necessary finances are in place and flow of funds is organised on a priority basis by the identification of necessary functions, both in the phases of preparedness and response, relief and rehabilitation respectively.

Finance Commissions

After Independence, the history of funding relief expenditure is intertwined with the awards of the Finance Commissions. These Commissions were appointed under Article 280 of the Constitution of India every five years. They were mandated, amongst others things, to assess the funding needs (non developmental) of the States, and to figure out grants to the States. The Finance Commissions make recommendations on the mechanisms by which the Central Government can assist States in funding expenditure on relief. Earlier, the Commission was restricted to suggesting the pattern of financial assistance by the Centre. Now, the recommendations even cover the "scheme of financing relief expenditure".

It was recognized that the primary responsibility of handling disasters vested with the States. The Central Government however, was expected to provide financial support. The First Finance Commission (1952) provided for Central assistance equivalent to 50% of the requirements for relief works. This was in the form of loans and a grant (not exceeding $ 0.45 million annually per State) for gratuitous relief to destitute. Further assistance could be provided to States to handle severe natural calamities through advances.

The Fourth Finance Commission introduced the system of Central Team visits to affected States. It was necessary where the Relief Expenditure on a calamity was expected to exceed $ 200000. Emphasis was usually placed on funding relief expenditure, as far as possible, within the Plan allocations. The Central Government was expected to fund only half of the expected expenditure. Since most States in India were under fiscal stress, a need was realized to make available recurring funds to States to fund immediate relief effort in routine calamities. This was popularly known as "margin money". Each State was sanctioned a certain amount based on its past expenditure on relief. Any amounts in excess of this margin money, after severe

calamities were to be assessed by Central Teams. Additional Central assistance was envisaged only, where relief requirements of a severe calamity could not be met from state resources.

The Ninth Finance Commission (1991) through the Calamity Relief Fund (CRF) extended the concept of "margin money". The CRF provided for contributions of the Central and State Governments in the ratio of 3:1. The Fund was to be kept outside the Government Account. This was to avoid cash flow difficulties in initiating relief operations. The contributions of the Central and State Governments credited twice a year. The Chief Secretary of the state operates this fund with a committee. The CRF concept was only different from margin money in that it prescribed a larger contribution by the Central Government.

The fundamental shift was in the introduction of the 'normative approach' to relief expenditure. This approach entailed expenditure from CRF on predetermined items, at predetermined rates. This system is there, despite procedural changes suggested by later Finance Commissions. For calamities of a severe nature, where the relief expenditure could not be funded from the CRF, the Eleventh Finance Commission in 2001, constituted a National Calamity Contingency Fund (NCCF).

Although the primary responsibility of DM is of the State Governments, the Central Government plays a key role in providing financial and logistic assistance to the states in tackling both natural and man-made disasters. The administration of Biological attacks would be responsibility of Ministry of Health and Family Welfare.

11.2 Sources of Finances

Financing of will be explored from the following sources:

- From budgetary provisions for recovery plans and programmes in normal developmental activities; at State, District and village level
- Calamity Relief Fund
- National Calamity Contingency Fund
- Prime Minister's Relief Fund
- Chief Minister's Relief Fund
- Special programmes of Govt. of India
- Loans and assistance from national and international funding agencies

11.3 Immediate Financial Resources

At present the required amount for training and capacity building of the field staff and medical professionals may be allocated from the Calamity Relief Fund. However in future the National Disaster Mitigation Fund proposed by Government of India can be explored to meet the cost of maintaining inventory, establishment of labs, provision of equipments, capacity building of staff, and awareness and education.

Chapter XII Follow Up

12.1 Follow up Actions

The UPSDMP has evolved out of secondary sources and consultation with departments involved with DM in UP. Various mechanisms of disaster preparedness, responses, and recovery followed in different parts of the world were also taken into account while preparing the document. This chapter discusses follow up actions that have to be undertaken by various agencies/departments to operationalise the Plan.

12.2 Priority Areas for Follow Up action

Some of the priority areas which need immediate attention or updating from time to time are:

- Preparation of district, block, municipality and Gram Panchayat plans (based on village as the unit of planning)
- Preparation of Standard Operation Procedures and field manuals
- Preparation of handbooks and checklists for prevention, preparedness, response, mitigation activities
- Review existing developmental schemes/ projects and incorporate disaster management principle in all schemes and all plans
- Ensuring sensitivity and incorporation of environment, gender, ethnicity, vulnerability of socio-economically disadvantaged groups (Children, elders and the physically challenged), food and income security, disaster proofing measure in all development, response and recovery plans
- Modernisation of existing control rooms and strengthening of infrastructure in disaster prone areas keeping in mind the vulnerability to different hazards
- Preparation and updating technical and quality control aspects of all civil constructions and non civil installations based on review of past disasters
- Updating existing Laws, Rules and Codes for better administration of relief and recovery measures to the affected people during and after a disaster.
- Similarly enforcement of other relevant Laws and Rules has considerable significance in reducing the risk and impact of disasters.

The response to a disaster requires indigenous systems as well as effective planning and preparedness strategies. Since the damage and effect of the disasters are so extreme, in case of a response situation, multiple players have to effectively coordinate and communicate with each other for a quick and efficient recovery and control over the emergency situation. However, both the response and recovery measures require detailed and unique planning and implementation strategy from all the stakeholders keeping in mind the local economic, social and cultural variables.

Primarily, all concerned departments/agencies or authorities will have to further detail out

their operations in respect of Emergency Support Functions, emergency preparedness, mitigation and recovery measure as per the guidelines given in this document.

12.3 Review and Updating of the State Disaster Management Plan

The State Disaster Management Plan would be reviewed every year by the Disaster Management Authority and necessary modification will be incorporated to keep the information updated. In case of any disaster, the lessons learn from it will also be included and SDMP will be modified accordingly.

12.4 List of Checklists and Handbooks

Documents Required for Quick Assessment and Response

1. Declaration of Format of Disaster
2. Deployment of Assessment Team-Format
3. SRC Responsibilities-Handbook
4. Survival Kit-Checklist
5. Assessment Equipment – Checklist
6. Damage Assessment – Format
7. Format for Media Release
8. Handbooks for International NGOs, NGOs, Media personnel, Researchers/Students, Field/Relief Workers, Volunteers and Government Functionaries
9. Emergency Operation Centre Checklists
10. Layout and dimensions, equipment, etc.,
11. ESF Desk – Checklist
12. Do's and don'ts to be followed during disaster times
14. Regular staff – Schedule and Checklist
15. Staff on Call – Schedule and Checklist
16. Staff on Disaster Duty – Schedule and Checklist

Documents for Disaster Management Teams

1. Communication
2. Checklist of tool kits
3. Handbook on Disaster Telecommunication Assistance
4. Handbook on Team Equipment and Inventory
5. Responsibilities of Primary Agency
6. Responsibility of each Support Agency
7. Emergency tool kits
8. Equipment Damage Assessment Operational checklists
9. On-site operations
10. Planning checklist
11. Deactivation checklist

12. List of PSUs and Private Agencies

Public Health and Sanitation

1. Detailed checklist of symptoms of common diseases along with medicine dosages for each disease
2. Checklist of doctor's tool kit for specialised doctors
3. Checklist for maintaining hygienic conditions
4. Disaster Health Assistance and emergency services
5. Team Equipment and Inventory
6. Responsibilities – Primary /Support Agencies
7. Minimum standards of health facilities
8. Location of health facilities in disaster area (map)
9. Information manual for biological disaster
10. Doctor's manual for emergency relief
11. Emergency toolkits
12. Operational checklists for health officials
13. Planning checklist - Qualification of health personnel –
14. Checklist of doctor's tool kit - Symptoms of common ailments
15. Deactivation checklist ¤ Dosages checklist for common epidemics and ailments during a disaster

Power

1. Handbook on Disaster Power Assistance (alternative power supply arrangements and quick restoration of electrical installations)
2. Handbook on Team Equipment and Inventory
3. Responsibilities of Primary Agency
4. Responsibility of each Support Agency
5. Manuals on handling of equipment which is unique to a particular disaster
6. Emergency toolkits
7. Operational checklists
8. Equipment Damage Assessment
9. On-site operations
10. Planning checklist
11. List of PSUs and private agencies

Transport

1. Inventories of available transport facilities ¤ Responsibilities of Primary Agency
2. Responsibility of each Support Agency
3. Handbook on transport assistance
4. Handbook on Team equipment and Inventory
5. Emergency tool kits
6. Operational checklists
7. Equipment Damage Assessment

8. On-site operations
9. Formats for check of roads, bridges and other civil works
10. Planning checklist
11. List of PSUs and private Agencies

Search and Rescue

1. Training handbooks on Search & Rescue
2. Inventory of professionally trained volunteers in Search & Rescue
3. Handbook on team Equipment and Inventory
4. Responsibilities of Primary Agency
5. Responsibility of each Support Agency
6. Emergency toolkits, search & rescue kits/equipments
7. Operational checklists ¤ Medical tool kits
8. On-site aerial surveys
9. MFR and CSSR kits
10. Deactivation checklist
11. List of PSUs and Private Agencies/NGOs working in the area

Relief Supplies

1. Handbook on Relief Supplies Assistance ¤ Handbook on Team Equipment and Inventory
2. Responsibilities of Primary Agency and each Support Agency
3. Guidelines on specific types of items for each type of disaster
4. Guide for developing relief supplies needs list
5. Manual on disaster-specific relief operations Emergency tool kits
6. Emergency tool kits
7. Operational checklists for team leaders and team members
8. Handling/Storage of relief supplies
9. On-site operations ¤ Planning checklist
10. Deactivation checklist
11. List of PSUs and Private Agencies

Shelter

1. Inventories of manufacturing agencies
2. Procedures of storage
3. Minimum standards for relief camps
4. Minimum requirement of space per person
5. Handbook on Team Equipment and Inventory
6. Responsibilities of Primary Agency
7. Responsibility of each Support Agency
8. Handbook on tent structure and other collapsible structures
9. Handbook on assembling of structures
10. Inventories of agencies that can be used for putting up tents

Chapter XIII General Action Plans

General Action Plan for Preparedness

Actions to be taken by the various agencies during normal times are listed here.

Department of Health & Family Welfare

- Appoint a Nodal Officer for disaster management at State and district levels.
- Plan and implement mass health awareness programmes.
- Develop Disaster Management Plan for the Department of Health & Family Welfare.
- Develop Disaster Management Plan for each hospital in the State.
- Organise disaster management trainings for staff of the public health department.
- Organise disaster management trainings for hospital staff.
- Ensure that all new health facility structures are designed and constructed disaster-safe.
- Carryout safety audit of all health facilities in the State and identify weak structures.
- Undertake structural retrofitting of weak structures

Department of Animal Husbandry

- Develop Disaster Management Plan for the Department of Animal Husbandry
- Appoint a Nodal Officer for disaster management at State and district levels.
- Develop Disaster Management Plan for each Veterinary Hospital in the State
- Organise disaster management trainings for staff of the Department of Animal Husbandry.
- Organise disaster management trainings for relevant staff.
- Identify the need and procure necessary equipment for ensuring safety of health facility structures from disasters.

Department of Home

- Appoint a Nodal Officer for disaster management at State and district levels.
- Develop Disaster Management Plan for the Department of Home.
- Organise disaster management training for the staff specially for radiation disasters
- Maintain a list of disaster prone areas
- Designate an area, within police station to be used as public information centre

Uttar Pradesh Fire Service

- Develop Disaster Management Plan for the Uttar Pradesh Fire Service.
- Appoint a Nodal Officer for disaster management at State and district levels.

- Organise disaster management training for the staff.
- Ensure that all new structures under the department are designed and constructed disaster-safe.
- Carryout safety audit of all existing structures under the department in the State and identify weak structures.
- Undertake structural retrofitting of weak structures.
- Identify the need and procure necessary equipment for fire fighting, and rescue.
- Maintain a list of disaster prone areas.
- Fill the vacant post to ensure adequate number of trained professionals at the time of disaster.
- Train the relevant staff on rescue and evacuation of the causalities in case of radiation disaster.

Uttar Pradesh Power Corporation

- Develop Disaster Management Plan for the Department.
- Appoint a Nodal Officer for disaster management at State and district levels.
- Organise disaster management training for the staff.
- Establish at each sub-station a disaster management tool kit comprising cable cutters, pulley blocks, jungle knives, axes, crowbars, ropes, hacksaws and spanners. Tents for crews should also be in storage.
- Designate an area, within the sub-station to be used as public information centre.

Rural Engineering Services (RES) and Public Works Department

- Appoint a Nodal Officer for disaster management at State and district levels.
- Train officials on disaster safe construction.
- Ensure that all new structures are designed and constructed disaster-safe.
- Carryout safety audit of all health facilities in the State and identify weak structures.
- Undertake structural retrofitting of weak structures.
- Identify or create damage proof rooms and buildings that can be used as evacuation shelter during an emergency.
- Develop Disaster Management Plan for the Department.
- Organise disaster management training for the staff.
- Plan and procure necessary equipment for use in disaster management.

Department of Urban Development

- Appoint a Nodal Officer for disaster management at State and district levels.
- Develop Disaster Management Plan for the Department.
- Organise disaster management training for the staff.

- Ensure that all new structures under the department are designed and constructed disaster-safe.
- Review layout of cities and towns and make necessary changes to facilitate disaster management.
- In developing new settlements, give adequate considerations to disaster management.
- Organise training to staff for including disaster management in all developmental activities.
- Plan and procure necessary equipment for use in disaster management.
- Designate an area, within the office premises to be used as public information centre.

Jal Nigam

- Appoint a Nodal Officer for disaster management at State and district levels.
- Develop Disaster Management Plan for the Department.
- Organise disaster management training for the staff.
- Ensure that all the water supply systems are disaster resistant.
- Ensure all overhead tanks and other high rise structures are safe and disaster resistant.
- Procure all necessary equipments to be used in case of disaster

Department of Agriculture

Appoint a nodal officer at the state and district levels.

- Prepare a GIS map of the state showing cropping pattern in different district of the state.
- Establish a disaster management cell in the department to implement the disaster management plan in the state.
- Organise capacity building of relevant officers at district/state level.

Department of Food and Civil Supplies

- Appoint a nodal officer at the state and district levels.
- Ensure appropriate stock of food grains, kerosene and other necessary items at the district and state level to meet the demands in the times of disaster.
- Organise capacity building of relevant officers at district/state level.
- Establish a disaster management cell in the department to implement the disaster management plan in the state.

Department of Transport

- Appoint one officer as nodal officer at the state and district levels.

- Establish a disaster management cell in the department to implement the disaster management plan in the state.
- Prepare list of vehicles, both heavy and light, and their owners to ensure availability of vehicle for transportation of casualties, injured persons, stocks, rescue teams, etc.
- Inspect all the government vehicles for its roadworthiness every year as these may be deployed immediately in the time of disaster.
- Organise capacity building programmes for the officials and staff.

Department of Science and Technology

- Appoint one officer as nodal officer at the state and district levels.
- Prepare GIS map of the state with the village wise demographic, physical, geographical detail and share the same with all the departments and crisis management group. State-wise details of infrastructural facilities would also be included in the GIS database.
- Department will provide support to the department of home and department of health in identifying biological disaster prone areas in the state and mark the same on the GIS maps.
- Collaborate with agencies such as ISRO, DRDO, Metrological Departments, and other national and international organisation to collect relevant information and early warning signs for any disaster which may impact the state.
- Department will promote research and development through CST.
- Organise capacity building programmes for the officials and staff.

Department of Revenue

- Appoint one officer as "Nodal-Officer, Revenue" at the State Level.
- Ensure funds for disaster preparedness, response and recovery in the state.
- Prepare district wise list of resources such as vacant state lands, government buildings, parks, etc. that can be used for temporary shelters, assemblies and camps.
- Prepare and share with the State Disaster Management Authority list of relevant physical and physical resources available with the revenue department that can be mobilised during or after disasters.
- Organise capacity building programmes for the officials and staff.

Department of Rural Development and Panchayati Raj

- Appoint one officer as nodal officer at the state and district levels.
- Instruct all the blocks and village to develop disaster management plans.
- Ensure that all the Zila Parishads have copies of the district disaster management plans.

- Build the capacity of the PRI members and officials in disaster management.
- Incorporate disaster mitigation plans in all the development proposals sent to the state for funding under various schemes.

NGOs

- IEC activities on disaster management
- Community mobilization
- Ensure regular meetings of NGO coordination cell
- Disseminate all government aided programmes to the community
- Ensure regular mock drill
- Ensure regular bleaching / use of disinfectants in the drinking water sources
- Organise workshops / seminars / meetings / trainings on community based disaster management
- Long term mitigation strategies

General Action Plan for Response

Actions to be taken by the various agencies on receipt of warning about an emergency situation are listed here.

Department of Home

- Enhance surveillance and intelligence measures to ascertain the cause of mass destruction.
- Cooperate with army and other para military forces in enforcing the required precautionary measures.
- Instruct district police force to maintain law and order and prevent rumour mongers.
- Establish radio communications (and assist in precautionary evacuation activities) with
    - Emergency Operations Centre
    - Divisional Commissioner / Collector
    - District control room and
    - Departmental offices within the division.
- All district level officials of the department would be asked to report to the Collector/SP
- Appoint one officer as "NODAL OFFICER - Police" at the State Level
- Appoint one officer as "Officer-in-Charge - Police" at the District Level
- 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.

- Provide guards, as needed for supply depots such as cooperative food stores and distribution centres.
- Provide convoys for relief materials.
- Identify anti-social elements and take necessary precautionary measures for confidence building.

Department of Health & Family Welfare

- Establish Surveillance and Early Warning Systems at the Epidemic Cell of the State.
- All district level officials of the department would be asked to report to the District Collector.
- Coordinate with the Incident Commander (Chief Secretary) with respect to the following:
  - Recruiting casual staff
  - Issuance of orders to ensure treatment by the private hospitals
  - Procuring locally required emergency tools, equipment and materials
  - Expending funds for emergency needs
- Review and update precautionary measures and procedures, and review with district staff, the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- 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.
- Provide information to all district hospitals about the disasters, likely damages and effects, and information about ways to protest equipment and property.
- Keep mobile medical units in preparedness.
- Check stocks of equipments and drugs, which are likely to be most needed after the disaster. These can be categorized generally as:

o Drugs used in treatment of cuts and fractures, such as tetanus toxoid, analgesics and antibiotics

o Drugs used for the treatment of diarrhoea, water-borne diseases and flu (including oral rehydrating supplies)

o Drugs required to treat burns and fight infections

o Drugs needed for detoxification including breathing equipments.

- Assess the level of medical supplies in stock, including:
  - o Fissure materials
  - o Surgical dressings
  - o Splints
  - o Plaster rolls

o Disposable needles and syringes
o Local antiseptics.

- Ensure immediate despatch of supplies likely to be needed to hospitals on an emergency priority basis.
- Ensure provision of appropriate number of hospitals for receiving large number of casualties in the affected areas.
- Develop emergency admission procedures (with adequate record keeping)
- Orient District level staff with EMRP standards of services and procedures including tagging.
- Fill-up the vacancies and appoint appropriate number of medical and para-medical professionals to ensure their availability during emergencies.
- Coordination with National and International NGOs

Department of Animal Husbandry

- Establish communications with Veterinary aid Centres and Hospitals (including private practitioners) within the state.
- Appoint one officer as "Nodal Officer - Veterinary Services" at the State Level
- Review and update precautionary measures and procedures and review with district level officers the precautions that have been taken to protect equipments and the post-disaster procedures to be followed.
- Stock emergency medical equipments, which may be required after a disaster.
- Determine what injuries illnesses may be expected, and what drugs and other medical items will be required, in addition to requirements of setting up cattle camps, and accordingly ensure that extra supplies of medical items and materials can be obtained quickly.
- Provide information to veterinary hospitals and centres about the disasters, likely damages and effects, and information about ways to protect life, equipment and property.

Uttar Pradesh Fire Service

- 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.
- Ensure required number of vehicles and fire fighting equipment is there in each district.
- Ensure fire engines are in good running condition.
- Organise capacity building programmes for the district level officials and staff with regard to response in disaster situations.

Uttar Pradesh Power Corporation

- Ensure all arrangements for power during emergencies.
- Assist the authorities to make arrangements for stand by generators in the following public service offices from the time of receipt of alert warning:
  - o Hospitals and Laboratories
  - o Water Supply and Drainage Board
  - o District Court Premises
  - o Police Stations
  - o Telecommunications buildings
  - o Meteorological stations
- Inspect and ensure proper working of :
  - o High tension lines towers
  - o Substations
  - o Transformers
  - o Insulators
  - o Poles and
  - o Other equipment.

Rural Engineering Services (RES)

- Develop quick recovery plans for the reconstruction and repair of roads if required after an emergency.
- Heavy equipments, such as front-end loaders, should be moved from areas likely to be damaged and secured in a safe place.
- Identify sites for dumping debris cleared from disaster sites in each district.
- Inspect all roads, road bridges including underwater inspection of foundations and piers. A full check should be made on all concrete and steel works.
- Inspect all buildings and structures of the state government (including PHC) by a senior engineer and identify structures, which are endangered by the impending disaster.
- Emergency tool kits should be assembled for each division, and should include:
  - o Crosscut saws
  - o Axes
  - o Power chain saw with extra fuel, oil
  - o Sharpening files
  - o Chains and tightening wrenches
  - o Pulley block with chain and rope.
- The designation of routes strategic to evacuation and relief should be identified and marked, in close coordination with police and district control room. Establish a priority listing of roads, which will be opened first. Among the most important are the roads to hospitals and main trunk routes.

Public Works Department

- Develop quick recovery plans for the reconstruction and repair of roads if required after an emergency.
- Heavy equipments, such as front-end loaders, should be moved from areas likely to be damaged and secured in a safe place.
- Identify sites for dumping debris cleared from disaster sites in each district.
- Inspect all roads, road bridges including underwater inspection of foundations and piers. A full check should be made on all concrete and steel works.
- Inspect all buildings and structures of the state government (including PHC) by a senior engineer and identify structures, which are endangered by the impending disaster.
- Emergency tool kits should be assembled for each division, and should include:
  - o Crosscut saws
  - o Axes
  - o Power chain saw with extra fuel, oil
  - o Sharpening files
  - o Chains and tightening wrenches
  - o Pulley block with chain and rope.
- The designation of routes strategic to evacuation and relief should be identified and marked, in close coordination with police and district control room. Establish a priority listing of roads, which will be opened first. Among the most important are the roads to hospitals and main trunk routes.

Department of Urban Development

- Identify sites for dumping debris cleared from disaster sites in advance in each district and map the same on the district map.
- Prepare list town wise list of emergency personnel required in the case of disaster to assist the authorities in maintaining cleanliness.
- Identify site and prepare list for burial of dead bodies and dead cattle.
- Check the equipment and vehicle most crucial in the time of disasters.
- Maintain stock of necessary equipment and vehicle in operation conditions.
- Identify buildings and government properties that may be used for shelter and show them on the map of the city/town to ensure easy identification.

Department of Agriculture

- Maintain surveillance for any unusual event damaging crops in larger areas not resulting from natural events.

Department of Food and Civil Supplies

- Inspect and review wheelhouses and godown in the entire state to ensure safe storage of food items.

- Instruct district officials to maintain certain amount of food and other materials as inventory to be used in the time of disasters and check the validity of all the items stored in the warehouses and godown.
- Prepare and share the mobilisation (transportation) plan with the State Disaster Management Authority and Department of Transport to ensure speedy transport of food and other items to the site of disaster.
- Organise capacity building programmes for the officials and staff.

Department of Transport

- Establish appropriate wireless communication system in the control room at the state headquarters to mobilise resources and communicate with the Incident Commanders at the State and district levels.
- Prepare list of vehicles, both heavy and light, and their owners to ensure availability of vehicle for transportation of casualties, injured persons, stocks, rescue teams, etc.
- Inspect all the government vehicles for its roadworthiness immediately.
- Prepare mobilisation plan and share it with the SEOC.

Jal Nigam

- Review and update precautionary measures and procedures, and review with district level officials the precautions that have been taken to protect equipment, and the post-disaster procedures to be followed.
- Stock of vehicles such as water tankers, sintex tanks, chlorination tablets, etc should be maintained at the state level to be dispatched from headquarters and stationed at safe strategic spots along routes likely to be affected.
- Instruct all the districts to check all installations for water treatment plants, water supply systems including water tanks, pumping stations, sewage treatment plants, and drains are in working conditions. Take action to rectify any damages and repairs.

Department of Revenue

- Ensure funds for disaster response in the state.
- Prepare district wise list of resources such as vacant state lands, government buildings, parks, etc. that can be used for temporary shelters, assemblies and camps.
- Prepare and share with the State Disaster Management Authority list of relevant physical and physical resources available with the revenue department that can be mobilised during or after disasters.

Department of Rural Development and Panchayati Raj

- Establish communication system with the district and state level disaster management authorities.
- Mobilise communities and other departments

Actions during Disaster

Actions to be taken by the various agencies during a disaster are listed here.

Department of Home

Evacuation

- Request support from the Army, Territorial Army and other Para-Military Forces for the rescue and evacuation operations.
- Order police force to assist the disaster management teams in evacuation.
- For appropriate security and law and order evacuation should be undertaken with assistance from community leaders.
- Immediately after the disaster, dispatch officers to systematically oversee the evacuations.
- Ensure that the police stations are functioning immediately after the disaster at all required locations, as may be requested by the district control room, and that staff are available for the variety of needs that will be presented.
- Order assistance to the PWD and RES teams in road-cleaning operations.
- Ensure traffic flow to allow relief teams to reach the disaster hit areas immediately.
- Ensure security to transit and relief camps, affected villages, hospitals and medical centres and identify areas to be cordoned off.
- Order diversions for the traffic to avoid disaster hit areas.
- Assist district authorities to take necessary action against black marketers and those found manipulating relief material.
- In conjunction with the Crisis Management Group , activate a public information centre to:
  o Respond to personal inquiries about the safety of relatives in the affected areas.
  o Statistics about affected communities, deaths, complaints and needs
  o Respond to the many specific needs that will be presented
  o Serve as a rumour control centre
  o Reassure the public.
- Make officers available to inquire into and record deaths, as there is likely to be neither time nor personnel available, to carry out standard post-mortem procedures.

- Monitor the needs and welfare of people sheltered in relief camps.
- Coordinate with military service personnel in the area.

Department of Health & Family Welfare

Evacuation

- Ensure that the evacuations have been done as per the operating procedures.
- Ensure appropriate arrangement of medical and para-medical professionals is in place.
- Ensure that the experts are mobilised to assist the district disaster management teams.
- Coordination with the community leaders for evacuations, vaccination etc.
- Ensure that the first aid and transportation of the injured is done.

Relief

- Transport 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.
- Establish health facility and treatment centres at disaster sites. Ensure there is sufficient medical facilities including private is available to meet the demands in the disaster struck areas.
- The provision of medical services should be coordinated by the Nodal Officer with the district control rooms.
- Procedures should be clarified between
  o Peripheral hospitals
  o Private hospitals
  o Blood banks
  o General hospitals and
  o 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 the monitoring and 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.
- Ensure supply of medicines, equipment and other necessary aids to the affected areas.
- Assess the number of causalities and injured in the state.

Uttar Pradesh Fire Service

Evacuation

- Ensure that the fire service department responds to the disaster situation.
- Ensure that search and rescue operations are carried out to minimise the casualties and transport the injured to the nearest hospitals as soon as possible after the disaster.

Relief

- Ensure that the fire stations are functioning immediately after the disaster at all required locations, as may be requested by the district control room, and that staff are available for the variety of needs that will be presented.

Department of Animal Husbandry

- Ensure transfer of seriously injured livestock from villages to veterinary aid centres wherever possible.
- The provision of medical services should be coordinated with District Control Room, SOCs and cattle camps.
- Establish cattle camps and additional veterinary aid centres at disaster sites and designate an Officer-in-Charge for the camp.
- Carryout culling of birds if necessitated.
- An injury and disease monitoring system should be developed, to ensure that a full picture of risks is maintained.
- Plan for emergency accommodations for veterinary staff from outside the area.
- Information to Emergency Operations Centre about the morbidity and mortality and arrangements at the disaster site.
- Establishment of a Public Information Centre with a means of communication, to assist in providing an organized source of information.

Energy Department

- Ensure uninterrupted power to all vital installations and facilities.
- Arrange personnel on an emergency basis for clearing of damaged poles and salvage of conductors and insulators.
- Order repair/reconstruction.

- Arrange temporary electricity supplies for other key public facilities, public water systems, etc.
- Arrange temporary electricity supplies for transit camps, feeding centres, relief camps and sac, district control room and on access roads to the same.
- Compile an itemised assessment of damage, from reports made by various electrical receiving centres and sub-centres.
- Plan for emergency accommodations for staff from outside the area.
- Send cables, poles, transformers and other needed equipment
- Send vehicles and any additional tools needed.
- Provide additional support as required.

Rural Engineering Services (RES) and Public Works Department

- Order quick restoration of roads to their normal condition.
- Sanction repair/reconstruction works of public utilities and buildings.
- Issue two way communication links to the vital staff such as executive engineers.
- Ensure provision of sufficient number of tools and equipment such as
  o Towing vehicles
  o Earth moving equipments
  o Cranes etc.
- Order installation of adequate road signs should be installed to guide and assist the drivers.
- Sanction construction of temporary roads to serve as access to temporary transit and relief camps, and medical facilities for disaster victims.
- On the request of the district control room, sanction construction of temporary structures required, for organising relief work and construction of relief camps, feeding centres, medical facilities, cattle camps and SOCs.
- Reporting of damage to the Crisis Management Group

Department of Urban Development

- Assist District Authorities in handling emergency situation.
- Supervise the location of sites of camps and ensure provision of safe places for temporary shelters, storage of relief materials, and transit camps.
- Ensure cleanliness and hygiene in the town cities.
- Report to the CMG about the damages and assistance provided to other agencies in managing the response.
- Ensure that suitable land or buildings that can be used as temporary relief camps and feeding centres are available to the district disaster management teams.

- Supervise sites for dumping debris cleared from disaster areas, removal and disposal of carcasses of dead animal and removal and mass cremation of unclaimed dead bodies.

Department of Agriculture

- Ensure that district level agencies are activated and coordinating with the district disaster management teams.
- Order destruction of contaminated crops in the field to avoid effect on the human and cattle population.

Department of Civil Supplies

- Ensure that the stock is transported to the affected areas
- Supervise distribution of the food items, kerosene and other necessary items
- Check and maintain the standard in the distribution of relief materials.
- Ensure that the relief materials reaches to the most disadvantaged and weaker sections of the society without any discrimination.

Department of Transport

- Ensure that the required number of vehicles are arranged and deployed for the rescue and relief work by the regional transport departments.
- Order mobilisation of additional resources from the neighbouring areas to the affected districts.

Jal Nigam

- Ensure public water supply is available without much interruption.
- Order quick restoration of water supply if affected.
- Arrange and mobilise additional resources such as tankers and staff to the affected areas.
- Supervise quality of water supplied to the camps and affected areas.
- Check the quality of water supplied for the public use as it may be contaminated as result of disaster. I this case, order preventive measures to be taken and make alternate arrangements

Department of Revenue

- Ensure budgetary provisions for meeting the cost of rescue and relief works.
- Arrange additional resources required to carry out relief and rescue operations.
- Declare emergency situation for acquisition of land, vehicles and other resources if required.
- Coordination with the Armed Forces, National Disaster Management Authority, and other Central Government Agencies if required.

NGOs and CBOs

- Community mobilization
- Disseminate all government aided programmes to the community
- Help the community for taking precaution needed for water and proper health and sanitation measures
- Provide information of evacuees sheltered in different locations to the medical teams
- Ensure medicines are reached to the affected areas with the help of volunteers
- Ensure proper treatment of the victims or injured
- Facilitate charitable organisations to work hand in hand with the government medical teams
- Arrange transport – both road and water ways – to the outside medical teams and volunteers, if required
- Record keeping

Annexure -1

Alphabetical listing of divisions

Division	Headquarters	Districts
Agra division	Agra	Agra Firozabad Mainpuri Mathura
Aligarh division	Aligarh	Aligarh Etah Mahamaya Nagar Kanshiram Nagar
Allahabad division	Allahabad	Allahabad Fatehpur Kaushambi Pratapgarh
Azamgarh division	Azamgarh	Azamgarh Ballia Mau
Bareilly division	Bareilly	Badaun Bareilly Pilibhit Shahjahanpur
Basti division	Basti	Basti Sant Kabir Nagar Siddharthnagar
Chitrakoot division	Chitrakoot	Banda Chitrakoot Hamirpur Mahoba
Devipatan division	Gonda	Bahraich Balarampur Gonda Shravasti
Faizabad division	Faizabad	Ambedkar Nagar Barabanki Faizabad Sultanpur
Gorakhpur division	Gorakhpur	Devaria Gorakhpur Kushinagar Maharajganj
Jhansi division	Jhansi	Jalaun Jhansi Lalitpur
Kanpur division	Kanpur	Auraiya Etawah Farrukhabad Kannauj Kanpur Dehat Kanpur Nagar
Lucknow division	Lucknow	Hardoi Lakhimpur Kheri Lucknow Raebareli

		Sitapur Unnao
Meerut division	Meerut	Bagpat Bulandshahr Gautam Buddha Nagar Ghaziabad Meerut
Mirzapur division	Mirzapur	Mirzapur Sant Ravidas Nagar Sonbhadra
Moradabad division	Moradabad	Bijnor Jyotiba Phule Nagar Moradabad Rampur
Saharanpur division	Saharanpur	Muzaffarnagar Saharanpur
Varanasi division	Varanasi	Chandauli Ghazipur Jaunpur Varanasi

Annexure -2

Alphabetical listing of districts

District	Headquarters	Population As of 2001	Area (km2)	Density (/km2
Agra	Agra	3,611,301	4,027	897
Allahabad	Allahabad	4,941,510	5,424	911
Aligarh	Aligarh	2,990,388	3,747	798
Ambedkar Nagar	Akbarpur	2,025,373	2,372	854
Auraiya	Auraiya	1,179,496	2,051	575
Azamgarh	Azamgarh	3,950,808	4,234	933
Barabanki	Barabanki	2,673,394	3,825	699
Badaun	Badaun	3,069,245	5,168	594
Bagpat	Bagpat	1,164,388	1,345	866
Bahraich	Bahraich	2,384,239	5,745	415
Bijnor	Bijnor	3,130,586	4,561	686
Ballia	Ballia	2,752,412	2,981	923
Banda District	Banda	1,500,253	4,413	340
Balrampur	Balrampur	1,684,567	2,925	576
Bareilly	Bareilly	3,598,701	4,120	873
Basti	Basti	2,068,922	3,034	682
Bulandshahr	Bulandshahr	2,923,290	3,719	786
Chandauli	Chandauli	1,639,777	2,554	642
Chitrakoot	Chitrakoot	800,592	3,202	250
Deoria	Deoria	2,730,376	2,535	1,077
Etah	Etah	2,788,270	4,446	627
Etawah	Etawah	1,340,031	2,287	586
Firozabad	Firozabad	2,045,737	2,361	866
Farrukhabad	Fatehgarh	1,577,237	2,279	692
Fatehpur	Fatehpur	2,305,847	4,152	555
Faizabad	Faizabad	2,087,914	2,765	755
Gautam Buddha	NOIDA	1,191,263	1,269	939

Nagar				
Gonda	Gonda	2,765,754	4,425	625
Ghazipur	Ghazipur	3,049,337	3,377	903
Gorkakhpur	Gorakhpur	3,784,720	3,325	1,138
Ghaziabad	Ghaziabad	3,289,540	1,956	1,682
Hamirpur	Hamirpur	1,042,374	4,325	241
Hardoi	Hardoi	3,397,414	5,986	568
Mahamaya Nagar	Hathras	1,333,372	1,752	761
Jhansi	Jhansi	1,746,715	5,024	348
Jalaun	Orai	1,455,859	4,565	319
Jyotiba Phule Nagar	Amroha	1,499,193	2,321	646
Jaunpur District	Jaunpur	3,911,305	4,038	969
Kanpur Dehat	Akbarpur	1,584,037	3,143	504
Kannauj	Kannauj	1,385,227	1,993	695
Kanpur Nagar	Kanpur	4,137,489	3,029	1,366
Kanshi Ram Nagar	Kasganj	-	-	-
Kaushambi	Manjhanpur	1,294,937	1,837	705
Kushinagar	Padarauna	2,891,933	2,909	994
Lalitpur	Lalitpur	977,447	5,039	194
Lakhimpur Kheri	Kheri	3,200,137	7,680	417
Lucknow	Lucknow	3,681,416	2,528	1,456
Mau	Mau	1,849,294	1,713	1,080
Meerut	Meerut	3,001,636	2,522	1,190
Maharajganj	Maharajganj	2,167,041	2,948	735
Mahoba	Mahoba	708,831	2,847	249
Mirzapur	Mirzapur	2,114,852	4,522	468
Moradabad	Moradabad	3,749,630	3,648	1,028
Mainpuri	Mainpuri	1,592,875	2,760	577
Mathura	Mathura	2,069,578	3,333	621
Muzaffarnagar	Muzaffarnagar	3,541,952	4,008	884
Pilibhit	Pilibhit	1,643,788	3,499	470
Pratapgarh	Pratapgarh	2,727,156	3,717	734
Rampur	Rampur	1,922,450	2,367	812
Rae Bareli	Rae Bareli	2,872,204	4,609	623
Saharanpur	Saharanpur	2,848,152	3,689	772
Sitapur	Sitapur	3,616,510	5,743	630
Shahjahanpur	Shahjahanpur	2,549,458	4,575	557
Sant Kabir Nagar	Khalilabad	1,424,500	1,442	988
Siddharthnagar	Navgarh	2,038,598	2,751	741
Sonbhadra	Robertsganj	1,463,468	6,788	216
Sant Ravidas Nagar	Gyanpur	1,352,056	960	1,408
Sultanpur	Sultanpur	3,190,926	4,436	719
Shravasti	Shravasti	1,175,428	1,126	1,044
Unnao	Unnao	2,700,426	4,558	592
Varanasi	Varanasi	3,147,927	1,578	1,995

Annexure -3

Demographic, Socio-economic and Health profile of Uttar Pradesh State as compared to India figures

S. 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

Annexure -4

Economic Infrastructure of Uttar Pradesh

Power

Installed Capacity (96-97) :	5,575 MW
Production :	2,282 crore KWH
Consumption :	2,667 crore KWH
Per capita consumption :	209 KWH
No. of electrified villages :	87,891

Telecommunication

Number of phones	5,75,867
People per phone	241.4
Phone services	DOT, HFC Bezeq
Cellular services	UP(East): Airtel, Koshika; UP(West): Escotel, Koshika
Radio paging	IXL, Modi Tel

Railways

Railway track length	8,901 km

Roads

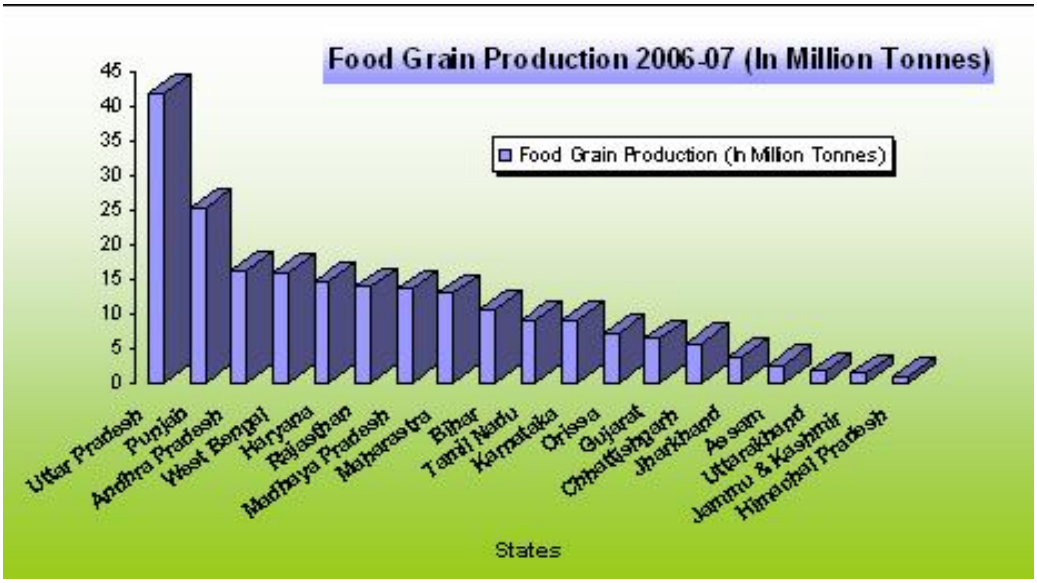
Road length	1,84,000 km
National Highway length	2,613 km

Airports

Domestic airports	5 (Agra, Kanpur, Lucknow, Varanasi and Gorakhpur)
International airports	None

Annexure -5

Data on Food Grain Production



Annexure-6

Detailed Information about important Departments and Institutions

Administrative Department	
Administrative Reforms Department	Agriculture Production Commissioner
Ambedkar Gram Vikas Vibhag	Animal Husbandry & Fisheries
Appointment Department	Backward Welfare - Citizen Charter
Banking & Institutional Finance	Board of Revenue
Chief Minister Office	Civil Aviation
Cooperative Department	Customs and Central Excise Kanpur
Election : Office of Chief Electoral Officer	Entertainment Tax
Excise Department	Externally Aided Projects Department
Finance Department	Fisheries Department
Food & Civil Supplies	Forest Department
Geology & Mining Directorate	Handicap Welfare Department
Handloom Directorate	Higher Education Department
Horticulture Department	Housing Department
Industrial Development	Information Directorate
Information Technology & Electronics	Irrigation
Land Records	Mahila Kalyan
Medical, Health & Family Welfare	Minor Irrigation Department
Planning Department	Prantiya Rakshak Dal & Youth Welfare
Public Works Department (PWD)	Rajya Sampatti Vibhag
Revenue (Scarcity)	Rural Engineering
Rural Development	Ruralsoft
Sarvjanik Udyam Vibhag	Sericulture
Sports Directorate	Town and Country Planning Department
Trade Tax	Transport Department
Treasuries	Uttar Pradesh Budget
Uttar Pradesh Ganna Vikas Vibhag	Uttar Pradesh Police

Vidyut Suraksha	Vigilance Department
E-mail Directory	Raj Bhawan, Uttar Pradesh
Vidhan Sabha, Uttar Pradesh	High Court, Allahabad, Uttar Pradesh
Etawah Court	Kanpur Dehat Court
Lok Ayukta, Uttar Pradesh	Sankhikiya Patrika
State Election Commission, U.P.	State Information Commission, U.P.
Central Government Offices	
Accountant General, Uttar Pradesh and Uttaranchal	Advanced Level Telecommunication Training Centre(ALTTC)
Aligarh Muslim University(AMU)	Artificial Limbs Manufacturing Corporation of India(ALIMCO)
Bal Vikas Pariyojana Parishad, Uttar Pradesh	Banaras Hindu University(BHU)
Birbal Sahni Institute of Palaeobotany	Cantonment Board, Jhansi
Central Avian Research Institute(CARI)	Central Drug Research Institute(CDRI)
Central Government Health Scheme(CGHS), Allahabad	Central Ground Water Board, Northern Region, Lucknow
Central Institute for Research on Goats(CIRG)	Central Institute of Higher Tibetan Studies(CIHTS)
Central Institute of Medicinal and Aromatic Plants(CIMAP)	Chief Electoral Officer, Uttar Pradesh
Competent Authority, Customs and Narcotics, Lucknow	Customs and Central Excise, Kanpur
Department of Computer Science and Engineering, Indian Institute of Technology, Kanpur	Diesel Locomotive Works(DLW)
Educational Consultants India Limited(EDCIL)	Fertilizer Corporation of India Limited(FCIL)
Field Gun Factory, Kanpur	Giri Institute of Development Studies(GIDS)
Homoeopathic Pharmacopoeia Laboratory(HPL)	India Government Mint, Noida
Indian Institute of Information Technology, Allahabad(IIITA)	Indian Institute of Management, Lucknow(IIML)
Indian Institute of Pulses Research(IIPR)	Indian Institute of Sugarcane Research(IISR)
Indian Institute of Technology, Kanpur(IITK)	Indian Institute of Vegetable Research(IIVR)
Indian Veterinary Research Institute(IVRI)	Indira Gandhi Rashtriya Uran Academy(IGRUA)
Industrial Toxicology Research Centre(ITRC)	Inland Waterways Authority of India(IWAI)
Institute of Technology, Banaras Hindu University	Kendriya Hindi Sansthan
Krishak Bharati Co-operative Limited(KRIBHCO)	Mehta Research Institute of Physics and Mathematical Physics
Motilal Nehru National Institute of Technology(MNNIT), Allahabad	National Academy of Sciences
National Botanical Research Institute(NBRI)	National Centre for Medium Range Weather Forecasting(NCMRWF)
National Commissioner for Linguistic Minorities	National Handloom Development Corporation Limited(NHDC)
National Institute for Entrepreneurship and Small Business Development(NIESBUD)	National Internet Exchange of India(NIXI)
National Research Centre for Agroforestry(NRCAF)	National Research Laboratory for Conservation of Cultural Property(NRLC
National Sugar Institute	Noida Special Economic Zone(NSEZ)
North Central Zone Cultural Centre(NCZCC)	North Eastern Railway
Northern India Textile Research Association(NITRA)	Northern Railway Carriage and Wagon Workshop(NRC&W)
Principal Controller of Defence Accounts(Central	Principal Controller of Defence

Command	Accounts(Pensions
Projects and Development India Limited(PDIL	Railway Recruitment Board, Allahabad
Railway Recruitment Board, Gorakhpur	Rampur Raza Library
Research Designs and Standards Organisation(RDSO	Small Industries Service Institute(SISI), Kanpur
State Institute of Education Technology, Lucknow	Uttar Pradesh(East) Telecom Circle
Uttar Pradesh(West) Telecom Circe	V. V. Giri National Labour Institute(VVGNLI

Educational Institutions/Institutes	
Aligarh Muslim University (AMU), Aligarh	Allahabad University
Amity University	Banaras Hindu University (BHU), Varanasi
Birbal Sahni Institute of Palaeobotany, Lucknow	Board of High School & Intermediate Education, U.P., Allahabad
Board of Technical Education, U.P., Lucknow	Bundelkhand Institute of Engineering & Technology, Jhansi
Chhatrapati Shahuji Maharaj University, Kanpur	Community Development Scheme of U.P. Polytechnics
Department of Computer Science & Engineering, IIT Kanpur	Footwear Design and Development Institute, Noida
Govind Ballabh Pant Social Science Institute	Harcourt Butler Technological Institute (HBTI), Kanpur
Harish Chandra Research Institute, Allahabad	Indian Institute of Information Technology, Allahabad (IIITA)
Indian Institute of Management, Lucknow (IIML)	Indian Institute of Sugarcane Research, Lucknow (IISR)
Indian Institute of Technology, Kanpur (IITK)	Indian Veterinary Research Institute, Izatnagar, Bareilly
Indira Gandhi Institute of Cooperative Management	Indira Gandhi Rashtriya Uran Academy
Institute of Engineering & Technology (IET), Lucknow	Institute of Judicial Training and Research, Lucknow
Institute of Research, Development and Training, Kanpur	Jaipuria Institute of Management (JIM), Lucknow
Joint Entrance Examination Council, U.P., Lucknow	Kendriya Hindi Sansthan, Agra
King George Medical University, Lucknow	Lucknow University
MJP Rohilkhand University	Motilal Nehru National Institute of Technology (MNNIT), Allahabad
NIC Training Division, UPSU, Lucknow	Raza Library, Rampur
Sampurnanad Sanskrit Vishwa Vidyalaya	Uttar Pradesh Combined Pre Medical Test (UPCPMT)
Small Industries Service Institute, Kanpur	State Institute of Educational Technology, U.P.
V.V. Giri National Labour Institute, Noida	Uttar Pradesh Technical University (UPTU), Lucknow
Sanjay Gandhi Post Graduate Institute of Medical Sciences (SGPGIMS), Lucknow	

Source: http://www.juteworld.com

Annex - 7

Basic Structure of the Scale

(Criteria given in matrix are broad indicators only)
Detailed definitions are provided in the INES User's Manual

	CRITERIA OR SAFETY ATTRIBUTES		
	OFF-SITE IMPACT	ON-SITE IMPACT	DEFENCE IN DEPTH DEGRADATION
7 MAJOR ACCIDENT	MAJOR RELEASE: WIDESPREAD HEALTH AND ENVIRONMENTAL EFFECTS		
6 SERIOUS ACCIDENT	SIGNIFICANT RELEASE: LIKELY TO REQUIRE FULL IMPLEMENTATION OF PLANNED COUNTERMEASURES		
5 ACCIDENT WITH OFF-SITE RISK	LIMITED RELEASE: LIKELY TO REQUIRE PARTIAL IMPLEMENTATION OF PLANNED COUNTERMEASURES	SEVERE DAMAGE TO REACTOR CORE/RADIOLOGICAL BARRIERS	
4 ACCIDENT WITHOUT SIGNIFICANT OFF-SITE RISK	MINOR RELEASE: PUBLIC EXPOSURE OF THE ORDER OF PRESCRIBED LIMITS	SIGNIFICANT DAMAGE TO REACTOR CORE/RADIOLOGICAL BARRIERS/FATAL EXPOSURE OF A WORKER	
3 SERIOUS INCIDENT	VERY SMALL RELEASE: PUBLIC EXPOSURE AT A FRACTION OF PRESCRIBED LIMITS	SEVERE SPREAD OF CONTAMINATION/ACUTE HEALTH EFFECTS TO A WORKER	NEAR ACCIDENT NO SAFETY LAYERS REMAINING
2 INCIDENT		SIGNIFICANT SPREAD OF CONTAMINATION/ OVEREXPOSURE OF A WORKER	INCIDENTS WITH SIGNIFICANT FAILURES IN SAFETY PROVISIONS
1 ANOMALY			ANOMALY BEYOND THE AUTHORIZED OPERATING REGIME
0 DEVIATION	**NO**	**SAFETY**	**SIGNIFICANCE**
OUT OF SCALE EVENT	**NO SAFETY RELEVANCE**		

Annex-8

The International Nuclear Event Scale

For prompt communication of safety significance

LEVEL/ DESCRIPTOR	NATURE OF THE EVENTS	EXAMPLES
ACCIDENTS 7 MAJOR ACCIDENT	• External release of a large fraction of the radioactive material in a large facility (e.g. the core of a power reactor). This would typically involve a mixture of short and long-lived radioactive fission products (in quantities radiologically equivalent to more than tens of thousands of terabecquerels of iodine-131). Such a release would result in the possibility of acute health effects; delayed health effects over a wide area, possibly involving more than one country; long-term environmental consequences.	Chernobyl NPP, USSR (now in Ukraine), 1986
6 SERIOUS ACCIDENT	• External release of radioactive material (in quantities radiologically equivalent to the order of thousands to tens of thousands of terabecquerels of iodine-131). Such a release would be likely to result in full implementation of countermeasures covered by local emergency plans to limit serious health effects.	Kyshtym Reprocessing Plant, USSR (now in Russia), 1957
5 ACCIDENT WITH OFF-SITE RISK	• External release of radioactive material (in quantities radiologically equivalent to the order of hundreds to thousands of terabecquerels of iodine-131). Such a release would be likely to result in partial implementation of countermeasures covered by emergency plans to lessen the likelihood of health effects. • Severe damage to the installation. This may involve severe damage to a large fraction of the core of a power reactor, a major criticality accident or a major fire or explosion releasing large quantities of radioactivity within the installation.	Windscale Pile, UK, 1957 Three Mile Island, NPP, USA, 1979
4 ACCIDENT WITHOUT SIGNIFICANT OFF-SITE RISK	• External release of radioactivity resulting in a dose to the critical group of the order of a few millisieverts.* With such a release the need for off-site protective actions would be generally unlikely except possibly for local food control. • Significant damage to the installation. Such an accident might include damage leading to major on-site recovery problems such as partial core melt in a power reactor and comparable events at non-reactor installations. • Irradiation of one or more workers resulting in an overexposure where a high probability of early death occurs.	Windscale Reprocessing Plant, UK, 1973 Saint-Laurent NPP, France, 1980 Buenos Aires Critical Assembly, Argentina, 1983
INCIDENTS 3 SERIOUS INCIDENT	• External release of radioactivity resulting in a dose to the critical group of the order of tenths of millisievert.* With such a release, off-site protective measures may not be needed. • On-site events resulting in doses to workers sufficient to cause acute health effects and/or an event resulting in a severe spread of contamination for example a few thousand terabecquerels of activity released in a secondary containment where the material can be returned to a satisfactory storage area. • Incidents in which a further failure of safety systems could lead to accident conditions, or a situation in which safety systems would be unable to prevent an accident if certain initiators were to occur.	Vandellos NPP, Spain, 1989
2 INCIDENT	• Incidents with significant failure in safety provisions but with sufficient defence in depth remaining to cope with additional failures. These include events where the actual failures would be rated at level 1 but which reveal significant additional organisational inadequacies or safety culture deficiencies. • An event resulting in a dose to a worker exceeding a statutory annual dose limit and/or an event which leads to the presence of significant quantities of radioactivity in the installation in areas not expected by design and which require corrective action.	
1 ANOMALY	• Anomaly beyond the authorised regime but with significant defence in depth remaining. This may be due to equipment failure, human error or procedural inadequacies and may occur in any area covered by the scale, e.g. plant operation, transport of radioactive material, fuel handling, waste storage. Examples include: breaches of technical specifications or transport regulations, incidents without direct safety consequences that reveal inadequacies in the organisational system or safety culture, minor defects in pipework beyond the expectations of the surveillance programme.	
DEVIATIONS 0 BELOW SCALE	• Deviations where operational limits and conditions are not exceeded and which are properly managed in accordance with adequate procedures. Examples include: a single random failure in a redundant system discovered during periodic inspections or tests, a planned reactor trip proceeding normally, spurious initiation of protection systems without significant consequences, leakages within the operational limits, minor spreads of contamination within controlled areas without wider implications for safety culture.	NO SAFETY SIGNIFICANCE

* *The doses are expressed in terms of effective dose equivalent (whole dose body). Those criteria where appropriate can also be expressed in terms of corresponding annual effluent discharge limits authorized by National authorities.*

99-00305/FS-05

International Atomic Energy Agency
Wagramerstrasse 5
A-1400 Vienna, Austria

OECD Nuclear Energy Agency
Le Seine Saint-Germain-12
Boulevard des Iles
92130 Issy-les-Moulineaux, France

Annexure-9

IMPORTANT CONTACT NUMBERS

CHIEF MINISTER (CHAIRPERSON OF UPDMA)

Designation		**Office Phone**
Chief Minister		2239296, **Fax**: 2239234
Officer on Special Duty		2225757, 2239296
Secretary		2238251, 2239299, 2238286
Special Secretary		2238288, 2238258, 2238316, 2213345
Joint Secretary		2237250, 2213334, 2213501, 2213366
Special Secretary		2238279
Chief Minister Information Centre		
Deputy Director (Press)		2238271
Information Officer (Media Centre)		2239303
Information Officer		2236094

Chief Secretary

Designation	**Office Phone**
Chief Secretary	2221599, 22238212, 22239461, 2235622 **Fax**: 22239283
Staff Officer	22238942, 22208553, 22205736, 2238873 **Fax**: 22238282
Additional Chief Secretary	22208797, 22238277, **Fax**: 22238979

State Emergency Operation Centre (SEOC)

SEOC Toll Free Number	1070 (For Lucknow)		
	1077 (for other districts)		
SEOC In Charge	Relief Commissioner	0522-22238200	9415906050
Nodal Officers Emergency Support Functions			
Communications	Chief Communication Officer	0522-2288599	
Public health and sanitation			
Energy	Principal Secretary		9415906018
Transport	Principal Secretary	0522-2613978	9415906029
Search and Rescue			
Donations			
Public works	Principal Secretary	0522-2621154	9415906016

Planning	Principal Secretary		9415906015
Relief supplies			
Food and civil supplies	Principal Secretary		9415906014
Drinking water			
Housing	Principal Secretary		9415906015
Media			

Principal Secretary

Principal Secretary, Urban Dev./ Emp./ Poverty Erad.	2237314, 2238263 **Fax**	9415906023
Principal Secretary, Transport	2238068, 2236977	
Principal Secretary, Tourism	2238956	
Principal Secretary, Technical Education	2239331, 2238106	
Principal Secretary, Taxes & Registration	2239387	
Principal Secretary, Secretariat Administration	2238065	
Principal Secretary, Secondary Education	2238058	
Principal Secretary, Revenue/ Relief	2238089	
Principal Secretary, R.I.D.C, Ambedkar Gram Vikas, Rural Development	2238126	9415906017
Principal Secretary, Public Enterprises	2238456	
Principal Secretary, Planning	2238973, 2238467	
Principal Secretary, Parliamentary Affairs	2238315	
Principal Secretary, Panchayati Raj	2238083	9415906019
Principal Secretary, P.W.D.	2200399, 2221154	9415906016
Principal Secretary, Medical, Health & Family Welfare	2625449	9415906012
Principal Secretary, Labour	2238682	
Principal Secretary, Justice & Legislature	2238108	
Principal Secretary, Irrigation	2238461	9415906011
Principal Secretary, Information & Public Relation	2238249	
Principal Secretary, I.D.C., Civil Aviation	2239530, 2238265	
Principal Secretary, Home	2238291, 2239279	

Principal Secretary, Higher Education	2238155	
Principal Secretary, General Administration	2238989	
Principal Secretary, Forest	2238669	
Principal Secretary, Food & Civil Supply	2238411, 2238242	
Principal Secretary, Finance	2238062, 2238434	
Principal Secretary, Excise	2238674	
Principal Secretary, Energy	2238244, 2236517	
Principal Secretary, Civil Defence/ Home guard	2239282	
Principal Secretary, Appointment/ Personnel	2238256, 2239288 **Fax**	
Principal Secretary, Agro-Industry/ Export Promo.	2238137	
Principal Secretary, Administrative Reforms	2238416	
Principal Secretary, S.W.C.	2237165	

Divisional Commissioner

District & STD Code	Post	Office	Residence	Mobile
Agra (0562)	Divisional Commissioner	2226812, 2226810	2226533, 2226536	2226115
Allahabad (0532)	Divisional Commissioner	2640250	2642900, 2642800	2640196
Azamgarh (05462)	Divisional Commissioner	224816, 228465	243900	9454417494
Bareilly (0581)	Divisional Commissioner	2455663, 2455661	2550501, 2550502	9454417495
Basti (05542)	Divisional Commissioner	283432, 283685	246269	9454417496
Chitrakoot Dham (05192)	Divisional Commissioner	224546, 285658	225291	9454417497
Devipatan (05262)	Divisional Commissioner	222012	222011	9454417498
Faizabad (05278)	Divisional Commissioner	224243, 222310	222309, 224242	9454417499
Gorakhpur (0551)	Divisional Commissioner	2333076, 2335238	2336022	9454417500
Jhansi (0517)	Divisional Commissioner	2443313	2443310, 2452500	9454417501
Kanpur (0512)	Divisional Commissioner	2304304, 2304480	2294100, 2294441	9454417502
Lucknow (0522)	Divisional Commissioner	2229522	2220441, 2204460	9454417503
Meerut (0121)	Divisional Commissioner	2664431	2641377, 2651155	9454417504

Mirzapur (05442)	Divisional Commissioner	256888	256544	9454417505
Moradabad (0591)	Divisional Commissioner	2413586	2426644, 2435255	9454417506
Saharanpur (0132)	Divisional Commissioner	2760063	2761028	9454417507
Varanasi (0542)	Divisional Commissioner	2502158, 2508203	2382333	9454417508

Inspector General (I.G.)

District & STD Code	Post	Office	Mobile	Residence	Fax
Agra (0562)	I.G.		9454400178		
Allahabad (0532)	I.G.	2624825	9454400139	2621502	---
Bareilly (0581)	I.G.	2420215, 2511060	9454400140	2457061	---
Gorakhpur (0551)	I.G.	2333707	9454400141	2333777	---
Kanpur (0512)	I.G.	2214450	9454400142	---	---
Lucknow (0522)	I.G.	2393300	9454400143	2721212	2393350
Lucknow (0522)	I.G.		9454400212		
Meerut (0121)	I.G.	2763664	9454400144	2763733	---
Varanasi (0542)	I.G.	2507575	9454400145	2501433	---

Deputy Inspector General (D.I.G.)

District & STD Code	Post	Office	Mob.	Residence
Agra (0562)	D.I.G.	2363343	**9454400246**	2261000
Allahabad (0532)	D.I.G.	2609327	**9454400202**	2603730
Azamgarh (05462)	D.I.G.	243201	**9454400203**	243249
Bareilly (0581)	D.I.G.	2511049	**9454400204**	2427075
Basti (05542)	D.I.G.	246487	**9454400205**	---
Chitrakoot Dham (05192)	D.I.G.	224792		224792
Devipatan (05262)	D.I.G.	222253		229777
Faizabad (05278)	D.I.G.	224248	**9454400208**	224247
Gorakhpur (0551)	D.I.G.	2333442	**9454400209**	2201100
Jhansi (0517)	D.I.G.	2443351	**9454400210**	---
Kanpur (0512)	D.I.G.	2304461	**9454400211**	---
Lucknow (0522)	D.I.G.	2225480, 2217884	**9454400290**	2225480
Meerut (0121)	D.I.G.	2642550	**9454400214**	2641566
Mirzapur (05442)	D.I.G.	256366	**9454400215**	257401
Moradabad (0591)	D.I.G.	2435532	**9454400213**	2435698
Saharanpur (0132)	D.I.G.	2761795	**9454400216**	2761465
Varanasi (0542)	D.I.G.	2508181	**9454400217**	2508163

District Magistrate (D.M.)

District & STD Code	Post	Office	Residence	Mobile
Agra (0562)	D.M.	2260184	2361210	9454417509
Akbarpur (Knp. dehat- 05111)	D.M.	2304008, 22066	2304660, 220433	-
Aligarh (0571)	D.M.	2400202	2400798, 2400799	9454417513
Allahabad (0532)	D.M.	2641253	2640300, 2640400	9454417517
Ambedkarnagar (05271)	D.M.	246999	244345	9454417539

Auraiya (05683)	D.M.	245528	244888	9454417550
Azamgarh (05462)	D.M.	220930	220402	9454417521
Badayun (05832)	D.M.	266406	224301	9754417525
Bagpat (0121)	D.M.	220520	221999	9454417562
Bahraich (05252)	D.M.	232815	232401	9454417535
Ballia (05498)	D.M.	220879	220311	9454417522
Balrampur (05263)	D.M.	233942	232231	9454417536
Banda (05192)	D.M.	224632	224333	9454417531
Barabanki (0524)	D.M.	2822730	2822229	9454417540
Bareilly (0581)	D.M.	2473303, 2457043	2557147, 2558764	9454417524
Basti (05542)	D.M.	282005	246306	9454417528
Bijnaur (01342)	D.M.	264444	262021, 262465	9454417570
Bulandshahar (05732)	D.M.	224351, 226440	231343	9454417563
Chandauli (05412)	D.M.	262557	262555	9454417576
Chitrakoot (05198)	D.M.	235016	235305	9454417532
Dewaria (05568)	D.M.	222316	222306	9454417543
Etah (05742)	D.M.	233302	233301, 233777	9454417514
Etawah (05688)	D.M.	254770	252219, 252544	9454417551
Faizabad (05278)	D.M.	224286	222221, 224205	9454417541
Farrukhabad (05692)	D.M.	234133	234297, 234165	9454417552
Fatehpur (05180)	D.M.	224502, 224414	224439	9454417518
Firozabad (05612)	D.M.	285001, 285066	285002, 285111	9454417510
Gautambuddhnagar (0120)	D.M.	2320089, 2326030	2552552	9454417564
Gazipur (0548)	D.M.	2220204	2220240	9454417577
Ghaziabad (0120)	D.M.	2714416	2710106, 2701616	9454417565
Gonda (05262)	D.M.	222400, 225125	229666	9454417537
Gorakhpur (0551)	D.M.	2336005	2344544, 2336007	9454417544
Hamirpur (05282)	D.M.	222330, 222251	222201	9454417533
Hardoi (05852)	D.M.	234537	234680	9454417556
Hathras (05722)	D.M.	233401	224001	9454417515
Jalaun (05162)	D.M.	252201	252200	9454417548
Jaunpur (05452)	D.M.	260666	260201, 260202	9454417578
Jhansi (0517)	D.M.	2470556	2331520, 2443324	9454417547
Jyotibarao Phule Nagar (05922)	D.M.	259988	262999	9454417571
Kannauj (05694)	D.M.	237697	234500	9454417555
Kanpur (0512)	D.M.	2306577	2304287, 2304436	9454417554
Kahiramnagar [Kasganj](05744)	D.M.	2474483		
Kaushambi (05331)	D.M.	233467	233358	9454417519
Kushinagar (05564)	D.M.	242592	242392	9454417545
Lakhimpur Kheri (05872)	D.M.	252838, 252822	252715, 252879	9454417558
Lalitpur (05176)	D.M.	272200	274003	9454417549
Lucknow (0522)	D.M.	2223024, 2225653	2623912, 2214700	9454417557
Maharajganj (05523)	D.M.	222044	222206	9454417546
Mahoba (05281)	D.M.	244412	244472, 244473	9454417534
Mainpuri (05672)	D.M.	234308	234401	9454417511
Mathura (0565)	D.M.	2404152	2403200	-
Mau (0547)	D.M.	2220233	2500411	9454417523
Meerut (0121)	D.M.	2664133, 2643976	2642232, 2640166	9454417566

Mirzapur (05442)	D.M.	252480	252340, 257400	9454417567
Moradabad (0591)	D.M.	2413288	2413967, 2413016	9454417572
Muzaffarnagar (0131)	D.M.	2405103	2433125, 2433970	9454417574
Pilibhit (05882)	D.M.	237912	257911	9454417526
Pratapgarh (05342)	D.M.	220405	220401	9454417520
Raibareli (0535)	D.M.	2202302	2202301, 2202180	9454417559
Rampur (0595)	D.M.	2350403	2351061	9454417573
Saharanpur (0132)	D.M.	2723434, 2726838	2727144, 2725526	9454417575
Sant Ravidasnagar (05414)	D.M.	250203	250202	9454417568
Sant kabirnagar (05547)	D.M.	222890	222889	9454417529
Shahjahanpur (05842)	D.M.	222540	222221	9454417527
Shravasti (05250)	D.M.	222287	222288	9454417538
Siddharthnagar (05544)	D.M.	222169	222333	9454417530
Sitapur (05862)	D.M.	242900, 242996	242600, 242212	9454417560
Sonbhadra (05444)	D.M.	222190, 222090	252644	9454417569
Sultanpur (05362)	D.M.	222202	222203	9454417542
Unnao (0515)	D.M.	2820207	2820201	9454417561
Varanasi (0542)	D.M.	2508585	2348080, 2502626	9454417579

Senior Superintendent of Police (S.S.P.)

District & STD Code	Post	Office	Residence	Mob.	Fax
Agra (0562)	S.S.P.	2262221	2227255	**9454400246**	2227256
Aligarh (0571)	S.S.P.	2400444, 2400638	2703111, 2703110	**9454400247**	---
Allahabad (0532)	S.S.P.	2641902	2640600	**9454400248**	2440700
Badayun (05832)	S.S.P.	266342	224308	**9454400252**	---
Bareilly (0581)	S.S.P.	2457021	2510500	**9454400260**	2427003
Bulandshahar (05732)	S.S.P.	224705	224338	**9454400253**	---
Etah (05742)	S.S.P.	233319	231942, 233307	**9454400265**	---
Etawah (05688)	S.S.P.	254041	---	**9454400266**	254978
Faizabad (05278)	S.S.P.	224214	224215	**9454400270**	224220
Gautambuddhnagar (0120)	S.S.P.	2350241	2549330	**9454400271**	2444546
Ghaziabad (0120)	S.S.P.	2710758	2710157	**9454400274**	2711120
Gorakhpur (0551)	S.S.P.	2334629	2334204	**9454400273**	2333127
Jhansi (0517)	S.S.P.	2443340, 2443341	---	**9454400282**	2443304
Kanpur (0512)	S.S.P.	2304407	2530547, 2532153	**9454400285**	---
Lucknow (0522)	S.S.P.	2228965	2225983, 2225984	**9454400290**	2274204
Mathura (0565)	S.S.P.	2405172	2404600	**9454400298**	2409620
Meerut (0121)	S.S.P.	2660548	2664634	**9454400297**	2664588
Moradabad (0591)	S.S.P.	2412654	2412562	**9454400294**	---
Saharanpur (0132)	S.S.P.	2727143	2661740, 2661737	**9454400308**	---
Varanasi (0542)	S.S.P.	2502644	2502655	**9454400313**	2502655

Superintendent of Police (S.P.)

District & STD Code	Post	Office	Residence	Mob.	Fax

Akbarpur (Knp. dehat- 05111)	S.P.	220211	2383575	**9454400286**	220296
Ambedkarnagar (05271)	S.P.	244445	244229	**9454400245**	---
Auraiya (05683)	S.P.	244421	---	**9454400249**	244887
Azamgarh (05462)	S.P.	220107	220403	**9454400250**	---
Bagpat (0121)	S.P.	220518	222395	**9454400258**	220517
Bahraich (05252)	S.P.	232892	232407	**9454400259**	232405
Ballia (05498)	S.P.	220373	220312	**9454400255**	220859
Balrampur (05263)	S.P.	233100	232490	**9454400256**	---
Banda (05192)	S.P.	224624	224444	**9454400257**	---
Barabanki (0524)	S.P.	2822277	2822244	**9454400251**	2822244
Basti (05542)	S.P.	282904	246309	**9454400261**	246804
Bijnaur (01342)	S.P.	262002	262026	**9454400254**	261071
Chandauli (05412)	S.P.	262480	262479	**9454400262**	262478
Chitrakoot (05198)	S.P.	235500	235241	**9454400263**	---
Dewaria (05568)	S.P.	222755, 241400	222311	**9454400264**	---
Farrukhabad (05692)	S.P.	234410	234206		---
Fatehpur (05180)	S.P.	224413	224288	**9454400268**	224288
Firozabad (05612)	S.P.	285110	285004	**9454400269**	285052
Gazipur (0548)	S.P.	2220538	2220567	**9454400275**	---
Gonda (05262)	S.P.	222544	222760	**9454400272**	---
Hamirpur (05282)	S.P.	222329	---	**9454400277**	244474
Hardoi (05852)	S.P.	234749	234694	**9454400276**	234904
Hathras (05722)	S.P.	232100	235100	**9454400278**	234100
Jalaun (05162)	S.P.	252237	252233	**9454400279**	252791
Jaunpur (05452)	S.P.	261660	261203	**9454400280**	261205
Jyotibaraofulenagar (05922)	S.P.	259288	263244	**9454400281**	263244
Kannauj (05694)	S.P.	235439	234808	**9454400287**	---
Kashiram Nagar (Kasganj)	S.P.			**9454400393**	
Kaushambi (05331)	S.P.	233411	233603	**9454400288**	---
Kushinagar (05564)	S.P.	242393	242390	**9454400289**	242341
Lakhimpur Khiri (05872)	S.P.	253157	---		---
Lalitpur (05176)	S.P.	272387, 277100	278100	**9454400291**	278100
Maharajganj (05523)	S.P.	222246	222062	**9454400296**	---
Mahoba (05281)	S.P.	244168, 254068	244474	**9454400293**	244475
Mainpuri (05672)	S.P.	234442, 234660	234402	**9454400295**	234540
Mau (0547)	S.P.	2220629	2500620	**9454400292**	2500620
Mirzapur (05442)	S.P.	252578	256655	**9454400299**	256565
Muzaffarnagar (0131)	S.P.	2403294	2403393	**9454400314**	2403393
Pilibhit (05882)	S.P.	257183	257182	**9454400301**	257182
Pratapgarh (05342)	S.P.	220423	220403	**9454400300**	220403
Raibareli (0535)	S.P.	2202315	2202304	**9454400302**	2202126
Rampur (0595)	S.P.	2350996	2351900	**9454400303**	2350080
Sant Ravidasnagar (05414)	S.P.	250236	250285	**9454400307**	250227
Santkabirnagar (05547)	S.P.	222892	222891	**9454400283**	223140
Shahjahanpur (05842)	S.P.	222553	222415	**9454400306**	223344
Shravasti (05250)	S.P.	222328	---	**9454400311**	222715
Siddharthnagar (05544)	S.P.	222183	222302	**9454400305**	222170
Sitapur (05862)	S.P.	243207	242229	**9454400309**	242404

Sonbhadra (05444)	S.P.	252631	252614	**9454400304**	252673
Sultanpur (05362)	S.P.	222301	222302	**9454400310**	223685
Unnao (0515)	S.P.	2820228	2820202	**9454400312**	2828903

Police Administration

Director General of Police, Headquarters	
Designation	**Office Phone**
Director General of Police	2206104
Additional Director General of Police (Crime/Law & Organisation)	2208857
Additional Director General of Police (Personnel)	2208000
Additional Director General of Police (Human Rights)	2391765
Inspector General of Police (Establishment)	2207907
Inspector General of Police (Administration)	2207997
Inspector General of Police (Personnel)	2207995
Inspector General of Police (Operation)	2208370
Inspector General of Police (STF)	2205302
Inspector General of Police (Crime)	2208598
Inspector General of Police (Human Rights)	2391465
Deputy Inspector General of Police (Human Rights)	2208371
Additional Superintendent of Police (Crime)	2206903
Information Officer	2206559
Police Headquarters, Allahabad (0532)	
Additional Director General of Police	2623666, **Fax**: 2622031
Inspector General of Police (Housing)	2623721
Inspector General of Police (Budget)	2621216
Additional Inspector General of Police (Establishment)	2623937
Deputy Inspector General of Police (Headquarters)	2623277
Superintendent of Police (Personnel)	2623628
Superintendent of Police (Headquarters)	2623117
P.A.C. Headquarters	
Additional Director General of Police	2385052, **Fax**: 2385732
CID Headquarters	
Deputy Director General	2720713
Intelligence Headquarter	
Additional Superintendent of Police (Intelligence)	2205166, 2209728
Anti Corruption Cell	
Additional Director General of Police	2287245
Railway Police Headquarters	
Deputy Director General of Police	2287241-2
Economic Crime Cell	
Additional Director General of Police	2287253
Technical Services U.P.	
Additional Director General of Police	2286309
Radio Headquarters	
Additional Director General of Police	2385983
Police Training Headquarters	
Additional Director General of Police	2287247, 2287269
Fire Service Headquarters	

Director General of Police	2228736
Prosecution Directorate	
Director General of Police	2720656
Special Enquiry Headquarters	
Additional Director General of Police	2287658
Home Guards, Public Security	
Commandant General	2451388
Police Housing Development Corporation	
Chairman/Managing Director	2391818
Vigilance Establishment, Lucknow	
Director	2236319, 2211228
U.P. Nepal Border Police	
Additional Director General of Police	2397117, **Fax**: 2396291

Annexure - 10

List of Important Hospitals in State

Sl. No	Hospital / Nursing Home	City	Address	Contact Details	Category
1	Addya-Polo Hospital	Lucknow	11 M G Marg, Habibullah Estate, Hazratganj	Area Code : 0522 Tel : 2230966 / 2231460/4001111/2111/3111 Fax : 2231745 / 2768993	Hospital
2	Ajanta Hospital & Ivf Centre Pvt. Ltd.	Lucknow	765, Near Krishna Cinema, Kanpur Road, Alambagh-226005	Area Code : 0522 Tel : 2462335 / 2509681 / 2565107	Hospital
3	Akg Surgical Centre	Aliagrh	225, Avas Vikas Colony Masoodabad Crossing Aligarh-202001	Area Code : 0571 Tel : 2402784,2407093	Hospital
4	Akshi Eye Care Centre	Kanpur	2/344-A, Azad Nagar, Kanpur-208002	Area Code : 0512 Tel : 2561161 / 2561833 Fax : 2559030 / 2559317	Hospital
5	Amit Jaggi Memorial Hospital	Agra	Vibhav Nagar, Agra 282001	Area Code : 0562 Tel : 2330606/2330600/2230410 Fax : 2330605	Hospital
6	Apex Hospital	Varanasi	D.L.W Hydil Road Bhikhanpur Varanasi-211004	Area Code : 0542 Tel : 317414 / 317526 / 316782 Fax : 318716	Hospital
7	Apollo Hospital - Noida	Noida	E-2, Sector 26 Noida-201301	Area Code : 0120 Tel : 4012000/245353 Fax : 245355	Hospital
8	Apollo Pankaj Hospitals	Agra	Agra - Mathura Road, N H - 2, Artoni, Agra	Area Code : 0562 Tel : 2640441 / 43 / 45 / 49	Hospital

			282007	Fax : 2640440	
9	Asopa Hospital & Research Centre	Agra	Gaicana Road, By Pass Agra-282007	Area Code : 0562 Tel : 2604606, 2603190 Fax : 2602186	Hospital
10	Avadh Hospital & Heart Centre	Lucknow	Alambaugh Lucknow	Area Code : 0522 Tel : 2454922 Fax : 2457790	Hospital
11	B. N. K. Hospital	Lucknow	B-1/196, Nirala Nagar, Lucknow-226007	Area Code : 0522 Tel : 2787001 / 2789696	Hospital
12	B. P. L. Nursing Home Pvt. Ltd.	Mathura	N H -2, In Front Of Ware House Godowns, Kosi Kalan-281403	Area Code : 05662 Tel : 232394 Fax : 232410	Nursing Home
13	Bansal Nursing Home	Moradabad	A-8, Gandhi Nagar Rampur Road Moradabad	Area Code : 0591 Tel : 495161 / 492606	Nursing Home
14	Bhardwaj Nursing & Maternity Home Pvt.Ltd	Noida	Nh-1, Sector 29 Opp.Ganga Shopping Complex Noida-201301	Area Code : 0120 Tel : 2450111/ 222/333 Fax : 2450690	Hospital
15	Bhargava Hospital	Kanpur	15/263, Civil Lines, Kanpur 208001	Area Code : 0512 Tel : 304500/ 700/ 900/305 900 Fax : 306497	Hospital
16	Bhupal Hospital & Research Centre	Meerut	169, College Road, Meerut 250002	Area Code : 0121 Tel : 2640309 / 2451091 Fax : 2400483	Hospital
17	Bohra Nursing Home, Samili	Lucknow	Devanand Nagar, Budhana Road Shamili, Uttar Pradesh Shamili-247776	Area Code : 01398 Tel : 250602/251252 Fax : 201252	Nursing Home
18	Brij Medical Centre	Ghaziabad	Kk 54,Kavi Nagar , Ghaziabad	Area Code : 0120 Tel : 4753546	Nursing Home
19	Care Centre	Rampur	Rahe Hurtaza, Civil Lines, Rampur-244901	Area Code : 0595 Tel : 2351498 Fax : 2350453	Hospital
20	Care Hospital (Varanasi)	Varanasi	Bhikhan Pur , D.L.W B.H.U Road Varanasi	Area Code : 0542 Tel : 319256 / 311874 (R)	Hospital
21	Central Hospital - Aligarh	Aliagrh	Chauraha Masoodabad, G.T Road, Aligarh-202001	Area Code : 0571 Tel : 2421421,2421444	Hospital
22	Chandni Hospital	Kanpur	9/60, Arya Nagar Kanpur	Area Code : 0512 Tel : 551185 / 551885	Hospital
23	Chandra Laxmi Hospital	Ghaziabad	Sector 4/337 Vaishali 201010	Area Code : 0120 Tel : 2950783 / 2950784 Fax : 2950784	Hospital
24	City Hospital (Noida)	Noida	Y-285-C-1, Sector 12, Noida-201301	Area Code : 0120	Hospital

				Tel : 2522303	
25	City Hospital And Trauma Centre	Lucknow	C-1,Cinder Dump Complex, Opp.Krishna Cinema Hall,Kanpur Road, Alamgarh-226005	Area Code : 0522 Tel : 463301 / 463302	Hospital
26	Deepmala Hospital	Bareilly	Chaupala Road, Nr. Telephone Exchange, Bareilly 243003	Area Code : 0581 Tel : 2472490 / 2456100 Fax : 2304828	Hospital
27	Devishiv Hospital	Lucknow	B-328, B, Sector B, Near Mount Carmel School, Mahanagar Lucknow	Area Code : 0522 Tel : 2387723 /2381573	Hospital
28	Dewa Hospital	Barabanki	Dewa Road, Barabanki Barabanki-225001	Area Code : 05248 Tel : 222186 / 225743	Hospital
29	Dharam Dutt City Hospital	Bareilly	Pilibhit Road, Gandhi Nagar Bareilly-243122	Area Code : 0581 Tel : 2543660/2549246 Fax : 2546584	Hospital
30	Dinesh Nursing Home	Bareilly	110 - Siklapur Siklapur-243005	Area Code : 0501 Tel : 2575711 Fax : 2554534	Nursing Home
31	Dipakshi Nursing & Maternity Home Pvt. Ltd.	Noida	C-53, Sector 33 Opp. Ntpc Township Noida-201307	Area Code : 0120 Tel : 2505328 / 2505329	Nursing Home
32	Dr. Jain's Hospital	Meerut	18, Shikhar Market, Rani Mill, Delhi Road, Meerut	Area Code : 0121 Tel : 2510327 / 2529690	Hospital
33	Dr. Nawal Kishore Hospital & Research Centre	Agra	1 / 193 A, Bagh Farzana, Agra-282002	Area Code : 0562 Tel : 350360/ 521318 Fax : 523716	Hospital
34	Dr.M.Prakash Hospital & Medical Reserach Centre	Meerut	Begum Bridge Road 250001	Area Code : 0121 Tel : 2518753 / 2522834 / 2522993 Fax : 2518826	Hospital
35	Escorts Heart Centre Limited	Kanpur	117 / H-2/414 - A, Pandu Nagar Kanpur-208005	Area Code : 0512 Tel : 2234665 / 66/ 67 Fax : 2218282	Hospital
36	Eves Hospital (Meerut)	Meerut	Eves Crossing Road, Hapur Road, Opp. Icici Bank	Area Code : 0121 Tel : 2525667 / 2648409 Fax : 2420396	Hospital
37	Family Multimedi Specialities & Research (P) Ltd	Noida	A 55, Sector 61, Noida-201301	Area Code : 0120 Tel : 2581555 Fax : 2580955	Hospital
38	Fatima Hospital	Lucknow	35, C Mahanagar Lucknow-226006	Area Code : 0522 Tel : 2332554 / 2323195 / 2371718	Hospital
39	Forrd Hospital(Nova	Lucknow	Nursing Home Plot No. 2, Vikas Khand,	Area Code : 0522 Tel : 2300024,	Hospital

	Hospital Ltd)		Patrkar Puram Corssing, Gomatinagar 226010	3091405 , 2300025/26/27 Fax : 2301768	
40	G. M. Modi Hospital(Meerut)	Meerut	Roorkee Road, Nr. Post Office, Modipuram 250110	Area Code : 0121 Tel : 2575539 Fax : 2572094	Hospital
41	Ganesh Hospital	Ghaziabad	11-C/3, Nehru Nagar, Ghaziabad 201001	Area Code : 0120 Tel : 4792809 / 4792810 Fax : 4713609	Hospital
42	Ganga Ram Hospital	Muzaffar Nagar	Sadar Bazar, Muzaffar Nager	Area Code : 0131 Tel : 2402202 Fax : 2401264	Hospital
43	Ganpati Nursing Home	Meerut	Ganpati Surgical And Emergencies 317 /7, Thapar Nagar 250001	Area Code : 0121 Tel : 2522499	Nursing Home
44	Gopal Multi-Speciality Hospital	Ghaziabad	Sector -14, Near Telephone Exchange, Kaushambi District Ghaziabad Kaushambi-201010	Area Code : 0120 Tel : 2770431/2776837	Hospital
45	Gopi Krishna Nursing Home	Mathura	General Ganj, Mathura	Area Code : 0565 Tel : 450450	Nursing Home
46	Heartline Cardiac Care Centre	Allahabad	Heartl14/18, Elgin Road, Allahabad Allahabad, Uttar Pradesh 211001	Area Code : 0532 Tel : 2614444/2601903/2607803 Fax : 2420903	Hospital
47	Hemkunt Nursing Home	Meerut	45, Nehru Road Meerut	Area Code : 0121 Tel : 641110	Nursing Home
48	Icare Eye Hospital	Noida	E-3a,Sector-26, Noida 201301	Area Code : 0120 Tel : 2555969,2536612,2535782 Fax : 2556389	Hospital
49	Indo Gulf Diagnostics & Hospital	Noida	B - 498 A, Sector - 19, Noida 201301	Area Code : 0120 Tel : 2445544 Fax : 2519508	Hospital
50	Indo Gulf Jan Seva Trust Hospital	Sultanpur	Jagdishpur Industrial Area, Dist:Sultanpur Sultanpur-227817	Area Code : 05361 Tel : 270032/38	Hospital
51	International Hospital Limited(Fortis Group)	Noida	Plot - B - 22, Sector - 62 Noida 201301	Area Code : 0120 Tel : 2400222 /2394560 - 63 Fax : 2403222	Hospital
52	Jain Medical Centre & Laser Eye Hospital	Meerut	166, Civil Lines, Meerut 250002	Area Code : 0121 Tel : 2664369 / 2664755 / 2642360 Fax : 2664369	Hospital
53	Jaswant Rai Speciality Hospital	Meerut	Opp: Sports Stadium, Civil Lines, Civil Lines	Area Code : 0121 Tel : 2663887,2663888	Hospital

			250001	Fax : 2657154	
54	Jeevan Hospital & Stone Centre	Ghaziabad	G. T. Road Ghazibad Modinagar 201201	Area Code : 01232 Tel : 246838 / 244320 Fax : 243740	Hospital
55	Jeevan Jyoti Hospital	Allahabad	162, Bai Ka Bagh Lowther Road Allahabad-211003	Area Code : 0532 Tel : 2417248 Fax : 605555	Hospital
56	Jeevandeep Hospital(Bagpat)	Bagpat	Delhi Road, Bagpath-250609	Area Code : 0121 Tel : 2221640	Hospital
57	Jindal Hospital & Nursing Home	Meerut	Eves Crossing, Hapur Road Meerut 250001	Area Code : 0121 Tel : 2644599 / 2641486 Fax : 2521545	Hospital
58	K. D. Dalmia Eye Hospital	Rampur	District Eye Relief Society Nainital Road, N H 87, Civil Lines,Rampur,244901	Area Code : 0595 Tel : 2350409	Hospital
59	K. K. Hospital	Lucknow	87 / 88, Nabiullah Road, River Bank, Lucknow	Area Code : 0522 Tel : 219049 / 50/274537	Hospital
60	K.K. Hospital Kidney Centre	Bareilly	A-364, Rajendra Nagar Bareilly,243122	Area Code : 0581 Tel : 2525037/39/40 Fax : 2586449	Hospital
61	Kailash Hospital & Research Centre Ltd	Noida	H-33, Sector -27 Noida 201301	Area Code : 0120 Tel : 2444444 / 2444442 / Fax : 2552323	Hospital
62	Kailash Hospital Pvt. Ltd.	Greater Noida	23, Institunal Area, Knowledge Park-I Greater Noida 201308	Area Code : 0120 Tel : 2321111,2312222 Fax : 2322227	Hospital
63	Kamayani Hospital	Agra	672,Geeta Mandir, Guru Ka Tal, Sikandra,282007	Area Code : 0562 Tel : 520088,3094386 Fax : 2156980	Hospital
64	Kanpur Medical Centre Pvt.Ltd	Kanpur	120/500 , Lajpat Nagar , Kanpur 208005	Area Code : 0512 Tel : 295152 /295520 /297130/297131 Fax : 296033	Nursing Home
65	Keshlata Cancer Hospital Ltd	Bareilly	Keshlata Hospital, Stadium Road, Delapeer, 243122	Area Code : 0581 Tel : 443572 /441646 , 472758 Fax : 473703	Hospital
66	Khairabad Eye Hosp. & Mehendra Eye Res. Centre	Kanpur	Swaroop Nagar, Kanpur 208002	Area Code : 0512 Tel : 292221 /210930 /255617 /294134 Fax : 294365	Hospital
67	Kulwanti Hospital And Research Center	Kanpur	117/N/8, Saket Puri , Kakadeo Kanpur 208025	Area Code : 0512 Tel : 2502049 /244102 /103/ 243295	Hospital
68	Kumar Nursing Home & Maternity Centre	Noida	C, Sector 56, Noida	Area Code : 0120 Tel : 2583267	Nursing Home
6	Lala Amba Prasad	Kanpur	15/201,	Area Code : 0512	Hospital

9	Smarak Chikitsalaya		Civil Lines, Kanpur 208001	Tel : 305269 / 303208 / 303209 Fax : 2305274	
70	Lifeline Hospital And Heart Centre	Lucknow	B1/31 Sector , K.Ahganga Purania Chauraha Lucknow-226024	Area Code : 0522 Tel : 2364344 / 2763433	Hospital
71	Lok Priya Hospital (Modinagar)	Modinagar	G.T.Road Modinagar	Area Code : 01232 Tel : 247556 / 229500	Hospital
72	Lokpriya Hospital	Meerut	Samarat Palace, Garh Road Meerut 250003	Area Code : 0121 Tel : 2761710, 2760040 Fax : 2770114	Hospital
73	Lovy Nursing Home	Rampur	Raheraza, Nrar Court Gate, Rampur 244901	Area Code : 0595 Tel : 2350301	Nursing Home
74	Lucknow Hospital	Lucknow	Behind Krishna Nagar Police Station, Kanpur Road, Lucknow-226023	Area Code : 0522 Tel : 2470855 / 2471013 Fax : 2470747	Hospital
75	Madhu Nursing Home	Meerut	44/A, Nai Sarak Garh Road Shastri Nagar-250004	Area Code : 0121 Tel : 2763857 Fax : 2648582	Nursing Home
76	Madhuraj Nursing Home Pvt. Ltd.	Kanpur	113 / 121, Swaroop Nagar, Kanpur-208002	Area Code : 0521 Tel : 2525344 / 346 Fax : 2525755	Nursing Home
77	Mahanagar Nursing Home	Lucknow	Mahanagar,Mandir Marg B-939,Sector-A, Gole Market-Gole Market	Area Code : 0522 Tel : 329712/ 379940 Fax : 386000	Nursing Home
78	Maheshwari Hospital Pvt. Ltd.	Mathura	Maheshwari Nagar By- Pass, Mathura	Area Code : 0565 Tel : 2530381 / 2530382	Hospital
79	Major Nursing Home	Bareilly	Macnair Road, Bareilly, 243005	Area Code : 0581 Tel : 2540086 / 2547656 Fax : 2304828	Nursing Home
80	Mansarovar Eye Hospital	Lucknow	Vidhan Sabha Marg, Lucknow,226001	Area Code : 0522 Tel : 2224292/2228655	Hospital
81	Max Healthcare Institute Limited (Noida)	Noida	Max Hospital, A-364 Sector 19 Noida, 201301	Area Code : 0120 Tel : 2549999 / 2535581 / 82 Fax : 2548533	Hospital
82	Meenakshi Hospital	Ghaziabad	B-13, Kaushambi, Dabur Corporate Office Near Anand Vihar Ghaziabad-201010	Area Code : 0120 Tel : 2770202 / 2770684 Fax : 2777810	Hospital
83	Metro Hospital & Heart Institute	Noida	X-1, Sector -12 Close To Chowda Mode Noida 201301	Area Code : 0120 Tel : 453 3491 / 451 9489/ 451 9358-9 Fax : 453 3487	Hospital

84	Metro Hospital & Heart Institute(Meerut)	Meerut	47/G-5,Boundary Road, Lal Kurti Lal Kurti 250001	Area Code : 0121 Tel : 2665033/41/42/44 Fax : 2645304	Hospital
85	Mimhans (Meerut Institute Of Mental Health & Neurosciences)	Meerut	281 / 283 Sector - 1, Mangal Pandey Nagar, Meerut- 250004	Area Code : 0121 Tel : 3950300/304, 2768833,2768833	Hospital
86	Mohan Hospital & Heart Centre	Bulandshar	Opposite Old Jail Civil Lines Bulandshar 203001	Area Code : 05732 Tel : 250156/253156/252550	Hospital
87	Mother And Child Care Centre	Lucknow	553 / 1 -Baraf Khana - Crossing Opp.Kalyan Giri Temple ,Thakurganj,Hardoi Road 226003	Area Code : 0522 Tel : 248 432 / 248 836 Fax : 253253	Nursing Home
88	Murti Health Care Pvt Ltd	Meerut	44-A-Saket-Meerut 250003	Area Code : 0121 Tel : 2645985/2646930	Hospital
89	Muskan Medical Centre	Noida	C-130, Sector-19, Noida 201301	Area Code : 0120 Tel : 2544630/2052751 Fax : 2544630	Hospital
90	Narinder Mohan Hopsital & Heart Center	Ghaziabad	Mohan Nagar Ghaziabad 201007	Area Code : 0120 Tel : 2657501-09 Fax : 2940546	Hospital
91	Navin Hospital(G. Noida)	Noida	N.H.- 3, Pocket -- F , Sector - Alpha - Ii Greater Noida-201301	Area Code : 0120 Tel : 2321050 Fax : 2321040	Hospital
92	Navyug Hospital	Rampur	Rahe Murtaza, Civil Lines, Main Road, Near Shahbad Gate,Rampur , 244901	Area Code : 0595 Tel : 2350820	Hospital
93	Nazareth Hospital	Allahabad	19/A, Kamla Nehru Road, Allahabad,211001	Area Code : 0532 Tel : 600430 /602612 /602613	Hospital
94	Neera Hospital	Lucknow	B2 Mahanagar Extension, Aliganj Crossing Mahanagar Extn	Area Code : 0522 Tel : 333375 322003 Fax : 322003	Hospital
95	Nimt Hospital	Greater Noida	Plot No. I, Knowledge Park - I, Near Pari Chowk, Gautambudh Nagar, Greater Noida,201306	Area Code : 0120 Tel : 2324043 / 2324044 / 2324045 Fax : 2324043	Hospital
96	Noida Medicare Centre Ltd.	Noida	Plot # 16- C Block E, Sector - 30 G.B. Nagar, Noida, 201303	Area Code : 0120 Tel : 4453801-808 Fax : 4456586	Hospital
97	Pannalal Shyamlal Hospital	Ghaziabad	2nd F/ 172, Nehru Nagar, At Kalkagarhi Crossing, Ambedkar Road,Ghaziabad 201001	Area Code : 0120 Tel : 2798876 / 2798886 Fax : 5371572	Hospital
98	Paras Hospital	Ghaziabad	130, Sector - 4, Vaishali Ghaziabad	Area Code : 0120 Tel : 2774330 / 2773999	Hospital

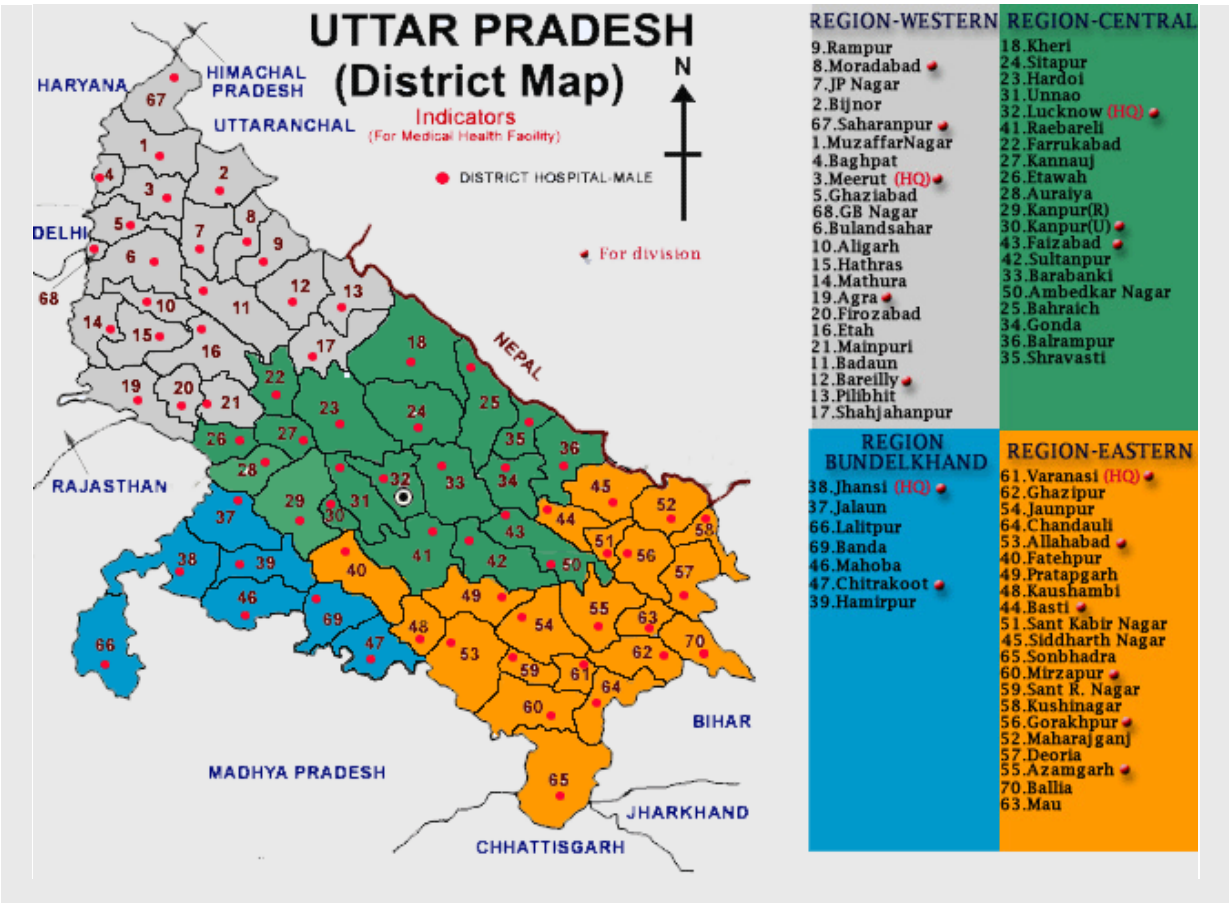
			201010	Fax : 2770766	
99	Pareek Hospital & Research Centre	Agra	4 / 10, Bagh Farzana, Civil Lines, Agra-282002	Area Code : 0562 Tel : 354754 Fax : 350792	Hospital
100	Parvati Deli Polyclinic Nursing Home & Cancer Research Centre	Meerut	Chippi Tank, Meerut 250001	Area Code : 0121 Tel : 2642235 Fax : 2665993	Hospital
101	People's Heritage Hospital Ltd.	Agra	7/52, A, Jawahar Nagar, Byepass Riad, Agra- 282002	Area Code : 0562 Tel : 2521375 / 2526999 Fax : 2521375	Hospital
102	Pindari Hospital	Basti	Basti Basti 272001	Area Code : 05542 Tel : 247149 Fax : 246013	Hospital
103	Pragya Hospital & Research Centre	Varanasi	Wazidpur Harahua, Varanasi 221002	Area Code : 0542 Tel : 2624701 / 5538787 Fax : 2624966	Hospital
104	Prakash Hospital (Pvt) Ltd	Noida	D-12,12 A,12 B, Sector 33, Noida 201301	Area Code : 0120 Tel : 2505264 /68 Fax : 4505757	Hospital
105	Prakash Netra Kendra (Lucknow)	Lucknow	Nh-2 , Vipul Khandl -4, Gomati Nagar Lucknow 226010	Area Code : 0522 Tel : 2397719 / 2397266 Fax : 2397719	Hospital
106	Prashant Super Speciality Hospital	Aliagrh	Near R.T.O. , Ramghat Road, Aligarh, 202001	Area Code : 0571 Tel : 2740738	Hospital
107	Prayag Hospital & Research Centre Pvt.Ltd	Noida	J-206 / A-1, Sector 41 Noida, 201302	Area Code : 0120 Tel : 257 0208 / 09 / 10 Fax : 2574091	Hospital
108	Priti Hospital	Allahabad	29-B, Panna Lal Road, . Allahabad 211002	Area Code : 0532 Tel : 461339 /461273 /460226 /461194 / 460594 Fax : 461940	Hospital
109	Priyadarshni Hospital(Modinagar)	Modinagar	G.T.Road, Modinagar Modinagar	Area Code : 01232 Tel : 244605/242545	Hospital
110	Pushpanjali Hospital & Research Centre	Agra	Pushpanjali Palace, Delhi Gate, Agra 282002	Area Code : 0562 Tel : 2527566/67/68 Fax : 2523009	Hospital
111	Rajendra Nagar Hospital	Lucknow	74, Rajendra Nagar, Lucknow	Area Code : 0522 Tel : 693600 /693652 Fax : 227376	Hospital
112	Rama Hospital Research Centre	Kanpur	A-1/8,Lakhanpur , Kanpur 208024	Area Code : 0512 Tel : 2504223/25/26 Fax : 2523275	Hospital
11	Rama Krishna Hospital	Muzaffar Nagar	Shree Balaji Chowk, Town Hall Road , Muzaffar	Area Code : 0131 Tel :	Hospital

3			Nagar, Uttar Pradesh, Ansari Road-251001	2407790/3090690	
114	Ramakrishna Mission Sevashram (Vivekanand Polyclinic)	Lucknow	Lucknow, A Local Branch Centre Of Ramakrishan Mission Belur, Lucknow, 700026	Area Code : 0522 Tel : 2321277, 2348486 Fax : 2385574	Hospital
115	Regency Hospital Limited	Kanpur	A-2, Sarvodaya Nagar Kanpur 208005	Area Code : 0512 Tel : 2212 001-212005 /212004 Fax : 2213407	Hospital
116	Saksham Hospital	Saharanpur	Delhi Road, Saharanpur 247001	Area Code : 0132 Tel : 2761092 / 2762276 Fax : 2762557	Hospital
117	Samvedana Hospitals & Research Centre	Noida	A - 93, Sector - 34, Noida 201301	Area Code : 0120 Tel : 2506611 / 2506622 Fax : 2590139	Hospital
118	Saran Hospital	Bareilly	73-A, Mal Godam Road Near Raliway Juction Bareilly 243001	Area Code : 0581 Tel : 2570 806 /2570 807 / 2553 878 Fax : 2570806	Hospital
119	Sarvodaya Hospital (Modinagar)	Modinagar	G.T.Road Modinagar 242991	Area Code : 01232 Tel : 242991 / 220739	Hospital
120	Sarvodaya Hospital (Vaishali - Ghaziabad)	Ghaziabad	342, Sector- 4, Vaishali, Nr. Dabur Ghaziabad 201012	Area Code : 0120 Tel : 2774739 / 2774821 Fax : 2770368	Hospital
121	Sarvodaya Hospital(Ghaziabad)	Ghaziabad	Kj - 7, Kavi Nagar, Ghaziabad 201002	Area Code : 0120 Tel : 2701694/2701695/2796205 Fax : 270129	Hospital
122	Satya Medical Centre(Noida)	Noida	A-98/A, Sector 34 Sector 34, G.B.Nagar 201301	Area Code : 011 Tel : 4506019	Hospital
123	Savitri Hospital & Research Centre	Gorakhpur	Dilezakpur, Alinagar, Near Vijay Chowk, Gorakhpur, 273001	Area Code : 0551 Tel : 2346214-15 Fax : 2346594	Hospital
124	Seth L.M.Hospital (Lucknow)	Lucknow	Krishna Nagar, Kanpur Road Lucknow	Area Code : 0522 Tel : 2472709 / 2471539 Fax : 2471507	Hospital
125	Sewa Nursing Home	Rampur	Topkhana Road, Rampur, 244901	Area Code : 0595 Tel : 2326917	Nursing Home
126	Shanti Ved Hospital	Agra	49 Old, Vijay Nagar Colony Agra 282004	Area Code : 0562 Tel : 2852300,3291833,2852500, Fax : 2522137	Hospital
12	Sheela Jain Hospital &	Jhansi	Infront Of Medical College, Gate No. 3, Kanpur Road,	Area Code : 0517 Tel : 2321549	Hospital

7	Research Centre		Jhansi 000		
128	Shekhar Hospital(Lucknow)	Lucknow	B Block, Church Road, Indira Nagar, Lucknow, 226016	Area Code : 0522 Tel : 2352352 (5 Lines), 2352356	Hospital
129	Shivalik Medical Centre	Noida	A-16,Sector-34 Noida 201307	Area Code : 0120 Tel : 2507854/2504173	Hospital
130	Shivam Hospital And Heart Centre	Ghaziabad	R-3/4,Raj Nagar, Ghaziabad Ghaziabad 201002	Area Code : 0120 Tel : 2717804/2721673	Hospital
131	Shree Krishna Hospital	Ghaziabad	Nh2,Sector-15, Vasundhara Ghaziabad 201010	Area Code : 0120 Tel : 2882657/2881513 Fax : 2880900	Hospital
132	Shri Ganga Charan Hospital (Bareilly)	Bareilly	2-Rampur Garden, Opp Gandhi Udhyan,Bareilly Bareilly 243001	Area Code : 0581 Tel : 2510083/2510140 Fax : 2476041	Hospital
133	Shri Ram Murti Smarak Institute Of Medical Sciences	Bareilly	13.2 Km, Bareilly-Nainital Road, Bareilly 243202	Area Code : 0581 Tel : 2582014/2582025 Fax : 2582010	Hospital
134	Singh Hospital	Moradabad	B-30, Gandhi Nagar Moradabad 244001	Area Code : 0591 Tel : 2492757	Hospital
135	Sri Sai Hospital (Moradabad)	Moradabad	Delhi Road, Moradabad 244001	Area Code : 0591 Tel : 2485428 / 2485429 Fax : 2481720	Hospital
136	Srijan Vatsalya Hospital	Allahabad	8/1/6, Eligin Road, Lal Bahadur Shastri Marg, Allahabad 211001	Area Code : 0532 Tel : 2605050 / 2409090 / 2606565 Fax : 2606565	Hospital
137	Srivastava Fracture & Orthopaedic Care Centre Pvt. Ltd.	Agra	1/114 - B, Gulab Rai Marg, Delhi Gate, Agra 282002	Area Code : 0562 Tel : 351451 Fax : 220044	Nursing Home
138	Star Hospital Pvt Ltd	Gorakhpur	Vindvasini Nagar, Bank Road Gorakhpur 273001	Area Code : 0551 Tel : 2337989/2339812 Fax : 2331750	Hospital
139	Sumitra Nursing & Maternity Home	Noida	A-119 A, Sector No :- 35 Noida 201301	Area Code : 0120 Tel : 2507725,2507625 Fax : 2504794	Nursing Home
140	Surgical And Maternity Centre Ahuja Hospital	Lucknow	4-488 Vivek Khanna Gomati Nagar 226010	Area Code : 0522 Tel : 2391760/2398303	Hospital
1	Sushma Hospital	Lucknow	Sector 8 Cp 102,Faziabad	Area Code : 0522	Hospital

41			Road, Indira Nagar, Lucknow	Tel : 2700732/2701322	
142	Tarawati Super Speciality Hospital	Saharanpur	Bajoria Road, Saharanpur 247001	Area Code : 0132 Tel : 2716003 / 2716006	Hospital
143	Tirupati Eye Centre	Noida	C-8, Sector 19 Noida 201301	Area Code : 0120 Tel : 2444349/2539261 Fax : 2530165	Hospital
144	Tulsi Hospital (Meerut)	Meerut	D-Block ,Samrat Palace Garh Road	Area Code : 0121 Tel : 765256/ 763446/76	Hospital
145	Tulsi Hospital Limited	Kanpur	14/116-A, Civil Lines Kanpur	Area Code : 0512 Tel : 536404/ 536405 Fax : 536403	Hospital
146	Upadhyay Hospital & Metro Heart Institute	Agra	Shahid Nagar Crossing Agra 282001	Area Code : 0562 Tel : 2230344 Fax : 2230311	Hospital
147	Uttam Hospital	Ghaziabad	E - 230, Sector 9, New Vijay Nagar, Ghaziabad-201009	Area Code : 0120 Tel : 2740873 / 2110244	Hospital
148	Vasundhara Nursing Home Pvt Ltd	Ghaziabad	15/Nh-1, Vasundhara Ghaziabad	Area Code : 0575 Tel : 2884052/2884027	Nursing Home
149	Vatsalya Maternity & Surgical Centre Pvt. Ltd.	Allahabad	6/8, Elgin Road, Civil Lines Allahabad-713003	Area Code : 0532 Tel : 2613500/2603540	Hospital
150	Vinayak Hospital (Noida)	Noida	Nh-1, Atta Sector -27 Noida-201303	Area Code : 0120 Tel : 2444222 / 333 Fax : 2541340	Hospital
151	Vineeta Hospital	Allahabad	10-3 A, Bypass Road, Phaphamau, Allahabad-211013	Area Code : 0532 Tel : 3255790 / 3255791 Fax : 2425344	Hospital
152	Vivekanand Hospital & Research Centre	Moradabad	Kanth Road, Moradabad 244001	Area Code : 0591 Tel : 2450679 / 2450681 Fax : 2450003	Hospital
153	Vohra Nursing Home	Agra	4, Laxman Nagar, Khedia Road Agra-282001	Area Code : 0562 Tel : 2303221/2303322	Nursing Home
154	Yashlok Hospital	Faizabad	Deo Kali Road Faizabad Faizabad-224001	Area Code : 05278 Tel : 243140	Hospital
155	Yashoda Hospital	Ghaziabad	111-M, Nehru Nagar, Ghaziabad 201001	Area Code : 0120 Tel : 4750001- 4 / 4752168, 4752238	Hospital
156	Yashoda Super Speciality Hospital	Ghaziabad	H - 1, Kaushambi, Near Dabur Chowk, Ghaziabad 00	Area Code : 0120 Tel : 2777841/4 Fax : 2777845	Hospital

List of Government Hospitals in the District

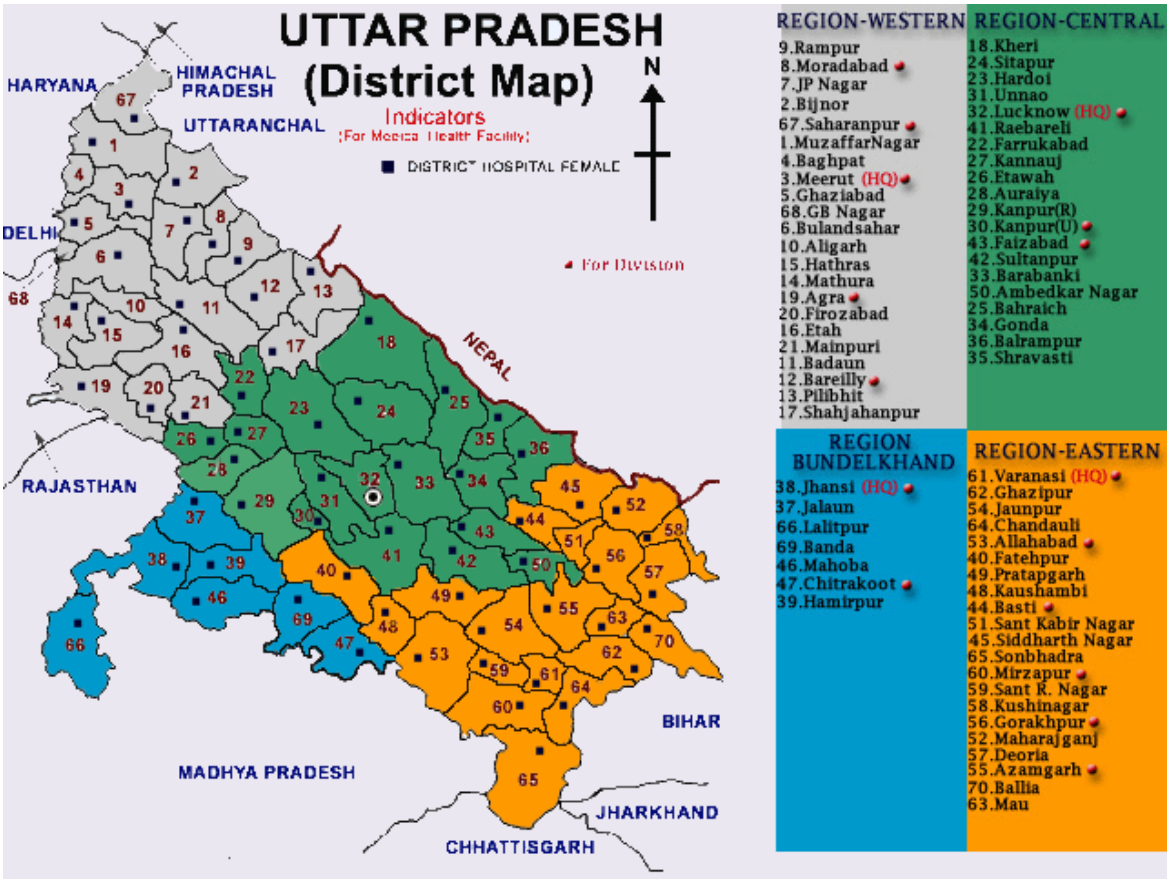


District Hospital Male

S.No	Name of Division	S.No	Name of District	No of beds
1	Agra	1	District hospital male,Agra	118
		2	District hospital male,Aligarh	232
		3	District hospital male,Aeta	117
		4	District hospital male,Firozabad / T.B Sanitorium	224
		5	District Joint hospital male,Sikohabad,Firozabad	100
		6	District Joint male hospital male,Haathras	30
		7	District hospital male,Maainpuri	78
		8	District hospital male,Mathura	74
2	Allahabad	9	T.B Sapru District male hospital,Allahabad	171
		10	Motilal Nehru District male Hospital,Allahabad	165
		11		188
		12	District hospital male,Pratapgarh	190
		13	District hospital male,Fatehpur	118
3	Azamgarh	14	District hospital male,Azamgarh	164

S.No	Name of Division	S.No	Name of District	No of beds
		15	District hospital male,Balia	176
		16	District Joint hospital male,Mau	100
4	Bareilly	17	District hospital male,Bareilly	325
		18	Mental District hospital male,Bareilly	408
		19	District hospital male,Shajahanpur	105
		20	District hospital male,Peelibheet	130
		21	District hospital male,Badau	
5	Faizabad /Tevipatan	22	District hospital male,Balrampur	100
		23	District hospital male,Behraij	201
		24	District hospital male,Gonda	174
		25	District hospital male,Barabanki	140
		26	District hospital male,Faizabad	220
		27	Sri Ram District hospital male,Ayodhya,Faizabad	85
		28	District hospital male,Sultanpur	226
		29	District hospital male,Ambedkar Nagar	100
6	Gorakhpur / Basti	30	District hospital male,Basti	298
		31	District hospital male,Kaili, Basti	300
		32	District hospital male,Deveria	208
		33	District Joint hospital male,Siddharthnagar	64
		34	District hospital male,Gorakhpur	305
7	Jhansi / Chitrakut	35	District hospital male,Hamirpur	68
		36	District hospital male,Lalitpur	83
		37	District hospital male,Banda	103
		38	District hospital male,Chitrakut	30
		39	District hospital male,Mahoba	30
		40	District hospital male,Jalaun	180
		41	District hospital male,Jhani	172
8	Kanpur	42	U.H.M District hospital male,Kanpur	416
		43	K.P.M District hospital male,Kanpur	
		44	District hospital male,Kanpur Dehat	100
		45	District hospital male,Farukhabad	200
		46	District hospital male,Itawa	300
9	Lucknow	47	District hospital male,Raibareilly	200
		48	District hospital male,Hardoi	184
		49	District hospital male,Unnao	110
		50	District hospital male,Sitapur	207
		51	District hospital male,Kheri	167
		52	Balrampur District hospital male,Lucknow	656
		53	D.R.L.M District hospital male,Gomtinagar,Lucknow	181
		54	D.R.L.M District hospital male, Lucknow	351
		55	Rani Laxmi Bai D.R.L.M District Joint hospital male,Rajajipuram ,Lucknow	30
		56	Bhao Rai Devras District Joint hospital male,Mahanagar ,Lucknow	30
		57	T.B District hospital male,Thakurganj,Lucknow	175
10	Meerut /	58	P.L Sharma District hospital male,Meerut	250

S.No	Name of Division	S.No	Name of District	No of beds
	Saharanpur			
		59	S.M.S.J District hospital male,Khurja	68
		60	District Joint hospital male,Sikandrabad	50
		61	District hospital male,Bulandshaher	177
		62	District Joint hospital male,Gautambudh Nagar	100
		63	District hospital male,Gaziabad	120
		64	District hospital male,Saharanpur/ T.B Sanitorium	296
		65	District hospital male,Muzaffarnagar	172
11	Muradabad	66	District hospital male,Muradabad	187
		67	District hospital male,Rampur	150
		68	District hospital male,Rampur	80
12	Varanasi / Mirzapur	69	District hospital male,Gyanpur Santarvidas Nagar	100
		70	District hospital male,Chandauli	100
		71	District hospital male,Jaunpur	185
		72	District hospital male,Mirzaput	155
		73	District hospital male,Sonbhadra	100
		74	District hospital male,Ghazipur	150
		75	S.S.P.G District hospital male,Varanasi	282
		76	P.Deendayal District hospital male,Varanasi	250
		77	Mental District hospital male,Varanasi	331
		78	Lal bahadur District hospital male,Ramnagar Varanasi	153



List of the Female Hospitals

S.No	Name of Division	S.No	Name of District	No of beds
1	Agra	1	District Hospital Female, AGRA	331
		2	District Hospital Female, Aligarh	110
		3	District Hospital Female, Ata	34
		4	District Hospital Female, Firozabaad	30
		5	District Hospital Female, Mahamaya Nagar	30
		6	District Hospital Female, Mainpuri	30
		7	District Hospital Female, Mathura	76
2	Allahabaad	8	District Hospital Female, Allahbaad	142
		9	District Hospital Female, Pratapgarh	62
		10	District Hospital Female, Fetehpur	40
3	Azamgarh	11	District Hospital Female, Azamgarh	100
		12	District Hospital Female, Balia	65
4	Bareli	13	District Hospital Female, Bareli	114
		14	District Hospital Female, Pilibhit	70
		15	District Hospital Female, Shanhajanhpur	41
		16	District Hospital Female, Bandau	79
5	Faizabaad/ Devepatan	17	District Hospital Female, Balrampur	100

		18	District Hospital Female, Behraich	92
		19	District Hospital Female, Gonda	100
		20	District Hospital Female, Barabanki	73
		21	District Hospital Female, Faizabaad	148
		22	District Hospital Female, Sultanpur	82
6	Gorakhpur/ Basti	23	District Hospital Female, Basti	125
		24	District Hospital Female, Deveria	81
		25	District Hospital Female, gorakhpur	198
7	Jhansi/Chitrakoot	26	District Hospital Female, Hemirpur	30
		27	District Hospital Female, Lalitpur	30
		28	District Hospital Female, Banda	32
		29	District Hospital Female, Jaalon	50
		30	District Hospital Female, Jhansi	47
8	kanpur	31	A.H.M. Female Hospital, Kanpur Nagar	210
		32	District Hospital Female, Kanpur Dehat	
		33	District Hospital Female, Farukhabaad	30
		34	District Hospital Female, Itava	43
9	Lucknow	35	District Hospital Female, unnao	60
		36	District Hospital Female, Raebareli	71
		37	District Hospital Female, Hardoi	64
		38	District Hospital Female, Sitapur	132
		39	District Hospital Female, Kheri	52
		40	Veerangna avantibai Female Hospital, Lucknow	192
		41	Veerangna Jhakaribai Female Hospital, Lucknow	50
10	Meerut/ Saharanpur	42	District Hospital Female, Meerut	116
		43	District Hospital Female, Bulandshahar	60
		44	District Hospital Female, Ghaziabaad	68
		45	District Hospital Female, Saharanpur	110
		46	District Hospital Female, Mujffar Nagar	102
		47	District Hospital Female, Muradabaad	80
		48	District Hospital Female, Rampur	40
		49	District Hospital Female, Bijnor	50
		50	District Hospital Female, Jaunpur	110
		51	District Hospital Female, Mirzapur	60
		52	District Hospital Female, Gajipur	81
		53	District Hospital Female, Varansi	180

Annexure - 11

Details of the Laboratories

Creation of Decontamination Room

The earmarked hospital must have a decontamination room with the appropriate equipment and materials. A decontamination room will have a lightweight, durable, impermeable, washable and reusable fiberglass tabletop background with flexible drain house, locking straps, spray nozzle and wall mounting bracket. Two 100-litre waste collection containers must also be available. All nuclear casualties will first brought to the contamination room.

Nuclear Ward fitted with Dust-Filter

The radiation injury treatment ward must be fitted with nuclear filtration units to provide purified with positive pressure so that contaminated air can never enter from outside. Filtration units are suitable for pressuristion inside the ward and control of air flow.

Radioactive Bio-Waste Disposal Facilities

A delay tank is to be constructed to handle waste from the contaminated patients at a place where there is no movement of the public. Only authorised workers are allowed to control the flow of effluents from the tank to the main sewerage. The tank has to be leak proof, corrosion free and should have smooth inner surfaces. The outlet of the sewerage tank has to be much higher to avoid any backflow. For a period of one month, the effluent waste may be allowed to flow into only one tank using a set of valves provided on the pipelines leading to tanks from the radiation ward. When this is full, the inlet to this tank should be closed and the effluent should be allowed to flow into the second tank. During the collection period, the radioactivity in the first tank will undergo decay so that it can be conveniently disposed of, when discharged limits are achieved. The activity level at the time of discharge into the sewer shall conform to the regulatory requirements.

Radio Bio-Dosimetry Laboratory having Facilities like Fluorescence inSitu Hybrridization (FISH) to Study Chromosomal Aberration

Radio bio-dosimetry includes lymphocyte estimation along with the other formed elements of the blood. Chromosomal study is an important tool for radiation bio-dosimetry. Chromosome exchanges resulting in unstable aberration such as dicentrics, rings, acentric fragments and other asymmetrical rearrangements may be measured using the technique of Fluorescence in Situ Hybridization (FISH) which is currently the essay of choice for definitive bio-dosimetry. Measurements of radiation induced apoptosis in human lymphocytes are also considered the most sensitive reproducible bio-dosimeter. Counting the frequency or number of micro nuclei in the cytoplasm of

irradiated cells, electron spin resonance detection of free radical formation in tooth enamel and measurement of serum bio chemical markers such as amylase, inter Leukine-6, cholesterol and apolipoprotein levels have also been considered as potential techniques for determining the radiation dose received.

Haematology Laboratory with cell Separator for Granulocyte Concentrate

Blood and bone marrow are most sensitive organs in the body affected by radiations. Following radiation exposures, neutropaenia will occur suppressing the immunity of the casuality leading to infection. To combat the problem, Granulocyte concentrates is very useful; therefore, a haematology laboratory with cell seperator for Granulocyte concentrates is an essential requirement for the management of radiation injuries.

Genetic Laboratory

Genetic damage is one of the long term adverse effects of radiations. Genetic studies must be carried out in a properly equipped genetic laboratory for proper monitoring, surveillance and counselling of victims.

Molecular Laboratory

Radiation injury damages DNA, therefore a molecular laboratory needs to be established in radiation injury treatment centres for DNA and other molecular studies.

Immunology Laboratory

Immuno-suppression is the major damage caused by radiation injuries. Proper immunological studies will help for the restitution of the immune system and bone marrow transfusion. Immunology laboratories will facilitate studies of cell medicated and humeral immunity.

Bone Marrow Bank, Bone Marrow Transfusion and Stem cell Harvesting Facilities

For restitution of immune system, bone marrow transfusion is very important. However, there are problems of getting a donor, HLA compatibility and host versus graft reaction which may lead to rejection of bone marrow. Stem cell harvesting and transfusion will avoid the above problems. These problems will also be avoided through the availability of bone marrow bank where the bone marrow of high radiation exposure risk personnel can be stored under cryo-preservation and the same can be replenished at the time of requirement. Therefore, stem cell harvesting facilitates and a bone marrow bank needs to be created for a RITC.

Specialised medical stores consisting of Amifostine and other radio protectors, de-corporation agents like diethyl triamine-penta acetate(DTPA) and prussian blue,

potassium iodide, growth factors, colony stimulating factors, and radiation recovery agents will be in place.

In addition to the usual drugs mentioned above, medical stores need to cater to the treatment of radiation injuries. Amifostine significantly decreases radiation toxicity in patients receiving radiotherapy for cancer when 200mg/m2 is given intravenously 15-30 minutes prior to each radiation fraction. De-corporation agents (DTPA, prussian blue) eliminates radio nuclides entering the body, thus reducing internal contamination. The de-corporation agents act as diluting, blocking, mobilising and chelating agents. Decorporation should be initiated as soon as is practical. Gastric lavage, emetics, purgatives, laxatives and enemas can also be used to eliminate radioactive material from the body. Prior administration of potassium iodide prevents iodide prevents damage to thyroid from radiation. Growth factors, colony-stimulating factors and other radiation recovery agents are useful for restitution of the immune system.

List of NGOs

1. Rotary Club Lucknow Rajdhani
   28, Halwasiya Market, Hazratganj
   Hazratganj, Lucknow, Uttar Pradesh 226001
   0522 3013505

2. Lions Club
   Club Address:86 chand ganj garden lucknow 226024
   Club Tel:0522-320725

3. Zonal Director
   Nehru Yuva Kendra Sangathan
   2/62M Visalkhand-2,Gomti Nagar
   Near Ambedkar Chauraha
   Lucknow
   Uttar Pradesh 226010
   0522-2397002

4. Programme Adviser's Cell
   National Service Scheme (NSS)
   12/11, Jamnagar House, New Delhi
   Ph. : 91-11-23073324, 23384513
   E-mail : pacell-nss@nic.in

5. NCC and NSS
   IPPR Center,
   University of Lucknow
   Lucknow-Phone: 0522-2740086

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vi. Ministry of Rural Development
vii. World Health Organisation
viii. ICET Final Report 2005
ix. IDSA, Delhi
x. *SIGMA, UNEP, RED* International Disaster Database
xi. World Health Organisation
xii. Dte. General of Health Services, Ministry of Health & Family Welfare, Govt. of India
xiii. International Atomic Energy Agency
xiv. Narora Power Plant, Bulandshahar, U.P