UTTAR PRADESH

STATE DISASTER MANAGEMENT PLAN FOR

BIOLOGICAL ATTACKS

(Draft Copy)

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Executive Summary

Approach to disaster management sector has seen a paradigm shift, that is, from top-down relief and response it has gradually moved to a more technocratic approach and presently to towards a culture of prevention and preparedness. This approach has three distinct but interrelated components: *hazard assessment, vulnerability analysis* and *enhancement of management capacity*. 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.

India is vulnerable to varying degrees to a large number of natural as well as man-made disasters. 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. Our national approach in disaster management received a boost with coming into force of Disaster Management Act, 2005.

Uttar Pradesh State Disaster Management Plan (UPSDMP) on Biological Attack is a result of this approach of preparedness to face this man-made calamity. UPSDMP on Biological Attacks has been prepared in consultation with various departments and agencies of the Government of Uttar Pradesh and other stakeholders expected to participate in disaster management. The Objectives are to

develop plans through a consultative approach; to understand socio-economic vulnerability of people and integrate into disaster management activities in case of a Biological attack; to strengthen existing organisational and administrative structures; to prepare resource inventory and other mechanisms to combat biological attacks; to ensure prevention, response and recovery; and to channelise involvement of various government departments, research, specialised agencies, multilaterals, bilateral, non government organisations training institutes, Community Based Organisations etc.

The **Chapter II on profile of Uttar Pradesh** helps us to understand political, social, economic and demographic concerns that have to be weaved in while preparing UPSDMP on Biological Attacks. Uttar Pradesh is the fourth largest and most populous state in India sharing international border with Nepal. U.P. is facing a difficult demographic situation. It has both high people numbers and high population growth rate. The high demographic growth rate has resulted in high density of population, tremendous Pressure on land and other infrastructure. The state is also high in unemployment rate as well as illiteracy rate.

The **Chapter III on Biological attacks** helps us in understanding what it is all about. Biological attacks are the intentional use of disease causing agents in Biological Warfare (BW) operations or incidents of Bioterrorism (BT). History has witnessed many instances of strategic introduction of communicable diseases in the enemy camp as a military strategy. Biological attacks are characterised by causing mass scale damage of disastrous and direct consequences. They spread very fast and are capable of spreading to very large communities. Whether naturally acquired or artificially introduced, highly virulent agents have the potential of infecting large numbers of susceptible individuals and in some cases establishing infectious chains. The potential of some infectious agents is nearly as great as that of nuclear weapons, and therefore, included in the triad of Weapons of Mass Destruction

(WMD): Nuclear, Biological and Chemical. The production and use of Biological weapons can be done even by small groups and poor countries.

The socio-economic vulnerability of the state to biological attacks is very high due to scarce resources, unpreparedness and lack of education and awareness on biological attacks. There is shortage of Doctors and Para-medical staff in the State especially at the Sub-centre, Primary Health Centre and Community Centre. State is not ready to respond to biological attacks. Vaccination of first referrals has never been done and necessary laboratory facilities to detect the threat early and number of specialized hospitals is few. Number of mass causality hospitals is restricted to 9 only which may not be enough to meet the demands during biological attacks.

The **Chapter IV on Vulnerability Assessment and Risk Analysis** helps us in mapping the risk exposure and vulnerability of the state. Although there has been no biological attack in the state, it is significant to note that in last few years Uttar Pradesh has faced incidents of terrorist attacks. There has been disturbing news of some places in UP sheltering terrorists and supporting terrorist activities. This has really increased vulnerability of the state and its people. Given the high population density, there would be tremendous damage to human and cattle lives, agriculture and economy of the state in case of a biological attack. The infection would spread at an alarming proportion. The present medical infrastructure would be inadequate to deal with such an emergency.

The **Chapter V on Preventive Measures** deals with measures which if not help in negating the risk entirely, will help in putting in place mechanisms like strengthening Intelligence and Surveillance; awareness of Community and Health Workers; environmental Management; pharma Interventions etc. The **Chapter VI on Preparedness** is about preparing resource inventory; roles and responsibilities for preparedness and mitigation

The **Chapter VI on Response** would help in optimisiing the outputs, given the resource constraints. Response management is based on the three key management tasks of command, control and coordination. Response plan contains the actions to be taken immediately after a disaster including disseminating warning/alert to the potential victims; disseminate information to vertical and horizontal administrators for disaster management; and declaring disaster based on severity / vulnerability. The chapter entails a detailed Emergency Response Structure.

The **Chapter VII on Recovery Plans** 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. It allows individuals, families and communities to attain a proper level of functioning through the provision of information, specialist services and resources. The Recovery process is therefore a long-term 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. In case of a biological attack, there would be mass casualties and the effect may spread to huge areas. The survivors and affected people spread over a large geographical area would require support, both in tangible and intangible form, to regain normalcy and start life afresh from where it got disrupted.

The **Chapter IX on Capacity Building** focuses on important components of preparedness include planning, capacity building; well-rehearsed hospital DM plans, training of doctors and paramedics, and upgradation of medical infrastructure at various levels to reduce morbidity mortality. This is important since departments delaing with this disaster need to be equipped with state-of-the-art tools for rapid epidemiological investigation and control of any act of BT. It covers human resource development, training and education, documentation, research and development.

The **Chapter X on Institutional Arrangements and Roles and Responsibilities** covers who will do what in case of a biological attack. Uttar Pradesh Disaster Management Authority (UPDMA) has been set up under the UP Disaster Management Act, 2005, and 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. This Plan has proposed setting up of a Crisis Management Group to deal with Biological Attacks. UP already has a GIS based mapping of the entire state and there are Emergency Operation Centres that have been set up in the state. This Chapter also defines the role of Incident Commander who will take charge in case of a biological attack. Depending on the scale of the Disaster it can be Chief Secretary or District Magistrate.

The **Chapter XI on Partnerships with other Stakeholders** covers role of community, NGOs, International Cooperation, Public Private Partnership and Mass Media.

The **Chapter XII on Financial Arrangements** deals with budgetary allocations for carrying out preventive, preparedness and post-disaster relief work in case of a biological attack. 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.

The **Chapter XIII on Follow Up Actions** discusses follow up actions that have to be undertaken by various agencies/departments to operationalise the Plan.

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 biological attacks, if it were to happen.

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 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.

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 are 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 Disaster 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 multisectoral 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.

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.

1.2.4 State Vision

Uttar Pradesh State Disaster Management Plan (UPSDMP) on Biological Attack 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 emergency situations at multi-district levels.

1.3 Objectives of UPSDMP on Biological Attack

The Objectives of UPSDMP on Biological Attack 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 Biological attack, 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 Biological attack;

- To strengthen existing organisational and administrative structures for disaster management in case of a biological attack;

- To evolve a system to assess the status of existing resources and facilities available with the various departments and agencies involved in case of a biological attack in the state

- 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 channelise 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 Over view

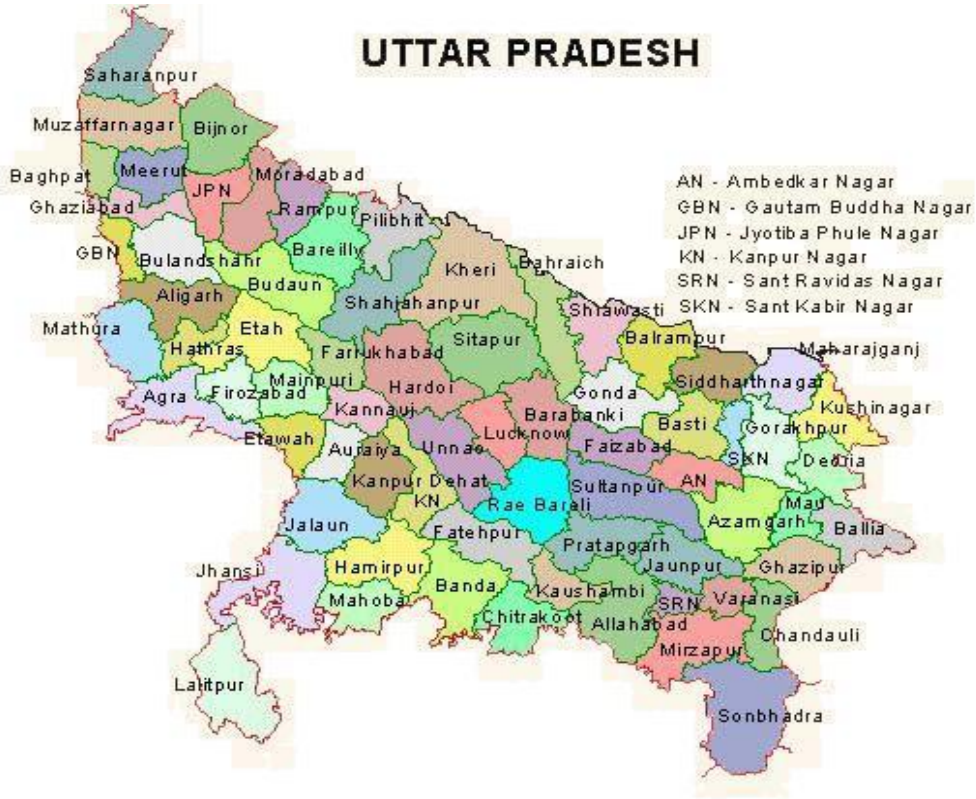
Uttar Pradesh is the land of multi-hued Indian Culture that has blossomed from times immemorial. Blessed with a variety of geographical land and many cultural diversities, Uttar Pradesh, has been the area of activity of historical heroes like - Rama, Krishna, Buddha, Mahavira, Ashoka, Harsha, Akbar and 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[1] , Uttar Pradesh is divided into 71 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 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).

[1] http://upgov.nic.in/

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.

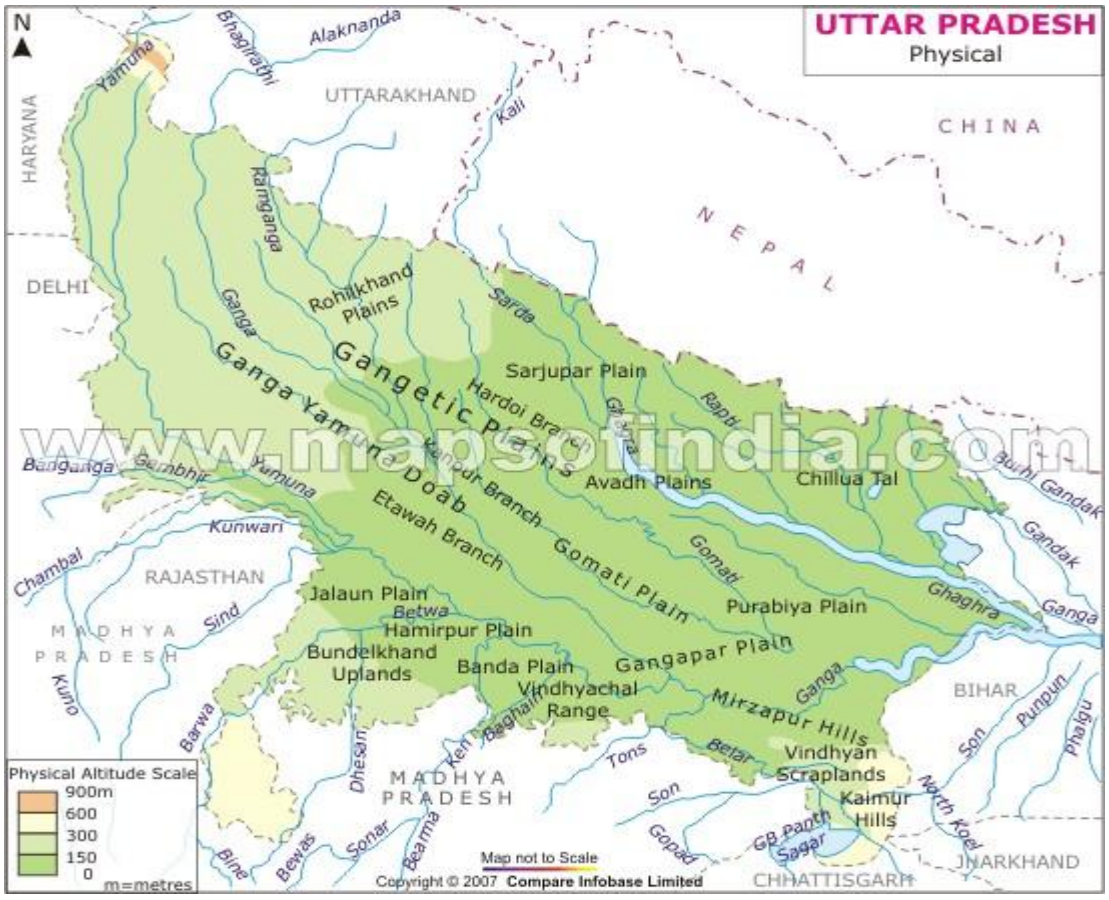
2.4 Physical Regions

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.

3. 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-Fabruary): Cold (temperatures drop to 3-4 °C, sometimes below -1 °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.

Snowfall: In the Himalayan region of the State, annual snowfall averaging 3 to 5 metre (10 to15 feet) is common between December and March.

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 Archean (the Bundelkhand Graniticgneisses) 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 is 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 dolomits, building stone and is 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 southwestern corner of Sonbhadra.

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 and, in 1991, 73% of the population in the state was engaged in agriculture and 46% of the state income was accounted for by 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

In terms of more demanding criteria of educational attainment on the completion of primary or secondary education, in Uttar Pradesh, in 1992-93 only 50 percent of literate males and 40 per cent of literate females could complete the cycle of eight years of schooling involved in the primary and middle stages. One other distinguishing feature of Uttar Pradesh education system is the persistence of high level of illiteracy in the younger age group. Within the younger age group, the illiteracy was endemic in rural. In the late 1980s, the incidence of illiteracy in the 10-14 age group was as high as 32 percent for rural males and 61 per cent for rural females, and more than two-thirds of all rural girls in the 12-14 age group never went to school.

Female literacy situation in Uttar Pradesh is dismal. Only one out of four in the 7+ age group was able to read and write in 1991. This figure go down to 19 per cent for rural areas, 11 per cent for the scheduled castes, 8 per cent for scheduled castes in rural areas, and 8 per cent for the entire rural population in the most educationally backward districts. The 1981 census figures suggest that in Uttar Pradesh the crude female literacy rate among scheduled castes in rural Uttar Pradesh in 1981 was below 18 per cent in 18 out of Uttar Pradesh's 56 districts and below 2.5 per cent in a majority of districts.

The problem of education system is exacting. Due to public apathy the school are in disarray, privately run school are functional, but beyond the reach of ordinary people. The State government has taken programmes to make the population totally literate. Steps are being taken with the help of NGOs and other organizations to raise popular participation.

At the level of higher education and technical education Uttar Pradesh has 16 general universities, 3 technical universities, one Indian Institute of Technology

(Kanpur), one Indian Institute of Management (Lucknow), one Indian Institute of Information Technology and large number polytechnics, engineering institutes and industrial training institutes. This provides the State with firm basis for providing opportunities for higher education to its youth.

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.

2.12 Forests

Forests constitute about 12.8% of the total geographical area of the state. The Himalayan region and the terai and bhabhar area in the Gangetic plain have most of the forests. The Vindhyan forests consists mostly of scrub. The districts of Jaunpur, Ghazipur and Ballia have no forest land while 31 other districts have less forest area.

Near the snow line there are forests of rhododendrons and betula (bhojpatra). Below them are forests of silver fir, spruce, deodar, chir and oak. On the foothills and in the terai bhabhar area, grow the valuable sal and gigantic haldu. Along river courses the Shisham grows in abundance. The Vindhyan forests have dhak, teak, mahua, salai, chironji and tendu. The hill forests also have a large variety of medicinal herbs. Sal, chir, deodar and sain yield building timber and railway sleepers. Chir also yield resin, the chief source of resin and turpentine. Sisso is mostly used for furniture. Semal and gutel are used as matchwood and Kanju in the plywood industry. Babul provides the principal tanning material of the state. Some of the grasses such as baib and bamboo are raw material for the paper industry. Tendu leaves are used in making bidis and cane is used in baskets and furniture.

2.13 Agriculture

The western region of the state is more advanced in terms of agriculture. Majority of the population depends upon farming as its main occupation. Wheat, rice, sugar cane, pulses, oil seeds and potatoes are its main products. Sugar cane is an important cash crop almost through out the state and sugar mills and other cane crushers who produce gur and Khandsari are common throughout the state. Uttar Pradesh is an important state so far as horticulture is concerned. Apples and mangoes are produced in the state.

2.14 Cropping Patterns

In Uttar Pradesh rice is grown on 19 per cent(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

Uttar Pradesh supports about 15% of the country's total livestock population. Of its livestock in 1961, 15% were cattle, 21% buffaloes, 13% goats and 8% other livestock. Between 1951 and 1956 there was an overall increase of 14% in the livestock population. There are nearly eight lakh hectares of water area, including lakes, tanks, rivers, canals and streams. The fishing area is over two lakh hectares and more than 175 varieties of fish, excluding the sornamental varieties are found. Among them are rohu, hilsa, mahseer, mangar, snow trout and mirror carp.

2.16 Land Use pattern

Land use	Area in ` 000 ha	Percentage
Total Geographical area	29,441	

Land use	Area in ` 000 ha	Percentage
Reporting Area for land utilization	29,794	100.00
Forests	5,150	17.29
Not available for cultivation	3,516	11.80
Permanent Pasture & Grazing land	296	0.99
Land under misc. tree crops & groves	513	1.72
Culturable waste land	945	3.17
Fallow land other than current fallows	832	2.79
Current fallows	1,067	3.58
Net area Sown	17,475	58.65

Source: Land use statistics at a Glance 1996-97, Ministry of Agriculture, GOI, 2000

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 smalltime traders generally use these trains. They tend to stop at every other station.

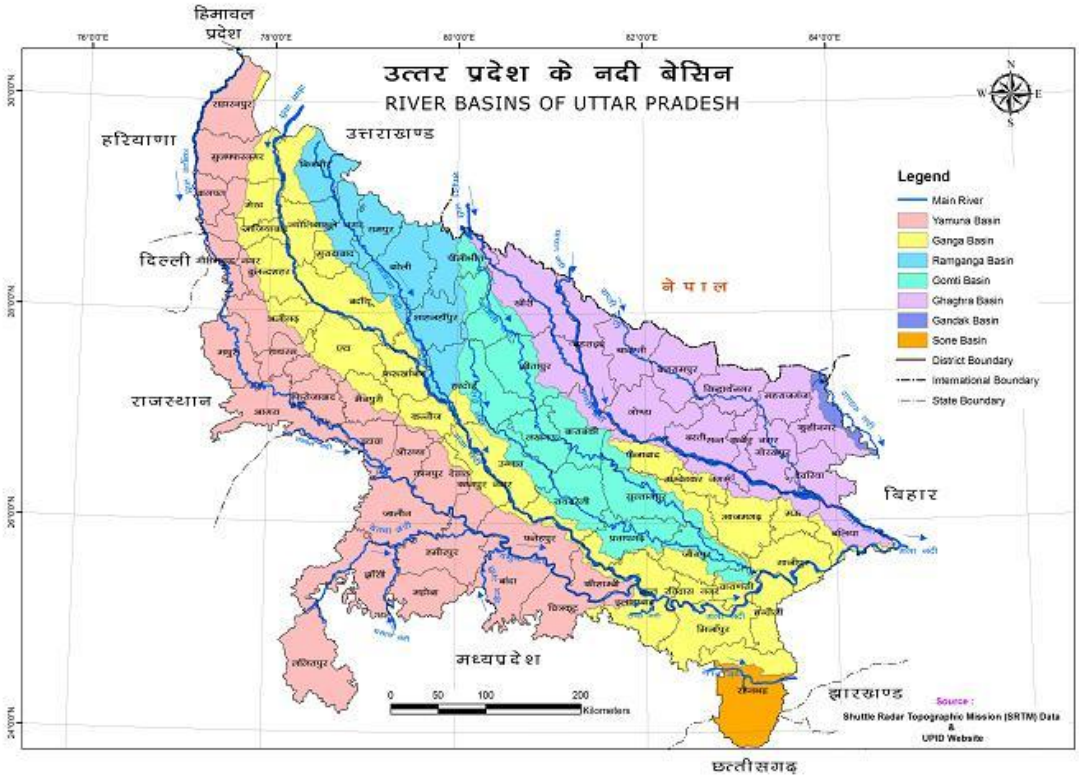
Uttar Pradesh State Transport Corporation has a fleet of buses that ply between different cities. The buses range from uncomfortable coaches for short distance to the Luxury coaches for the longer ones. Apart from that there are luxury coaches run by private operators too. Several Matadors, Mini-Buses 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 Biological Attacks

3.1 Background

Sickness and disease are important subjects that have exercised human thought since the dawn of civilization. The earlier societies with their own understanding developed methods and systems to curtail spread of contagious diseases. With spread of agriculture, domestication of animals, increase in population and development of societies (living in congregated groups), it was realised that diseases affecting crops and animals could affect human beings and populations living in limited spaces are more susceptible to diseases. Earlier medical literature explains spread of many of these epidemics. Diseases like plague (bubonic and pneumonic), louse –born typhus, and smallpox caused the largest disruption. Infections like malaria, dengue and yellow fever led to economic disasters. Spread of diseases among livestock or crops also led to disruption in societies. Environment played a very important role in spread of epidemics.

Short-duration infections with high mortality rates harm societies by depleting their numbers. The longer duration infections, with varying immediate mortality, became important when they cause large-scale morbidity affecting the productive capacity of the population. Malaria and tuberculosis are such examples.

The extension of human activity and its contact with a hitherto localised microbial environment introduces novel pathogens. The spread of Nipah, Hendra, Ebola, Marburg and Lassa fever viruses are examples of this phenomenon. In the case of HIV, a sporadically occurring phenomenon – that of transmission of the virus from chimpanzee to man – became a pandemic when it began to be sexually transmitted, and has since become the largest epidemic in history.

3.2 Biological Attack Defined

Biological Disasters are scenarios involving disease, disability or death on a large scale among humans, animals and plants due to toxins or disease caused by live organisms or their products. Biological attacks are the intentional use of disease causing agents in Biological Warfare (BW) operations or incidents of Bioterrorism (BT).

Some definitions:

- **Biological Warfare**:*Prof Joshua Lederberg described Biological Warfare as 'use of agents of disease for hostile purposes'*
- **Bioterrorism**: It is defined by Centre for Disease Control and Prevention (CDC) as *'the intentional release of bacteria, viruses, or toxin for the purpose of harming or killing civilians.*
- **Agro-terrorism**: It is the malicious use of plant or animal pathogens to cause devastating disease in the agricultural sector.

History has witnessed many instances of strategic introduction of communicable diseases in the enemy camp as a military strategy. Filth, cadavers and animal carcasses have been used to contaminate wells, reservoirs and other water sources up to the 20th century. In the Middle Ages, bubonic plague was used as a BW. This perpetuated Black Death, which killed a third to half of Europe's population. There is documentation of the use of biological weapons during the French and Indian wars in North America (1754-1767). In the 20th century, the use of bioweapons became more scientific as technology and Knowledge about bacteriology and vaccinology enabled armies to target their enemies selectively. During World War I some countries developed biological warfare programme and post this many countries undertook development of bio-weapons. Post World War II, the Cold War serious proliferation of this technology. The number of countries currently working on biological weapons is estimated to be between 11 and 17 and include sponsors of

terrorist activities. Even smaller groups have now acquired bioterrorist capabilities.

3.3 Characteristics of Biological attacks

Biological attacks are characterised by some or all of the following:

- They cause mass scale damage of disastrous and direct consequences
- They are capable of spreading to very large communities;
- They are capable of spreading to large geographical areas;
- Even a small quantity is sufficient to cause significant damage;
- 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;
- They can be of sudden onset
- With development of new strains, our knowledge and experience of coping with disaster of this nature may be very limited

3.4 Biological Agents as Causes of Mass Destruction

Whether naturally acquired or artificially introduced, highly virulent agents have the potential of infecting large numbers of susceptible individuals and in some cases establishing infectious chains. The potential of some infectious agents is nearly as great as that of nuclear weapons, and therefore, included in the triad of Weapons of Mass Destruction (WMD): Nuclear, Biological and Chemical. The production and use of Biological weapons can be done even by small groups and poor countries.

The low cost and widespread availability as well as less complexity in making them makes BW attractive to even less developed countries. BW agents are more efficient in terms of coverage per kilogram of payload than any other weapons system. In addition, advances in biotechnology have made their production simpler and also

enhanced the ability to produce more diverse agents. Biological weapons are different from other WMD as their effects manifest after an incubation period, thus allowing the infected (and infectors) to move away from the site of attack.

BWs are largely natural pathogens and the illnesses caused by them simulate existing diseases. The diagnosis and treatment of BW victims should be carried out by the medical care system rather than by any specialised agency as in the case of other two types of WMD.

3.5 Sources of Biological Agents

In theory, any human, plant or animal pathogen can cause an epidemic or be used as a biological weapon. A biological attack is the deliberate intention or action to cause harm using biological agents. A well known example of biological attack was the US incident where members of a religious cult caused gastroenteritis by the use of salmonella typhimurium. The organism causing illness was such a common pathogen that only the confessional statements of the perpetrators after the cult broke up, revealed the facts.

Of all the pathogens that can be used as biological agents in attacks, anthrax, smallpox, tularaemia, brucellosis, and botulinism toxin can be considered leading causative agents. The use of agents that target livestock and crops can be as devastating as those targeting humans, in terms of their potential economic impact on the community.

Some examples…

Anthrax: The disease anthrax is caused by the gram-positive, non-motile *Bacillus anthracis*. Anthrax has been a scourge of cattle and other herbivores for centuries. During the industrial revolution, the inhalation form was first recognized as an occupational pulmonary disease in workers in the wool industries of Europe. Anthrax

makes an ideal biological weapon. The inhalation form of disease is highly lethal. The spores can maintain virulence for decades and they can be milled to the ideal particle size for optimum infection of the human respiratory tract. Different clinical forms of the disease are observed, depending on the route of exposure. Inhalation anthrax presents with non-specific symptoms that cannot be distinguished from many more common diseases based on early clinical manifestations or routine laboratory tests. Therefore, despite aggressive medical care sometimes develop rapidly progressive disease and dye.

Smallpox: If used as a biological weapon, smallpox represents a serious threat to civilian population because of its case fatality rate of 30% or more among unvaccinated persons and the absence of specific therapy. Smallpox has long been considered as the most devastating of all infectious diseases and today its potential for devastation is far greater than at any previous time. Smallpox virus is a member of genus Orthopoxvirus, and it is closely related to the viruses causing cowpox, vaccinia and monkey pox. It is one of the largest DNA viruses known, and it has a bricklike appearance on electron microscopy. Transmission of this virus can occur in several different ways: generally by droplets, occasionally by aerosol, by direct contact with secretions or lesions from a patient, and rarely by formites contacted with the infection virus from a patient. Transmission risk increases if the index patient is coughing or sneezing or if he or she has hemorrhagic disease. Typically, the virus enters the respiratory mucosa and then travels to regional lymph nodes where it replicates. The incubation period from infection to onset of rash ranges from 7 to 17 days, averaging 12 to 14 days. Smallpox scabs remain infectious until they fall off, whereas chickenpox is no longer infectious once the lesions are crusted.

Plague: The mere mention of the word plague conjures up many images because has already demonstrated a historical potential to kill millions of people across the globe. It is a disease that results from infection by non-motile, gram-negative

coccobacillus *Yersinia pestis*. When stained, its bipolar appearance is often described as resembling a safety pin. Pestis has two important properties that differentiate it from B. anthracis- person-to-person transmissibility and a lack of spore production. Following the bite of an infected flea, plague bacilli are carried via the lymphatic to the regional lymph nodes where they multiply exponentially. This is only weapon besides smallpox, which can cause devastation beyond those persons who are initially infected. With modern air travel, containing an out break of plague could be challenging. A vaccine for plague does exist; however, it is no longer being produced, and it does not demonstrate efficacy against infection by aerosol.

Botulism: Botulinum toxins are deadly and produce serious disease in human beings. Many natural toxins can be produced by chemical synthesis or can be expressed artificially. Toxins are natural and non-volatile and generally do not penetrate intact skin, which happens in case of chemical weapons. There are different types of toxins and they are immunologically distinct, meaning that antibodies developed against one do not cross-react against others. Those that most commonly cause human diseases are types A, B, and E. Humans can be intoxicated either by oral means, inhalation, or wound infection. Mass casualties can be produced through contamination of food source or by aerosol dissemination. The incubation period of botulism can range from as short as 24 to 36 hours to several days from the time of inhalation.

Tularemia: It is caused by *Francisella tularensis*, which is a gram-negative, non-motile coccobacillus. It is a zoonotic disease acquired in a natural setting by humans through skin or mucous membrane contact with the body fluids or tissues of infected animals or from being beaten by infected deerflies, mosquitoes, or ticks. It can remain viable for weeks in the environment or in animal carcasses and for years if frozen. Unlike anthrax, which requires thousands of spores to infect someone, tularemia can cause illness with as few as 10 to 50 organisms. After an incubation period of 2 to 10 days, pneumonia symptoms develop associated with weight loss

and nonproductive cough. The drug of choice for treatment is streptomycin with other aminoglycosides.

3.6 Threat Perception

The common perception that the actual threat of BT is minimal was belied by the anthrax attacks through the postal system in 2001, which followed the tragic 9/11 events. BT, rather than BW, is now perceived to be more relevant for discussion and preparedness. Similarly, in agriculture, the inadvertent introduction of exotic species have had far-reaching consequences. Even though deliberate actions have not been recorded, rapid advances in biotech and aggressive deliberate designs could open up opportunities for the hostile use of biological resources.

Anthrax, smallpox, plague, and botulism are considered agents of choice for use against humans. Similarly crop and livestock pathogens have been identified in their respective fields. However, perceptions change as public health, veterinary, and crop practices evolve. A disease that has been eliminated from a community automatically becomes a BW weapon as herd immunity wanes. This is the case with smallpox that was once an endemic infection. In the veterinary field, the elimination of rinderpest in India, without parallel eradication in neighbouring countries, makes it a potential agent.

In the Indian context, it is generally believed that BW agents are unsuitable for attacking military formations as the element of surprise would be lost while, in the atmospheric conditions of a desert or mountainous terrain it will not be very effective. Bioweapons such as anthrax are more likely to be used by terrorists against vulnerable population and industrial centres, especially to cause panic. Apart from human targets, agricultural crops and livestock are also vulnerable to attack and this can lead to huge economic losses. The largest hazard the country faces is an overloaded urban infrastructure along with large scale population movement. The

social disruption that can result was evident during the Surat plague epidemic in 1994.

Biological research is rapidly changing the epidemiology of infectious diseases, thereby altering the threat perceptions which have to be reviewed periodically. National surveillance mechanisms should be upgraded to provide useful inputs. The threat perception can be qualified based on these inputs including epidemiological information, intent to harm, and technological developments.

Zoonoses

As per WHO, zoonoses are defined as 'diseases and infections naturally transmitted between non-human vertebrate animals and human beings'. Emerging zoonotic diseases are 'zoonosis' that is newly recognized or newly evolved or that has occurred previously but shows an increase in incidence or expansion in geographical, host or vector range'. A catalogue of 1,415 known human infections revealed that 62% were of zoonotic origin. Bacteria, viruses, and parasites can spread from a wildlife reservoir. Fungi do not normally adopt this route.

Historically, plague, rabies and possibly some viral diseases like the west Nile virus have been described as zoonoses. The transmission of zoonotic infections can be through three modes- Direct as in tularaemia (by inhalation); by Ingestion of infected animal products used for food, e.g. milk (brucellosis), lamb and goat (anthrax); or through Insect vectors e.g. plague, West Nile virus, Lyme borrelliosis etc.

Anthropod vectors play a crucial role in the transmission of zoonoses as well as some non-zoonotic agents. Viral infections such as West Nile, dengue etc. and bacterial ones such as filarial, dracunculosis, etc. are transmitted by vectors. They transmit the pathogen by amplifying the pathogen and by introducing it in a bite, or by direct implantation as in louse-borne typhus or ingestion of the infected vector as

in dracunculosis.

Zoonotic infections are difficult to control unless their epidemiology is well-established and specific activities favoring the transmission are identified and addressed. Thus, the discovery of the trombiculid mite in the transmission of scrub typhus permitted a specific method of control to be adopted. However, such success is unusual.

The true remedy lies in prevention of human contact with the source of infection, though it is not often feasible.

Biological Agents

Disease / Agent	***Infection Routes***	***Untreated Mortality Estimate***	***Incubation Period***	***Infective Dose***	***Best Treatment***
Anthrax (Bacillus anthracis)	S, D, R	S: 25% D: 50% R: 100%	1-4 Days Sometimes 60 Days	103 - 104 Spores per Person	Antibiotics Ciprofloxacin preferred. Limited effectiveness after symptoms develop. Cremate remains.
Cholera (Vibrio cholerae)	D	50%	1-5 Days	109 Organisms per Person	Oral Rehydration Antibiotics
Hemorrhagic Fevers Denge, Ebola, Lassa, Marburg, Rift Valley, etc	DC, Uncertain	< 90%	2-7 Days	Unknown	Symptomatic
Plague (Yersinia pestis)	V, R	Bubonic - 50% Pneumonic - I 00%	2-3 Days 10	Organisms per Person	Antibiotics
Q Fever(Coxielia bumetii)	V, R	< 1%	2-5 Days	I Organism per Person	Antibiotics

Disease / Agent	***Infection Routes***	***Untreated Mortality Estimate***	***Incubation Period***	***Infective Dose***	***Best Treatment***
Smallpox (Variola Major)	DC, R, S	Varies by strain and immunity 30-60% nticipated 10-90% World History	12-14 Days (Typical 7 - 17 Extended Range)	Unknown Suspect: 1-100 Viral Organisms Extremely Infectious 7-10 days after rash	No Primary Treatment Treat secondary infections as symptoms occur Incinerate, Autoclave or Chlorinedisinfect everything in contact with patient. Cremate remains
Tularemia (Rabbit Fever) (Francisella Tularensis)	V, S, R	30-40%	2-4 Days	25 Organisms per Person	Antibiotics
VEE (Venezuelan Equine Encephalitis)	V, R	About 1%	2-5 Days	25 Viral Particles per Person	Symptomatic

D=Digestive System R=Respiratory System S=Skin V=Vector DC=Direct Contact
References: USPHS; Centers for Disease Control; U.S. Army SCBDCOM; US-DPO.

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 biological attack 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 biological attacks and the assessment of the consequent effects of such are essential to adopt preventive, preparedness, response and recovery measures to minimise losses during disaster and ensure quick recovery. For a highly populous state like Uttar Pradesh, it is essential to ensure that vulnerability and risk reduction aspects are taken into account for all developmental plans and programmes.

Hazard Occurrence Probability: the probability of occurrence of a biological attack is moderate in the state. However, there are pockets in the state which may turn into hubs for organising terrorist activities in the state. As technology for making biological weapons are easily available and is not very complex, the probability of such attacks are moderate to high.

Vulnerability: the degree of loss to each element should a hazard of given severity occurs

Elements at risk: The entire state population is at risk in the event of biological attack. Not only human lives but the cattle population and agriculture are also at risk in the state.

Population	Numbers
Human	166.2 millions as per Census 2001
Major Cattle Population in Millions as per Cattle Census 2003	
Bulls	10.18
Cows	10.86
Buffalo	17.75
Goat	12.94
Pig	2.28
Sheep	1.4

The elements at risk will also be classified and recorded at the district level by the District Disaster Management Authority while preparing the district disaster management plans and will be integrated into the State Disaster Management Plan.

Apart from other, a large part of the agriculture may also get impacted due to biological attacks.

4.2 Socio-economic Vulnerability

The socio-economic vulnerability of the state to biological attacks is very high due to scarce resources, unpreparedness and lack of education and awareness on biological attacks. There is shortage of Doctors and Para-medical staff in the State especially at the Sub-centre, Primary Health Centre and Community Centre. State is not ready to respond to biological attacks. Vaccination of first referrals has never been done and necessary laboratory facilities to detect the threat early and number of specialized hospitals is few. Number of mass causality hospitals is restricted to 9 only which may not be enough to meet the demands during biological attacks.

4.3 Hazard Vulnerability in UP

Although there has been no biological attack in the state, it is significant to note that in last few years Uttar Pradesh has faced incidents of terrorist attacks. There has been disturbing news of some places in UP sheltering terrorists and supporting terrorist activities. This has really increased vulnerability of the state and its people.

Given the high population density, there would be tremendous damage to human and cattle lives, agriculture and economy of the state in case of a biological attack. The infection would spread at an alarming proportion. The present medical infrastructure would be inadequate to deal with such an emergency.

Religious festivals or celebrations like kumbh melas, dussehra are events where large number of people participate from not only UP but other parts of India as well. Such large gatherings are always vulnerable to biological attacks and causalities will be very high in this case.

Disasters in livestock has not been given due priority in the state except in the disasters such as floods and droughts. The veterinary service staff lack skills to respond to disasters such as biological attacks. Department of animal husbandry lacks bio-secured laboratories for handling dangerous pathogen. There are no mobile veterinary laboratories or clinics with the department. It has inadequate inter-state emergency disease reporting system. Given the area and population of the state, the resources, especially the ones that will be required in case of a disaster, are not sufficient. Even the critical departments like PWD, BSNL, Fire, Revenue etc do not have sufficient resources. Moreover the resources, are not present uniformly, that is, they are concentrated in selected pockets.

The most likely targets of Biological Attack in UP are:

- Government offices such as Secretariat, Vidhan Sabha, Directorates etc.
- Military installations
- Landmark buildings

- Events with high populations such as Kumbh Mela
- Post offices
- Power facilities
- Water supplies
- Corporate Headquarters
- Police Stations
- Railway Stations
- Bus terminals
- Airports
- Bridges
- Food depots
- Schools, Colleges and Universities

In the event of Biological Attacks the State will have following consequences;

- Heavy morbidity and mortality amongst population especially the vulnerable sections of the society such as women, children, people living below poverty line, etc.
- Loss of workforce and mandays resulting economic slowdown and loss.
- Food insecurity due to loss of crops.
- May create a situation like epidemics or pandemics
- Cause major production losses for livestock products such as meat, milk and other dairy products, wool and other fibres and skins and hides;
- Cause losses of valuable livestock of high genetic potential. They may also restrict opportunities for
- Cause negative environmental consequences

Chapter V Preventive Measures

The essential protection against **artificial outbreaks of disease,** as is in the case of biological attacks, will include development of mechanism for prompt detection of incident outbreak, isolation of the infected persons and the people they have in contact with and mobilisation of investigations and therapeutic counter measures. In case of Biological Attack, the spectrum of possible pathogen is narrow, while natural outburst can have wide range of organism.

Prevention and preparedness will focus on the assessment of bio-threats, medical and public health consequences, medical counter-measures and long term strategies for mitigation. Preventive measures will be useful in reducing vulnerability and in mitigating the post-disaster consequences. For example, pre-exposure immunization (preventive) of first responders against anthrax and smallpox can be done to enable them to help victims post-exposure.

The important means for prevention against Biological Attacks will include the following:

Strengthening Intelligence and Surveillance: It is pertinent to develop adequate counter-terrorism measures against BT activities of terrorist groups by deterrents such as destruction of their funding mechanisms and continuing surveillance at all levels. Important buildings such as Vidhan Sabha, Secretariat, Raj Bhawan, Railway Stations, major Bus Stations, and those housing vital installations will be protected against biological agents. This will be done through security surveillance, prevention, and restricting the entry to authorized personnel only for proper screening, and installing High Efficiency Particulate Air (HEPA) filters in the ventilation systems to prevent infectious microbes from entering the circulating air

inside critical buildings. Local Intelligence Offices will play a key role in providing intelligence inputs on possibility of biological attack.

Awareness of Community and Health Workers: Those exposed to biological agents may not come to know of it until symptoms manifest because of the varied incubation period of these agents. A high index of suspicion and awareness among the community and health professionals will help in the early detection of diseases. When exposure is suspected, the affected persons will be quarantined and put under observation for any typical or atypical signs or symptoms appearing during the period of observation. Health professionals who are associated with such investigations will have adequate protection and adopt recognized universal precautions. It often may not be possible to evolve the EWS. However, sensitization and awareness will ensure early detection.

Health department would initiate training programmes for the district level health officers to educate them symptoms, treatment and other aspects of the Biological Attacks. At least two health officers, preferably those working at the district hospitals would be nominated to undergo such trainings which will be organised in batches at Lucknow.

Maintaining Personal Hygiene – Necessary awareness about the importance of personal hygiene and measures to achieve this, including provision of washing, cleaning and bathing facilities, and avoiding overcrowding etc. Other activities include making temporary latrines, developing solid waste collection and disposal facilities, and health education will be done to check the spread of disease in case of a disaster. State level awareness campaign focusing on Biological Attacks would be initiated using mass media and other communication channels. Awareness campaign will focus on children in the schools particular as they can be reached and educated easily. Schools and colleges would be encouraged to create awareness on the issue related with Biological Attacks, personal hygiene and environmental sanitation.

Environmental Management: Disease outbreaks are mostly due to waterborne, airborne, vector-borne and zoonotic diseases. Environmental monitoring can help substantially in preventing these outbreaks. Integrated vector management also needs environmental engineering for elimination of breeding places, supported with biological and chemical interventions for vector control. Biological events with mass casualty potential may result in a large number of dead bodies requiring adequate disposal procedures. A regular survey of all water resources, especially drinking water systems, will be carried out by periodic and repeated bacteriological culture for coliform microbes by the local health department and Jal Nigam.

Vector control: This is an important activity requiring continuous and sustained efforts. Cooperation of the community is very essential for a successful integrated vector management programme. The important components of vector control are:

- Environmental engineering work and generic integrated vector control measures
- Elimination of breeding places by water management, draining of stagnant pools and not allowing water to collect by overturning of receptacles etc.
- Biological vector control measures such as use of Gambusia fish is an important measure in vector control
- Outdoor fogging and control of vectors by regular spraying of insecticides

Early Warning Signs: Early identification of an outbreak of disease of international public health importance will require knowledge of early warning signals amongst all the echelons of health care providers. Some of the suggested early warning signals which must command quick investigation by professionals may include followings:

- Sudden high mortality or morbidity following acute infection with short incubation period
- Acute fever with haemorrhagic manifestations.
- Acute fever with altered sensorium and malaria and JE excluded in endemic areas

- Even one case of suspected plague or anthrax.
- Occurrence of cases which are difficult to diagnose with available clinical and laboratory support and their non-responsive to conventional therapies.
- Clustering of cases/deaths in time and space with high case fatality rate.
- Unusual clinical or laboratory presentations.
- A comprehensive list of all the trigger events that shall attract immediate attention of local public health machinery need to be developed by a group of experts.
- By suspicion: Management Plan should aim to identify crisis situation at a very early stage preferably confined to a limited area. This can be done only by suspecting danger of impending disaster by local health employees (at village by village health guide, at sub centre level by multi purpose worker and PHC level by doctors at PHC).
- Alertness of institution dealing with emergency health, medical services/ Confirmation by identified laboratories: If such a situation arises, after

There are many early-warning indicators of biotical attack. *In all but the large cities detection equipment may not be available. All first responders should consider whether an attack might have taken place if any of the following are noticed.*

- Unusual numbers of people dying in an area, or from strange causes
- Unusual numbers of sick or dying animals, birds or fish
- Lack of insect life where it should be seen
- Unusual numbers of people in an area complaining of blisters/rashes, nausea,
- disorientation, difficulty in breathing, convulsions, localized sweating, conjunctivitis
- (reddening of the eyes), erythema (reddening of the skin), or any irregular symptoms
- Strange colored smoke coming from the area of a detonation
- Explosions that seem to do very little damage or which release an unusual amount of
- smoke, or leave droplets of liquid in the area, or fragments covered with liquid or droplets
- Unusual appearance of any liquid droplets, particularly where there should be none
- Abandoned aerosol sprayers in the area of sick people
- People reporting unusual odors or tastes
- Unexplained mists or hazes in urban area
- Sudden or unexplained appearance of low-lying clouds
- Unidentified, low-flying aircraft--particularly crop dusters--over a populated area

providing symptomatic treatment at PHC level, services of well established laboratory at district or medical college level will be requisitioned to identify the organism and also to seek guidance for specific treatment and management.

Burial/Disposal of the dead: Dead bodies resulting from biological attacks increase the risk of infection, if not disposed off properly. Burial of a large number of dead bodies may cause water contamination. With due consideration to the social, ethnic, and religious issues involved, utmost care is to be exercised for disposing dead bodies.

Prevention of Post-Disaster Epidemics: There is a need to maintain the necessary level of epidemiological intelligence to pick up early warning signals of emerging and re-emerging diseases of epidemic and pandemic potential. This would also require advance knowledge of the activities of our adversaries in developing a potential BW ensemble and its potential use during war and by terrorist outfits using available in-house facilities to develop such weapons. The risk of epidemics is higher after any type of disaster, whether natural or man-made. These include waterborne diseases such as diarrhoea/dysentery, typhoid, and viral hepatitis, or vector-borne diseases such as scabies and other skin diseases, louse-borne typhus and relapsing fever. Preventive measures will be taken to deal with such eventualities by keeping reserves of adequate stocks at the district hospitals.

Integrated Disease Surveillance Systems (IDSP): The IDSP at all district levels would help to detect early warning signs for instituting appropriate public health measures. The surveillance team would monitor the probable sources, modes of spread, and investigate the epidemics. The surveillance programme would also be integrated with the chain of laboratories at national level including DRDO, ICMR, AFMS, and state governments/private laboratories. There is an urgent requirement of such systems to perform real-time monitoring with information shared at the

various levels of the health care system. Information of epidemics can be anticipated much in advance where epidemiological assessment of surveillance data exists.

Pharma Interventions: Chemoprophylaxis, Immunisation and Other Preventive Measures -

i. Health care workers have to be equipped with gloves, impermeable gowns, N-95 masks of powered air-purifying respirators. They must clean their hands prior to donning Personal Protective Equipment (PPE) for patient contact. After the removal of all PPE, they must clean their hands again.
ii. Aerosols are the most common method of delivery for biological agents. The potential biological attack agents like virus spread readily from person to person by respiratory aerosols and require more than standard infection control precautions.
iii. Recognition of the clinical syndromes associated with viruses causing Viral Haemorrhagic Fevers (VHFs) such as Filoviridae, Bunyaviridae, Flaviviridae. Symptoms include high fever, headache, depression, arthralgias, myalgias, nausea, abdominal pain, and non-bloody diarrhoea, severe illness and no predisposing factors for hemorrhagic manifestations, and at least two hemorrhagic symptoms
iv. Biotoxins generated from various microbial agents have the potential to contaminate water and food and could be easily implanted in large populations through this mode. Therefore, it is necessary to have sufficient checks at places where these are located. There has to be an adequate onsite contingency plan to detect any escape and arrangements for warning
v. Chemotherapy- Doxycycline is considered an initial chemoprophylactic broad spectrum drug of choice in cases of respiratory illnesses. Other tetracyclines and fluoroquinolones might also be considered. There is no approved anti-viral drug for the treatment of VHFs. However, ribavirin may be considered initially as an anti-viral agent of choice in an outbreak due to VHFs.

vi. Legitimate access to important research and clinical material must be preserved. Prevention of unauthorized entry-exit of biological materials can be achieved by adopting adequate detection methods such as x-rays and other scanning methods to identify microorganisms, plant pathogens at airports etc. Suitable assessment of the personnel, security, specific training and rigorous adherence to pathogen protection procedures are reasonable means of enhancing biosecurity.

vii. Immunization/Vaccination programmes- Immunisation and mass vaccination campaigns will be an important tool for preparedness. Such campaigns may be required in BT, pandemic influenza attacks or for any other emerging bacterial or viral aetiology. Department of Medical Health and Family Welfare will develop a vaccination policy, a stockpile of vaccines, identify and train the vaccinators, and have cold chain management. Pharmaceutical companies active in the state will be roped in as a stakeholder for creating a viable high-tech infrastructure for vaccine research and production. Immunization programmes under constant monitoring and reporting mechanisms will be an effective prevention strategy

Non-Pharma Interventions

i. Social Distancing Measures: People should avoid in living in closed groups

ii. Disease Containment by Isolation and Quarantine Methodologies: This will help in checking spread of the disease from the infected person

Bio-safety and Bio-security Measures: Strict compliance with bio-safety and bio-security provisions at all levels will deny the possibility of terrorists reaching facilities where such microorganisms are stocked and available. This will act as second layer of defence and reduce the possibility of any bioterrorist activity

Management of Pandemics

The exchange of health intelligence across borders is crucial to containing and mitigating the effects of a biological attack. International agencies like WHO and FAO have a presence in all countries and coordinate activities to manage cross-border public health emergencies.

Pandemic preparedness is not restricted to the health sector alone. It has been extended to cover non-health stakeholders, thereby requiring overall preparedness measures. The issues of advocacy and guidance, planning at each level, linkages between various emergency functionaries, community awareness specific to pandemic preparedness, multi-sectoral coordination and capacity development using PPP will be incorporated in the action plan. The 'all hazard' plans, thus developed, will be practiced through mock drills.

Establishment of State Referral Laboratory and Coordination with other Laboratories: State will establish a referral laboratory in Lucknow to test the microbes and other biotic organism. State will also establish coordination with following agencies:

- National Institute of Virology, Pune
- National Institute of Epidemiology, Chennai
- All India Institute Hygiene and Public Health, Kolkata
- Indian Council of Agricultural Research, New Delhi
- Defence Research and Development Establishment under Ministry of Defence
- National Institute of Communicable Diseases, New Delhi
- Indian Council of Medical Research

Chapter V I Preparedness Measures

For preparedness in case of a biological attack, all important stakeholders including State Departments, Central Ministries (Ministry of Health & Family Welfare, Ministry of Home Affairs, Ministry of Defence, and Ministry of Agriculture for animal health and agro-terrorism, State Departments, NGOs along with the community, medical care and public health professionals will participate. The preparedness and response plan will to be drawn at district level with the role and responsibilities of various stakeholders clearly outlined. An important aspect of medical preparedness against biological attacks includes the integration of both government and private sectors. A sound infrastructure is necessary both for medical countermeasures and R&D for evolving novel technologies.

6.1 Resource Inventory

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

Item Name	Qty	Item Name	Qty
UHF Sets Mobile	24	Mechanical ventilators	78
Walkie 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

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

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

Health Institution	Number
Medical College	16
District Hospitals	74
Referral Hospitals	

City Family Welfare Centre	
Rural Dispensaries	
Ayurvedic Hospitals	1768
Ayurvedic Dispensaries	340
Unani Hospitals	204
Unani Dispensaries	49
Homeopathic Hospitals	1
Homeopathic Dispensary	1482

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

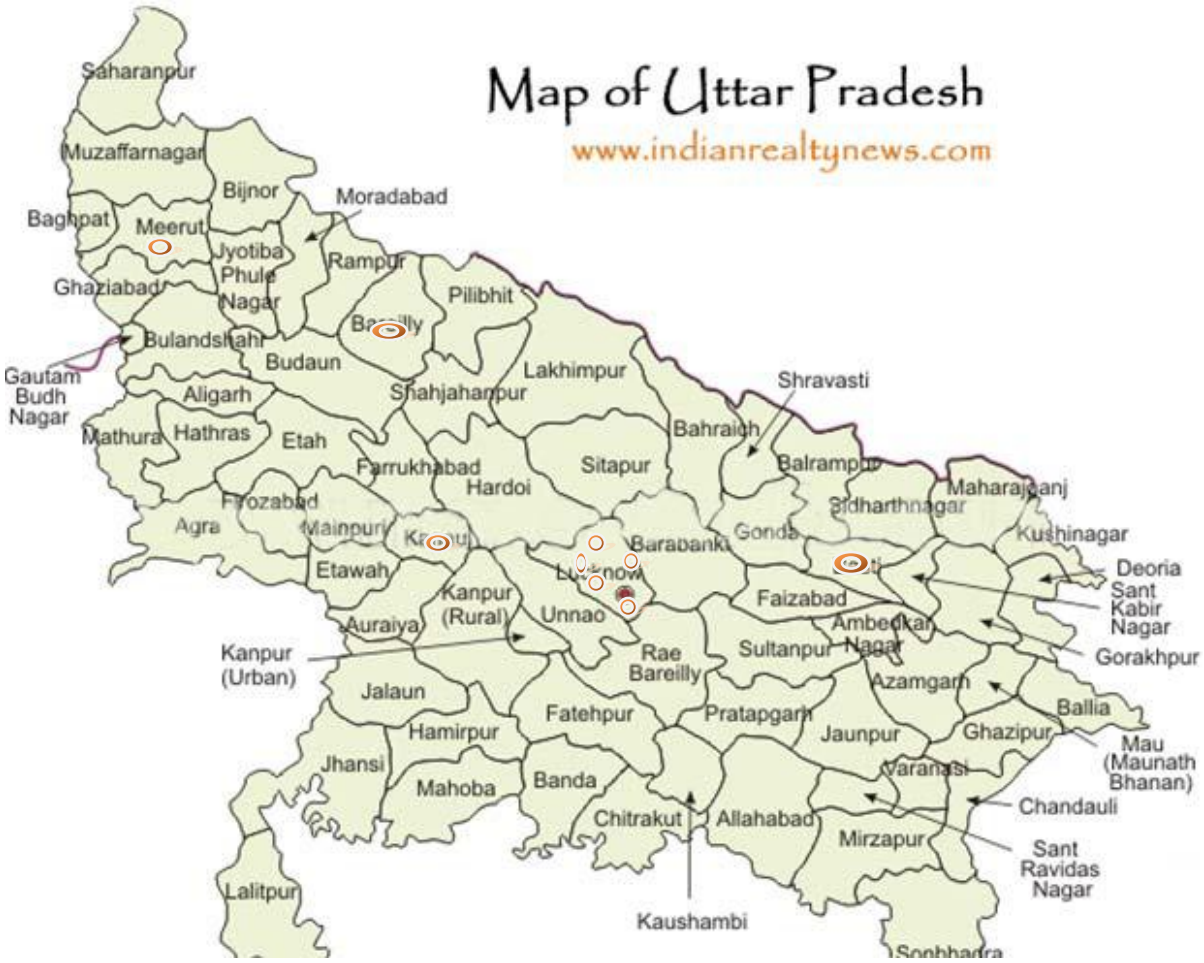
There are specialized medical institutions like Sanjay Gandhi Post Graduate Institute of Medical Sciences situated at Lucknow, which has all the testing facilities including the advanced ones as well, but this is one of its kind and is already under severe pressure. More such centres spread over Uttar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

Medical Preparedness

This will be based on the assessment of bio-threat and the capabilities to handle, detect and characterize the microorganism. Specific preparedness will include pre-immunisation of hospital staff and first responders who may come in contact with those exposed to biological attack agents. It further extends to activities for management of diseases caused by biological agents – including response, quick evacuation of casualties, well-rehearsed hospital DM plans, training of doctors and paramedics, and upgradation of medical infrastructure at various levels to reduce morbidity and mortality. Medical preparedness will also entail specialized facilities supported by skilled human resource to collect and dispatch samples.

These are the key aspects of medical preparedness:

- Hospital DM Plan: Each district hospital will have disaster management plans to counter the Biological Attacks and will have 'all hazard', simple to read and understand, easily adaptable with normal medical practices and flexible enough to tackle different levels and types of disasters. This will be available with the district administration and tested twice a year by mock drills
- Geared to need assessment analysis of mass casualty incidents, the plan will include capacity development and be able to identify resources for expansion of beds during a crisis
- The command structure will be clearly defined with clear cut job definitions and can be extrapolated to a disaster scenario
- The registration and accreditation policy will make it mandatory to have a hospital DM plan
- It is proposed that, there will be one remodelled infectious disease hospital in Lucknow to manage diseases with microorganisms that require a high degree of bio-safety, security and infection control practices. In addition, the district hospitals and medical colleges will also have isolation wards to manage such patients.
- Mobile Hospitals and Mobile Teams: These hospitals can be attached to earmarked hospitals for their non-disaster periods.
- Stockpile of Antibiotics and Vaccines: Government medical stores, district hospitals and medical colleges will maintain sufficient quantities of essential drugs, antibiotics and vaccines based on the risk assessment. There is a need to have a supply of readily available medicines and vaccines which can be administered rapidly in the event of an outbreak to contain the spread of disease. A regular review of the shelf life and adequacy of the available stock of vaccines and medicines is essential.



Location of Hospitals That Can Manage Mass Causalities in the State

6.2 Roles and Responsibilities for Preparedness and Mitigation

Lay down policies and plans for Biological Attacks 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	Department of Medical Health and Family Welfare Uttar Pradesh Academy of Administration and Management (UPAAM)

Implementation of State Disaster Management Plan on Biological Attacks	State Executive Committee for Disaster Management (SEC)
Community Awareness on Biological Attacks	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 vaccines	Department of Medical Health and Family Welfare
Security Set-up of Vital Installations against Biological Attacks	Department of Medical Health and Family Welfare Department of Science & Tech. Department of Home
Early Warning System, dissemination of education and awareness messages for preparedness actions and coordinated response. Establishment of emergency communication systems	Department of Information and Communication Department of Medical Health and Family Welfare
Intelligence Network to detect plans for Biological Attacks	Department of Home Armed Forces
Funds for Training and Capacity Building	Department of Planning Department of Revenue
Training of PRIs on Biological Attacks	Department of Panchayati Raj Institutions
Diseases Surveillance	Department of Medical Health and Family Welfare

Early Warning System

The early warning system will be established at the Epidemic Cell of the Department of Health Family Welfare under the Integrated Disease Surveillance Project initiated by government of Uttar Pradesh in 2006-07. In case of any biological attack the Unit will report the same to the Chief Secretary Office about the outbreak of the disease who in turn will issue warning over Radio, Television, Newspapers and Public Address System to the public.

General Action Plan for Preparedness

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

Department of Health & Family Welfare

- 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
- 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

- Develop Disaster Management Plan for the Department of Home.
- Organise disaster management training for the staff.
- 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.
- 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.

Energy Department

- Develop Disaster Management Plan for the Department.
- 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

- 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

- 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

- 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

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

Chapter VII Response

7.1 Response Management

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 the organisation. In case of Biological Attacks the Chief Secretary of the State will be in command and will be supported by team of high level officials. It will in form of Crisis Management Group.

Control provides the direction for best possible utilisation of resources and most advantageous deployment of manpower. The suggested format of Emergency Operations Centre will be in control of activities during the event of biological attacks. Please see section on Institutional Arrangements.

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. The coordination will be headed by Principal Secretary, Health.

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.

Response plan contains the actions to be taken immediately after a disaster. When information reaches the Crisis Management Group at the district or State level, it will be verified soon for authenticity by the district collectors in the districts and Principal

Secretary, Home at the state level. Once the information is found correct, it will 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

7.2 Trigger Mechanism

The trigger mechanism is an emergency quick response mechanism like ignition switch when energized spontaneously sets the vehicle of management into motion on the road of disaster mitigation process.

- System of alert and mechanism of activation of Disaster Plan.
- Immediate organisation of field operation for curative and preventive medical care including immunization.
- Checking of initial information on an epidemic.
- Preliminary analysis of the situation.
- Arrangement for laboratory support.
- Emergency Crisis Management Group meeting to take stock of the situation and to advise further action.
- Field investigation about Safety pre-cautions; Case finding; Deputation of Quick Response Teams; Search for source of infection and contact tracing; Special investigation for common source of infection.
- Analysis of investigation data to identify type, source of outbreak and mode of transmission:
    I. Ecological data
    II. Clinical data
    III. ·Epidemiological data
    IV. Laboratory data
    V. ·Entomological data

VI. General control measures to prevent further out break

- Protective measure for contacts & community through control of common source of outbreak like food water or mosquito etc; immunization, emergency mass immunization and specific immunization, mass chemoprophylaxis

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

- Appoint one person as "NODAL OFFICER – Health Services at the State Level.
- 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 detoxication 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.
- Identify and prepare the hospitals for receiving large number of livestock in each district
- Organise capacity building programmes for the veterinary staff in each district with respect to the disaster management.

Uttar Pradesh Fire Service

- Appoint one officer as "NODAL OFFICER – Fire Service" at the State 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.
- Ensure required number of vehicles and fire fighting equipment are there in each district.
- Fill the vacant post to ensure adequate number of trained professionals at the time of disaster.
- 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.

Energy Department

- Appoint one officer as "NODAL OFFICER - Power Supply" at the State Level.
- 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)

- Appoint one officer as "NODAL OFFICER-RES" at the State Level.
- 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 steelworks.

- 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.
- Organise capacity building programmes for the key staff and engineers likely to be placed in service in the event of disaster.

Public Works Department

- Appoint one officer as "NODAL OFFICER-PWD" at the State Level.
- Appoint one officer as "NODAL OFFICER-RES" at the State Level.
- 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 steelworks.

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- Organise capacity building programmes for the key staff and engineers likely to be placed in service in the event of disaster.

Department of Urban Development

- Appoint one officer as "NODAL OFFICER-UD" at the State Level.
- 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.

- Organise capacity building programmes for the officials and staff of the ULBs and other personnel that may be required to respond to the disasters.

Department of Agriculture

- Appoint one officer as "NODAL OFFICER-Agriculture" at the State Level.
- Prepare a GIS map of the state showing cropping pattern in different district of the state.
- Maintain surveillance for any unusual event damaging crops in larger areas not resulting from natural events.
- Establish a disaster management cell in the department to implement the disaster management plan in the state.
- Organise capacity building programmes for the officials and staff

Department of Food and Civil Supplies

- Appoint one officer as "NODAL OFFICER-Civil Supplies" at the State Level.
- Ensure appropriate stock of food grains, kerosene and other necessary items at the state level to meet the demands in the time of disasters.
- 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.
- Establish a disaster management cell in the department to implement the disaster management plan in the state.
- 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

- Appoint one officer as "NODAL OFFICER-Transport" at the State Level.
- Establish a disaster management cell in the department to implement the disaster management plan in the state.
- 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 every year as these may be deployed immediately in the time of disaster.
- Organise capacity building programmes for the officials and staff.

Jal Nigam

- Appoint one officer as "NODAL OFFICER-Jal Nigam" at the State Level.
- 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.
- Establish a disaster management cell in the department to implement the disaster management plan in the state.
- Organise capacity building programmes for the officials and staff.

Department of Science and Technology

- Appoint one officer as "NODAL OFFICER-S&T" at the State Level.
- 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.
- Identify disaster prone areas in the state and mark the same on the GIS maps.
- Establish advanced laboratories to conduct tests such as for radiation, biological and chemical agents.
- 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.
- 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.

Deartement of Rural Development and Panchayati Raj

- Appoint one officer as "NODAL OFFICER" at the State Level.
- 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.
- Establish communication system with the district and state level disaster management authorities.
- Incorporate disaster mitigation plans in all the development proposals sent to the state for funding under various schemes.

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 end 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 mobidity 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 link 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 Science and Technology

- Carry out preliminary assessment of the damage and loss using remote sensing and GIS techniques and report to the CMG about the same.
- Collect sample for tests and other studies in case of biological, chemical and nuclear disasters.
- Collaborate national and international agencies to prevent explosion of situation to the neighbouring areas.

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

7.3 Action Plan for First 24 hours

At first the assessment team will be constituted, which will mainly comprise of senior officers of health department who will be required to make a first/preliminary assessment of damage. Items required by the first assessment team are:

1. Survival kit
2. Formats for First Assessment

3. Media Release
4. Assessment Report, which will contain
    - Geographic estimate of damage area (administrative units and divisions)
    - Estimated total population affected
    - Worst affected areas
    - Fatality report,
    - Assessment of secondary threats
    - Resource needs for response operations
    - Priority needs (food items with quantity and specifications, cattle feeds and fodder, Sanitation, Health,)

7.4 Emergency Response

Emergency Medical Response (EMR)

EMR at the site will depend on the quick and efficient response of teams deputed from the district, reinforced by those from the state and the centre. They would triage the patient, provide basic life support if required at the sit e, and transport patients to nearest identified health facility along with collection and dispatch of biological and environmental samples. The incident command system will be implemented, the relief teams will be integrated and function under the overall directions of the incident commander. The emergency medical response team will be formed in each district having officials from health, transport, police, revenue, public works department, Jal Nigam, NGOs, NSS and NCC. At the district level, District Collector will be the incident commander.

Domiciliary Care

Not all patients will require hospital care. Those who can be treated at home will be given necessary treatment as an outpatient and then asked to report in case of deterioration of the symptoms. Institutions like IRCS, Rotary Clubs, Lions Clubs, Nehru Yuva Kendra Sanghathan, National Social Service, NCC are capable of

providing large number of trained volunteers and their resources will be tapped. Equally important will be the involvement of local NGOs.

Public Health Response

This includes outbreak investigation, instituting public health measures, risk communication and psychosocial care, post-outbreak surveillance, inter-sectoral coordination, monitoring and evaluation. A team comprising of officers and medical professionals from Health, Revenue, Science and Technology, Food and Civil Supplies and Jal Nigam will be deployed for outbreak investigation. The surveillance mechanisms will be activated and Principal Secretary, Health will address the media to disseminate information about the disaster and management plans. Daily situational reports will be shared with all the departments including media. Once the outbreak has been contained, a review of the entire process will be done to identify gaps and learning for future reference.

Aim of control measures, is to contain the disease initially but eliminate ultimately by following public health measures:

- Identification of all infected individuals based on an established case definition
- Eliminating or reducing source of infection (Isolation and treatment of patients) identified by epidemiological and laboratory studies.
- Interrupting Transmission of disease: Spread of disease depend on mode of transmission which could be prevented by reducing direct contacts with patients; Vector control; Rodents/Mosquitoes control; Food control; Environmental control; ▪control through sewerage system and protecting persons at risk (Community) Immunisation and Health Education plays major role in protecting person at risk.

In a scenario when large scale disaster strikes, the state machinery may become insufficient in handling the disaster. To overcome such obstacle, Govt. of India has developed disaster management portals which facilitate the disaster managers and

administrates to track down resource stocks in the country or at least in the neighbouring areas. This website, called **www.idrn.gov.nic.in** is intended to gather data from the government resources. Data are collected from local units and line departments and uploaded by the District Administration after verification and scrutiny. In case of biological attacks, the incident commander will get in touch with IDNR to mobilise required resources.

7.5 Emergency Response Structure

Declare emergency situation in case of State level disaster and the end of it.	Chief Secretary
Overall coordination, implementation of the EOC activities and documentation and reporting to the CMG.	Department of Revenue and Relief
Assessment of disease outbreak	Department of Medical Health and Family Welfare Department of Animal Husbandry Department of Agriculture
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)
Maintenance of hygiene, cleanliness and civic facilities	Department of Urban Development/ Local Bodies
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
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
Disease management and control of outbreak	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
Assistance in response	NGOs

Each disaster could be considered as an opportunity to reinforce resilience of the communities and resistance of the infrastructure, so that adversity of future disasters could be minimised.

7.6 Post-impact Disaster Response:

- Assessing primary and secondary impacts in the eye of the disaster 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 and search, 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.

General Action Plan for Response after disasters

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

Department of Home

- Hold meetings with staff and discuss the departments' performance
- Assess the well being of the departmental staff who participated in action and provide medical, and psycho-social counselling as needed
- Assess the condition of departmental vehicles and equipment and organise their repair and maintenance
- Draw lessons from the performance and identify actions to be taken for future improvement
- Implement action plan for improving future performance

Department of Health & Family Welfare

- Carry out the assessment of casualties and injured persons treated in the state and prepare reports.
- Ensure that all the hospital premises and public areas are disinfected.

- Carry out investigations on the staff and personnel involved in the rescue and relief operations to ensure they are not infected and provide medical treatment to the infected persons.
- Replenish stock of medicines, tools and accessories in hospitals.
- Hold meetings the district level staff and discuss the departments' performance.
- Draw lessons from the performance and identify actions to be taken for future improvement.
- Implement action plan for improving future performance.

Department of Animal Husbandry

- Safe disposal of scattered animal carcasses
- Carry out investigations on the staff and personnel involved in the rescue and relief operations to ensure they are not infected and provide medical treatment to the infected persons.
- Assessment of loss of cattle and other animals due to disaster and its effect.
- Replenish stock of medicines, tools and accessories in hospitals.
- Hold meetings with the district level staff and discuss the departments' performance
- Draw lessons from the performance and identify actions to be taken for future improvement
- Implement action plan for improving future performance

Uttar Pradesh Fire Service

- Assess the loss of equipment, line and other instruments in the State due to disaster.
- Assess the well being of the departmental staff who participated in action and provide medical, and psycho-social counselling as needed.
- Assess the condition of departmental vehicles and equipment and organise their repair and maintenance.

- Draw lessons from the performance and identify actions to be taken for future improvement.
- Implement action plan for improving future performance

Energy Department

- Hold meetings with staff and discuss the departments' performance.
- Assess the condition of departmental vehicles and equipment and organise their repair and maintenance.
- Assess the condition of power installations and organise their repair and maintenance.
- Carry out investigations on the staff and personnel involved in the rescue and relief operations to ensure they are not infected and provide medical treatment to the infected persons.
- Draw lessons from the performance and identify actions to be taken for future improvement.
- Implement action plan for improving future performance

Rural Engineering Services (RES) and Public Works Department

- Hold meetings with staff and discuss the departments' performance.
- Assess the condition of roads, bridges and other structures under department's jurisdiction and carryout repairs as needed.
- Assess the condition of departmental vehicles and equipment and organise their repair and maintenance.
- Carry out investigations on the staff and personnel involved in the rescue and relief operations to ensure they are not infected and provide medical treatment to the infected persons.
- Draw lessons from the performance and identify actions to be taken for future improvement.
- Implement action plan for improving future performance

Department of Urban Development

- Hold meetings with staff and discuss the departments' performance
- Assess the condition of structures under department's jurisdiction and carryout repairs as needed.
- Assess the loss of properties and structures including parks, community toilets, playgrounds, boundary walls, shelters, bus stands, deport, etc.
- Assess the condition of departmental vehicles and equipment and organise their repair and maintenance.
- Carry out investigations on the staff and personnel involved in the rescue and relief operations to ensure they are not infected and provide medical treatment to the infected persons.
- Draw lessons from the performance and identify actions to be taken for future improvement.
- Implement action plan for improving future performance

Jal Nigam

- Hold meetings with staff and discuss the departments' performance
- Assess the condition of water supply system and carry out restoration and repair works if needed.
- Assess the loss of physical properties such as water tanks, pipelines etc.
- Conduction laboratory tests and disinfect the reservoirs and other source of water storage and supply.
- Chlorinate the water stored in the reservoirs.
- Carry out investigations on the staff and personnel involved in the rescue and relief operations to ensure they are not infected and provide medical treatment to the infected persons.
- Assess the condition of departmental vehicles and equipment and organise their repair and maintenance.
- Draw lessons from the performance and identify actions to be taken for future improvement.

- Implement action plan for improving future performance

Department of Science and Technology

- Carryout assessment of loss through satellite image and suggest most affected areas.
- Carry out laboratory tests and other examination to determine various factors leading to disasters.
- Study the pattern of disaster and suggestion future mitigation measures.
- Assist various agencies, both national and international, in conducting studies and surveys.

Department of Revenue

- Assess the total loss in economic and social terms to determine the rehabilitation package.
- Develop and implement rehabilitation plans.
- Hold meetings with staff and discuss the departments' performance.
- Carry out investigations on the staff and personnel involved in the rescue and relief operations to ensure they are not infected and provide medical treatment to the infected persons.
- Assess the condition of departmental vehicles and equipment and organise their repair and maintenance.
- Draw lessons from the performance and identify actions to be taken for future improvement.
- Implement action plan for improving future performance

Dos & Don'ts in a Biological War Attack

Before: Children and older adults are particularly vulnerable to biological agents. Ensure from a doctor/the nearest hospital that all the required or suggested immunizations are up to date.

During: In the event of a biological attack, public health officials may not immediately be able to provide information on what you should do. It will take time to determine what the illness is, how it should be treated, and who is in danger. Close the doors and windows when a biological attack is imminent. Watch television, listen to radio, or check the Internet for official news and information including signs and symptoms of the disease, areas in danger, if medications or vaccinations are being distributed, and where you should seek medical attention if you become ill.· The first evidence of an attack may be when you notice symptoms of the disease caused by exposure to an agent. Be suspicious of any symptoms you notice, but do not assume that any illness is a result of the attack. Use common sense and practice good hygiene.

If you notice of an unusual and suspicious substance nearby - Move away quickly; Cover your head and nose; Wash with soap and water; ·Listen to the media for official instructions and Seek medical attention if you become sick.

If you are exposed to a biological agent:

1. Ultra efficient filter masks can be used
2. Follow official instructions for disposal of contaminated items such as bag and cloths.
3. Take bath with soap and put on clean clothes.
4. Seek medical assistance. If required and advised, stay away from others or even quarantined.

After: Pay close attention to all official warnings and instructions on how to proceed. The delivery of medical services for a biological event may be handled differently to respond to increased demand. The basic public health procedures and medical protocols for handling exposure to biological agents are the same as for any infectious disease. It is important for you to pay attention to official instructions via radio, television, and emergency alert systems.

Chapter VIII 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.

8.1 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.

8.2 Recovery after a Biological Attack

In case of a biological attack, there would be mass casualties and the effect may spread to huge areas. The survivors and affected people spread over a large geographical area would require support, both in tangible and intangible form, to regain normalcy and start life afresh from where it got disrupted.

Assistance provided will be adapted to meet the basic needs as well as over a period restoring livelihood opportunities of those affected. After disasters, special recovery measures are necessary for affected population. Assistance that will be required include advance medical care, material aid, financial assistance, counselling and personal services, information and community support and can come from a range of sources.

8.3 Recovery Management at State Level

UPDMA 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;
- Support the local management of recovery by ensuring State co-ordination of resources from all sources;

Chapter IX Capacity Building

9.1 Capacity Building for Preparedness

The important components of preparedness include planning, capacity building; well-rehearsed hospital DM plans, training of doctors and paramedics, and upgradation 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 epidemiological investigation and control of any act of BT.

9.2 Components of Capacity Building

Establishment of Command, Control and Coordination Functions

At the operational level, C&C is clearly identifiable at the district level where the district collector is vested with certain powers to requisition resources, notify diseases, inspect premises, seek help from the Army, state or centre, enforce quarantine etc. 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. The Emergency Operation Centres will be established in the state health departments with an identical nodal person as Director (Emergency Medical Relief) for coordinating a well orchestrated response.

District hospitals at Meerut 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 Biological Attack.

All-round development of human resources and infrastructure

It is needed for establishing a well-focused and functional organization and creation of a supportive socio-political environment. Development of infrastructural facilities includes trained manpower, mobility, connectivity, knowledge enhancement, and scientific up-gradation for all stakeholders concerned with the management of biological attacks.

9.3 Human Resource Development

The Chief Medical Officer (CMO) will establish a centralized system for data collection from village to sub-centre level by the village health guide, from sub-centre to Primary Health Care (PHC) level, and from PHC to District Hospital or CMO Office by the PHC in-charge. The development of a simple format to collect this information from lower level, PHC, district and state will also be developed. The CMO, in consultation with the state epidemiological cell, will develop a simple format for data collection depending upon quantum of information available at each level. This format must be simple and informative. The epidemic cell at the state level and district level will be nodal department for the collection and processing of data and dissemination of vital information to the concerned authorities.

The data and information will be placed on GIS format to enable retrieve the information by simply clicking on the village, block, district or state in the map. The GIS map will be developed with the help of Department of Science and Technology's remote sensing unit.

Control rooms will be 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 paediatrics, anaesthesia, microbiology etc., and a list of all

stakeholders from the private sector from the private sector would be prepared at the district level while preparing the district level disaster management plans and will be compiled and consolidated for use at the State level

The shortfall of public health specialists, epidemiologists, clinical microbiologists, and virologists will be fulfilled over a stipulated period of time. Teaching/training institutions for these purposes will to be established. Till then, National Institutions will be approached to fill this gap to some extent. The microbiology and preventive and social medicine departments of medical colleges will also be involved for training towards on public health management and administration. Review of the curriculum of public health teaching at the graduate and post-graduate levels by the Medical Council of India will be reviewed and necessary recommendations would be forwarded to include courses on related subjects to respond to Biological Attacks in the State. The immediate deficiency of specialists will be met by conducting short-term training courses for medical officers.

9.4 Training and Education

- The necessary training/refresher training should be provided to medical officers, nurses, emergency medical technicians, paramedics, ambulance drivers etc to handle disasters due to natural epidemics/BT.
- It is important that medical and public health specialists must be able to identify the epidemiological clues that differentiate a natural outbreak from an intentional one. In view of this, structured BT education and web-based training would be given for greater awareness and networking of knowledge, so that they are able to detect EWS and report to authorities, treat unusual illnesses and undertake public health measures in time to contain an epidemic in its early stage.
- Refresher training would be conducted for all stakeholders at regular intervals. An adequate number of specialists would be made available at

various levels for the management of cases resulting from an outbreak of any epidemic or due to a biological disaster.

- This need would be met by developing training modules and standard clinical protocols for specialized care and executing these programmes for other hospitals by the selected hospitals in the State. Table-top exercises using different simulations would be used for training at different levels followed by full-scale mock drills twice a year.
- Selected hospitals in Uttar Pradesh should develop training modules and standard clinical protocols for specialized care and execute these programmes for other hospitals. Table-top exercises using different simulations should be used for training at different levels followed by full-scale mock drills twice a year.
- A district-wise resource list of all the laboratories and handlers who are working on various types of pathogenic organisms and toxins would be available with authorities involved with disaster management. This information would be collected by the district level epidemic cells.
- Efforts would be made to cover Biological Attacks in various continuing medical education programmes and workshops of educational institutions in the form of symposia, exhibitions/demonstrations, medical preparedness weeks etc. The Do's and Don'ts for the disasters would be made a part of various community education programmes.
- Knowledge of infectious diseases, epidemics, and biological terrorism activities would be incorporated in school syllabi and also at undergraduate level in medical and veterinary colleges.
- Community Preparedness: Community members including public and private health practitioners are usually the first responders, though they are not so effective due to their limited knowledge of Biological attacks. These people would be sensitized regarding the threat and impact of potential biological attacks through public awareness and medical campaigns. The areas of emphasis would include:

i. The public would be made aware of the basic need for safe food, water and sanitation. They would also be educated about the importance of washing hands, and basic hygiene and cleanliness. Community would be given basic information about the approach that health care providers will adopt during biological attacks
ii. Toll-free numbers and a reward system for providing vital information about any incoming biological attack by an early responder or the public will be helpful
iii. The availability of data about predisposing existing factors, endemicity of diseases, various morbidity and mortality indices will help in planning and executing response plans

- Community participation
  i. Providing support to public health services, preventive measures such as chlorination of water for controlling the possibility of epidemics, sanitation of the area, disposal of the dead, and simple non-pharmacological interventions should be mediated through various resident welfare associations, village sanitation committees, panchayats etc
  ii. Community-level social workers who can help in rebuilding efforts, create counseling groups, define more vulnerable groups, take care of cultural and religious sensitivities, and also act as informers to local medical authorities during a biological attack, would be created after proper training and education
  iii. NGOs and Private Voluntary Organizations would be involved in educating and sensitizing the community
  iv. Supporting activities like street shows, dramas, posters, distribution of reading material, school exhibitions, electronic media and publicity etc. would be undertaken

v. A legally mandated quarantine in a geographic area, isolation in hospitals, home quarantine of contacts, and isolation management of less severe cases at home would only be possible with active community participation.

9.5 Documentation

The experience of various drills, the lessons learnt from them and best practices developed would be shared with all stakeholders/service providers. Standard Operating Procedures for their proper documentation and scientific analysis based upon the identified indicators specific to biological attacks would be made.

9.6 Research and Development

It is essential to develop new research methods and technologies which will facilitate rapid identification and characterization of novel threat agents. Research pertaining to the development of new treatment modalities, specific biomarkers and advanced robotic tools needs overall review and upgradation to meet global standards. 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.

- The recent development of genetic engineering techniques led to the production of many types of bacteria and viruses in research laboratories. In most cases, detailed information about the diseases caused by them is not known. Early detection in such a situation becomes very difficult.
- In view of such threats, necessary interventions should be taken care of by establishing a state institute responsible for bio-defence research. The institute will maintain a database of infectious agents, coordinate with nodal institutions of the state, neighbouring states and countries and develop capabilities to identify and assess biological threats

- For estimation of the probable public health consequences of various threat scenarios would be generated through operational research and mathematical models, This will include various assessment criteria to assess existing preparedness and development of short- and long- term mitigation strategies in a 'mission mode' approach for testing, evaluation and up-gradation.

- Long-term research would focus on novel detection technologies, better ways to manage biological agents, and development of novel broad-spectrum antibiotics, vaccines and laboratory diagnostics

- Critical Infrastructure: The existing infrastructure of the health department would be up-graded to enable them to support relief activities after the assessment of district level requirement of resources. Network of Laboratories: A network of laboratories will be developed by creating such facilities at Meerut and Gorakhpur district hospitals or medical colleges to ensure availability of laboratories in the event of biological disasters. Similarly laboratories to test the effect of biological agents on cattle will also be established at Lucknow and Meerut. Besides establishing new facilities, existing laboratories would be strengthened at the district and state levels to support IDSP and enhance diagnostic skills.

- Network of Laboratories: This should be created and existing laboratories must be strengthened at the local, state, regional and national levels to support IDSP and enhance diagnostic skills.

- Some institutes like National Institute of Communicable Diseases, Delhi; National Institute of Virology, Pune for investigation of viruses; Indian Institute of Toxicology Research, Lucknow for investigation of toxins etc will be nominated as referral laboratories

- Existing disease-specific surveillance laboratories would be strengthened

- All the network labs will be classified according to the bio-safety level.

- In the context of BW/BT the most vital bio-defence strategy is to evolve a test for rapid detection and identification of the causative agent. For rapid diagnosis, the department of Health and Family Welfare would establish a mobile detection system based on faster methodologies such as bioluminescence and bio-fluorescence

- There is a need to have national bio-defence research centres with latest molecular and other diagnostic facilities to identify genetically mutated organisms and maintain a national database on those

- Efforts would be made to create a chain of public health laboratories with at least one such laboratory in each district over a period of time.

- Technical and Scientific Institutions: Medical colleges, Sanjay Gandhi Post Graduate Institute, Agriculture Universities will act as professional guiding resource centres and function as referral centres. A suspected outbreak of any epidemic or BT will be addressed to the designated laboratory at present at SGPI and in future two more laboratories that will be created at Meerut and Gorakhpur and other network laboratories in the State capable of doing such tests for proper and quick identification.

- 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. Emergency communication network- establishment of control rooms at the district and state level and inclusion of private practitioners in the network through will be of vital importance. As biological attacks would not cause any physical damage to communication network, the existing communication system will be used for the flow of information that calls for accountability and the source authenticity. Mobile tele-health- based on the concept of tele-medicine, it can be used in disasters by putting diagnostic equipment and information communication technology together on a vehicle to get

connectivity from the affected site to advanced medical institutes where such connectivity already exists

- Emergency communication network- establishment of control rooms at the district and state level and inclusion of private practitioners in the network through the IDSP. The flow of information calls for accountability and the source provides the authenticity. The Information and Monitoring Tools are given in a different document.

- Mobile tele-health- based on the concept of tele-medicine, it can be used in disasters by putting diagnostic equipment and information communication technology together on a vehicle to get connectivity from the affected site to advanced medical institutes where such connectivity already exists

- Communication through print and electronic media- the media strategy/plan for DM will address measures to allay public anxiety, and fears arising out of outbreaks in general and BT in particular. The media will be coordinated an earmarked officer of appropriate seniority.

Chapter X Institutional Arrangements and Roles and Responsibilities

10.1 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.

10.2 Institutional Arrangement at the State-level

State Guidelines on Disaster Management Road Map

- Setting up a State Disaster Management Authority
- State Relief & Rehabilitation Department to be converted to department of Disaster management
- State/District/Block/village Disaster Management plans
- Setting up of Emergency operations Centre
- Having Specialised Search & Rescue teams---each team consisting of one coy of State Armed Police 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 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 13 district HQs.

Emergency Operation System

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.

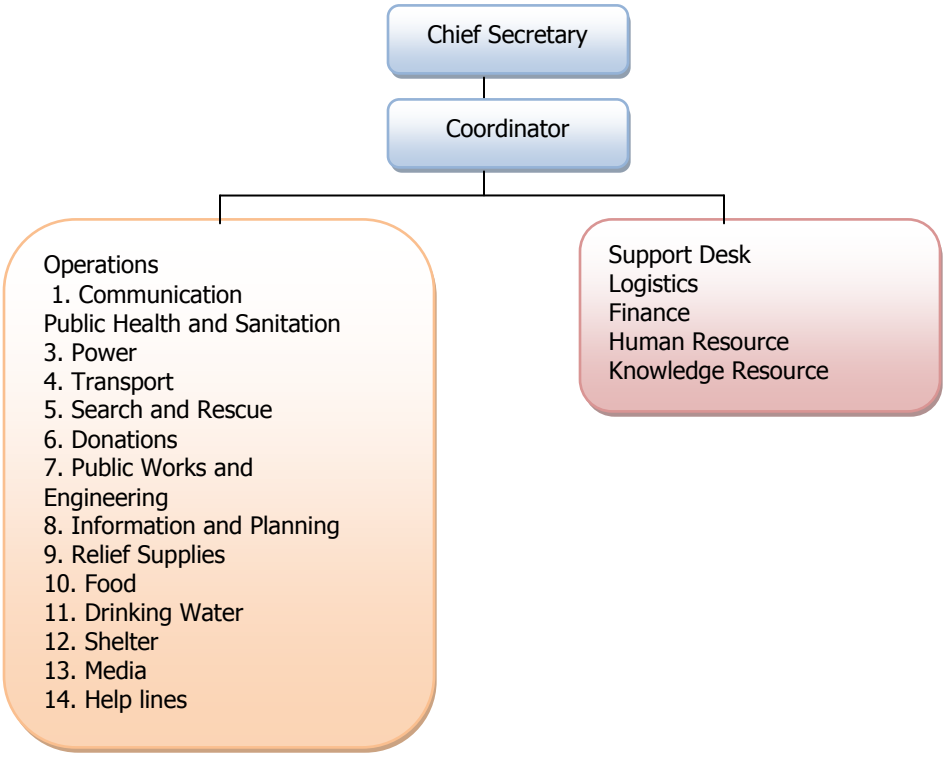
SEOC has representatives of State Departments - Public Works, Irrigation, Energy, Home, Revenue, Health, Agriculture, Industries, Animal Husbandry and Science & Technology form SEOC. During non-disaster times, the SEOC works under the

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 works 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 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 required 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 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 of the 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	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

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 district Training, monitoring support and budget allocation if required.	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

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.

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 State Disaster Management Authority. Based on the ratification of the Authority, the Chief Minister, will declare a State Disaster.

Step 2: SEOC is upgraded to emergency mode. The SEOC, till then operating in the preparedness mode, will be upgraded to the emergency mode. Concerned line departments will be informed to post their representatives at the SEOC on a round the clock basis with immediate effect. SEOC will be activated and all community preparedness measures will be put into operation and the ESF to be on full alert and activate their SOPs. The activation of the SEOC should be followed after the DDMA declares a major disaster.

Step 3: Field Assessment Reports. The Chief Secretary/Relief Commissioner will assume the role of the Chief of Operations for Disaster Management. The Chief of Operations of the EOC will coordinate for setting up the ESFs and are asked to prepare and send the Field Assessment Report to the SEOC. The Chief of Operations of the SEOC will spell out the priorities coordinate services of the ESFs, including national and aid agencies.

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

Rapid Assessment Teams

The Rapid Assessment Teams will be multi-disciplinary teams comprising four or five members. They will mainly comprise senior level specialized officers from the field of health, engineering, 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.

Crisis Management Group

Suggested framework for Crisis Management Group at State:

(1) Chief Secretary, Uttar Pradesh: Chairperson

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

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

(4) Principal Secretary, Medical, Health and Family Welfare

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

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

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

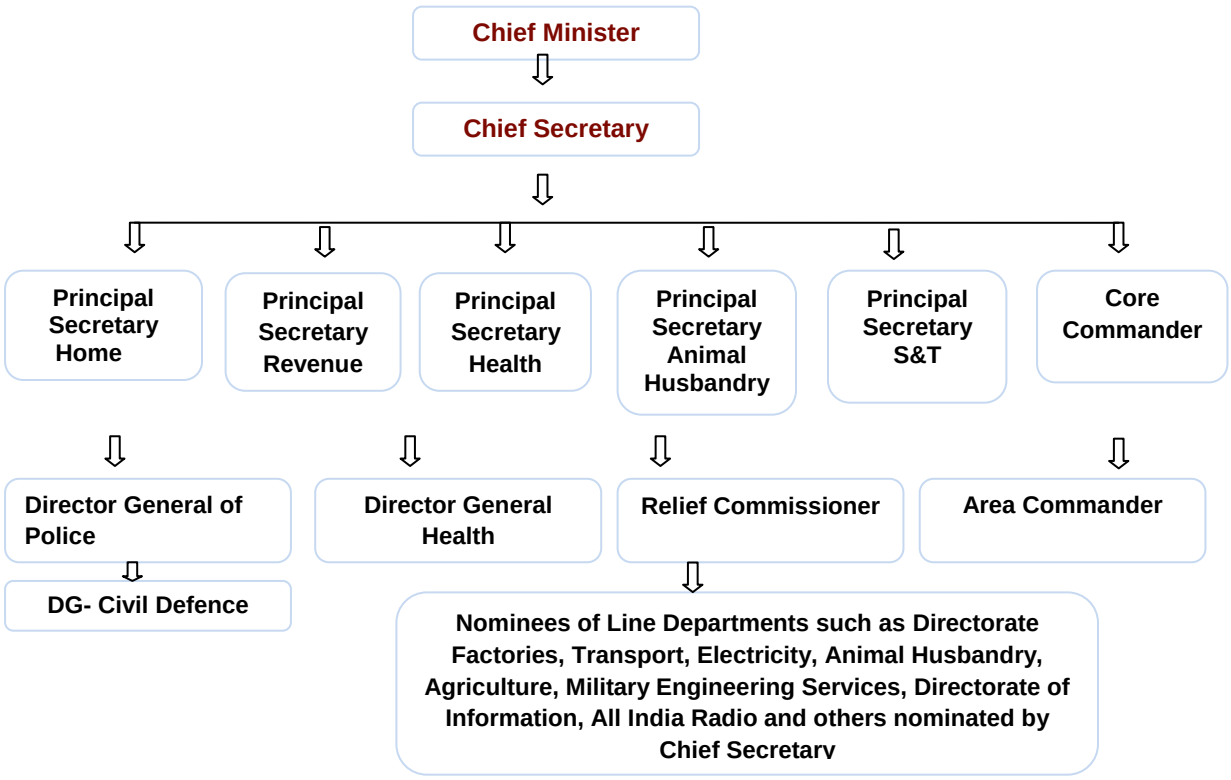
(8) Relief Commissioner: Member

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

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

Crisis Management Group would have a representative from Army.

Structure of Crisis Management Group at State Level



Crisis Management Group at State Level: Functions

•This group has to remain informed of all developments in case of any Biological 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: Chairperson

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

(3) Local Representative of Intelligence Bureau: Member

(4)Chief medical Officer

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

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

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

Crisis Management Group at District Level: Functions

•District Crisis Management Group is responsible for managing the situation in case of any Emergency/Crisis.

•The group will arrange for required assistance from all concerned agencies in case of any emergency.

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

Crisis Management Group at Departments

Each Department would 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 representative of the local authority as the co-chairperson, acts 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 SDMA. 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 SDMA 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, SDMAs and DDMAs.

Chapter XI Partnerships with other Stakeholders

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.

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.

International Cooperation

Agencies like World Health Organisation (WHO) will be the nodal agency that will give information of any outbreak of disease. WHO also provides technical advocacy on communicable disease alerts and response, provides technical experts, helps in capacity development through training and laboratory support through WHO reference laboratories.

This is a necessary element in the management of pandemics. Its key aspects include:

- Establishment of a mechanism to enhance the level of interaction between state and non-state actors, NGOs, and pharma companies
- 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 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

Public Private Partnership

The private sector has substantial infrastructure capabilities and is engaged in R&D for various products that are part of bio-defence research. Government agencies like DRDO and ICMR can collaborate with private sector for developing more efficient bio-defence tools such as vaccines. Also, the private sector can play a major role in enhancing the nation's preparedness by integrating its capacities with government organizations such as 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 and vaccines during biological disasters
- Sourcing and procurement of countermeasures 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.

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 natural hazards.

Chapter XII Financial Arrangements

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 Center. 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.

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

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 XIII Follow Up

13.1 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.

13.2 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 both 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.

13.3 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

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

Annex - 2

Alphabetical listing of districts

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

	Nagar				
GN	Gonda	Gonda	2,765,754	4,425	625
GP	Ghazipur	Ghazipur	3,049,337	3,377	903
GR	Gorkakhpur	Gorakhpur	3,784,720	3,325	1,138
GZ	Ghaziabad	Ghaziabad	3,289,540	1,956	1,682
HM	Hamirpur	Hamirpur	1,042,374	4,325	241
HR	Hardoi	Hardoi	3,397,414	5,986	568
HT	Mahamaya Nagar	Hathras	1,333,372	1,752	761
JH	Jhansi	Jhansi	1,746,715	5,024	348
JL	Jalaun	Orai	1,455,859	4,565	319
JP	Jyotiba Phule Nagar	Amroha	1,499,193	2,321	646
JU	Jaunpur District	Jaunpur	3,911,305	4,038	969
KD	Kanpur Dehat	Akbarpur	1,584,037	3,143	504
KJ	Kannauj	Kannauj	1,385,227	1,993	695
KN	Kanpur Nagar	Kanpur	4,137,489	3,029	1,366
-	Kanshi Ram Nagar	Kasganj	-	-	-
KS	Kaushambi	Manjhanpur	1,294,937	1,837	705
KU	Kushinagar	Padarauna	2,891,933	2,909	994
LA	Lalitpur	Lalitpur	977,447	5,039	194
LK	Lakhimpur Kheri	Kheri	3,200,137	7,680	417
LU	Lucknow	Lucknow	3,681,416	2,528	1,456
MB	Mau	Mau	1,849,294	1,713	1,080
ME	Meerut	Meerut	3,001,636	2,522	1,190
MG	Maharajganj	Maharajganj	2,167,041	2,948	735
MH	Mahoba	Mahoba	708,831	2,847	249
MI	Mirzapur	Mirzapur	2,114,852	4,522	468
MO	Moradabad	Moradabad	3,749,630	3,648	1,028
MP	Mainpuri	Mainpuri	1,592,875	2,760	577
MT	Mathura	Mathura	2,069,578	3,333	621
MU	Muzaffarnagar	Muzaffarnagar	3,541,952	4,008	884

PI	Pilibhit	Pilibhit	1,643,788	3,499	470
PR	Pratapgarh	Pratapgarh	2,727,156	3,717	734
RA	Rampur	Rampur	1,922,450	2,367	812
RB	Rae Bareli	Rae Bareli	2,872,204	4,609	623
SA	Saharanpur	Saharanpur	2,848,152	3,689	772
SI	Sitapur	Sitapur	3,616,510	5,743	630
SJ	Shahjahanpur	Shahjahanpur	2,549,458	4,575	557
SK	Sant Kabir Nagar	Khalilabad	1,424,500	1,442	988
SN	Siddharthnagar	Navgarh	2,038,598	2,751	741
SO	Sonbhadra	Robertsganj	1,463,468	6,788	216
SR	Sant Ravidas Nagar	Gyanpur	1,352,056	960	1,408
SU	Sultanpur	Sultanpur	3,190,926	4,436	719
SV	Shravasti	Shravasti	1,175,428	1,126	1,044
UN	Unnao	Unnao	2,700,426	4,558	592
VA	Varanasi	Varanasi	3,147,927	1,578	1,995

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

POPULATION (2001 census)	166197921
MALES	565369
FEMALES	632552
SEX RATIO (females/1000 males)	898
DENSITY OF POPULATION (Persons/ Square Km)	689
URBAN POPULATION %	20.78
LITERACY RATE (census 2001) in %	57.36
MALE LITERACY in %	68.8
MALE LITERATE in numbers	48901413
FEMALE LITERACY in %	42.2
FEMALE LITERATE in numbers	26817871
BIRTH RATE (PER 1000) (2002)P	31.6
DEATH RATE (PER 1000)	9.7
NSDP at current prices (2002-2003)* Rs Crores	170424 Rs Crores *(2002-2003)
PER CAPITA NSDP (2002-03) at current prices Rs	9895 Rs *(2002-2003)

(2002)P: Provisional

*(2002-03): Advanced Estimates

*(2001-02): Quick Estimate

*(2000-01): Provisional Estimate

Source: *Directorate of Economics & Statistics of respective State Governments (As on March 26, 2004), Ministry of Health and Family Welfare, Govt. of India*

Annex - 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

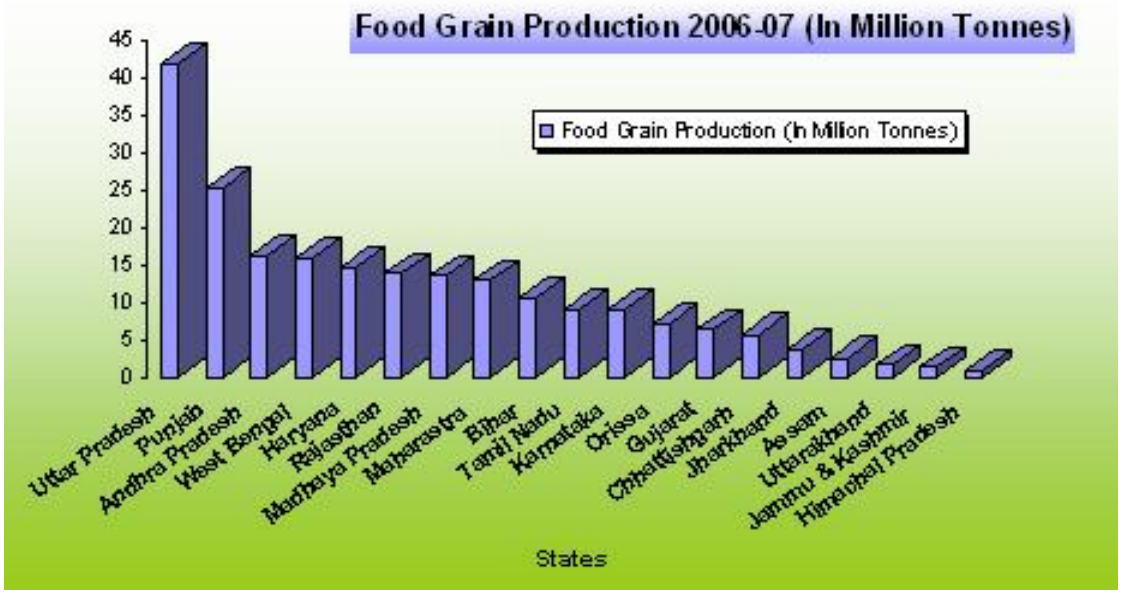
Railway track length	8,901 km

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


Food Grain Production 2006-07 (In Million Tonnes)
Food Grain Production (In Million Tonnes)
45
40
35
30
25
20
15
10
5
0
Uttar Pradesh
Punjab
Andhra Pradesh
West Bengal
Haryana
Rajasthan
Madhaya Pradesh
Maharastra
Bihar
Tamil Nadu
Karnataka
Orissa
Gujarat
Chhattisgarh
Jharkhand
Assam
Uttarakhand
Jammu & Kashmir
Himachal Pradesh
States

Annex - 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.

Source: http://www.upgov.nic.in

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	National Internet eXchange of India(NIXI)

Development(NIESBUD	
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 Command	Principal Controller of Defence 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	

List of Diseases

1. The following diseases are included within the category of multiple species diseases:
    a. Anthrax
    b. Aujeszky's disease
    c. Bluetongue
    d. Brucellosis
    e. Crimean Congo haemorrhagic fever
    f. Echinococcosis
    g. Foot and Mouth disease
    h. Heartwater
    i. Japanese Encephalitis
    j. Leptospirosis
    k. New World Screwworm
    l. Old World Screwworm
    m. Paratuberculosis
    n. Q Fever
    o. Rabies
    p. Rift Valley Fever
    q. Rinderpest
    r. Trichinellosis
    s. Tularemia
    t. Vesicular stomatitis
    u. West Nile fever

2. The following diseases are included within the category of cattle diseases:
    a. Bovine anaplasmosis
    b. Bovine babesiosis
    c. Bovine genital campylobacteriosis
    d. Bovine spongiform encephalopathy
    e. Bovine TB
    f. Bovine viral diarrhea

g. Contagious Bovine Pleuro Pneumonia
h. Enzootic bovine leokosis
i. Haemorrhagic septicaemia
j. Infectious bovine rhinotracheitis
k. Lumpy skin disease
l. Malignant catarrhal fever
m. Theileriosis
n. Trichomonosis
o. Trypanosmosis

3. The following diseases are included within the category of sheep and goat diseases:
    a. Caprine arthritis
    b. Contagious agalactia
    c. Contagious caprine pleuropneumonia
    d. Enzootic abortion of ewes
    e. Maedi-visna
    f. Nairobi sheep disease
    g. Ovine epidymitis
    h. Peste des petits ruminants
    i. Salmonellosis
    j. Scrapie
    k. Sheep pox and goat pox

4. the following diseases are included within the category of equine diseases:
    a. African horse sickness
    b. Contagious equine metritis
    c. Dourine
    d. Equine encephalomyelitis
    e. Equine infectious anemia
    f. Equine influenza
    g. Equine piroplasmosis

h. Equine rhinopneumonitis
i. Equine viral arteritis
j. Glanders
k. Surra
l. Venezuelan equine encephalomyelitis

5. The following diseases are included within the category of swine diseases:
    a. African swine fever
    b. Classical swine fever
    c. Nipah virus encephalitis
    d. Porcine custeicercosis
    e. Porcine reproductive and respiratory syndrome
    f. Swine vesicular disease
    g. Transmissible gastroenteritis

6. The following diaseases are included within the category of avian diseases:
    a. Avian chlamydiosis
    b. Avian infectious bronchitis
    c. Avian infectious laryngotracheitis
    d. Avian mycoplasmosis
    e. Duck virus hepatitis
    f. Fowl cholera
    g. Fowl typhoid
    h. Gumboro diases
    i. Marek's disease
    j. Newcastle disease
    k. Pullorum disease

Annexures

Annexure-A

Refers to Chapter 1, Page 03

Characteristics of Biological Warfare Agents

Disease	Transmit Human to Human	Infective Dose (Aerosol)	Incubation Period	Duration of Illness	Lethality (approx. case fatality rates)	Persistence of Organism	Vaccine Efficacy (aerosol exposure)
Anthrax	No	8,000 - 50,000 spores	1-6 days	3-5 days (usually fatal if untreated)	High	Very stable - spores remain viable for > 40 years in soil > 100 days in human beings	As recommended and approved by National Regulatory Authority
Brucellosis	No	10-100 organisms	5-60 days (usually 1-2 months)	Weeks to months	<5% untreated	Very stable	No vaccine
Cholera	Rare	10-500 organisms	4 hours - 5 days (usually 2-3 days)	≥ 1 week	Low with treatment, high without	Unstable in aerosols & fresh water; stable in salt water	No data on aerosol
Glanders	Low	Assumed low	10-14 days via aerosol	Death in 7-10 days in septicemic form	> 50%	Very stable	No vaccine
Melioidosis	Low	Assumed low	1-21 days (up to years)	Death in 2-3 days with septicemic form (untreated)	19-50% for severe disease	Very stable; survives indefinitely in warm moist soil or stagnant water	No vaccine
Plague	Moderate, Pneumonic	100-500 organisms	1-7 days (usually 2-3 days)	1-6 days (usually fatal)	High unless treated within 12-24 hours	For up to 1 year in soil; 270 days in live tissue	3 doses not protective against 118 LD_{50} in monkeys

Disease	Transmit Human to Human	Infective Dose (Aerosol)	Incubation Period	Duration of illness	Lethality (approx. case fatality rates)	Persistence of Organism	Vaccine Efficacy (aerosol exposure)
Tularemia	No	10-50 organisms	1-21 days (average 3-6)	≥ 2 weeks	Moderate if untreated	For months in moist soil or other media	80% protection against 1-10 LD_{50}
Smallpox	High	Assumed low (10-100) organisms)	7-17 days (average 12)	4 weeks	High to moderate	Very stable	Vaccine protects against large doses in primates
Venezuelan Equine Encephalitis	Low	10-100 organisms	2-6 days	Days to weeks	Low	Relatively unstable	TC 83 protects against 30-500 LD_{50} in hamsters
Viral Hemorrhagic Fevers	Moderate	1-10 organisms	4-21 days	Death between 7-16 days	High to moderate depends on agent	Relatively unstable - depends on agent	No vaccine
Botulism	No	0.001 µg/kg is LD_{50} for type A	12 hours -5 days	Death in 24-72 hours; lasts months if not lethal	High without respiratory support	For weeks in nonmoving water and food	3 dose efficacy 100% against 25-250 LD_{50} in primates
Staph Enterotoxin B	No	0.03 µg/person incapacitation	3-12 hours after inhalation	Hours	< 1%	Resistant to freezing	No vaccine
Ricin	No	3-5 µg/kg is LD_{50} in mice	18-24 hours	Days - death within 10-12 days for ingestion	High	Stable	No vaccine
T-2 Mycotoxins	No	Moderate	2-4 hours	Days to months	Moderate	For years at room temperature	No vaccine

Source: Medical Management of Biological Casualties handbook, Sixth edition, April 2005; USAMRIID, Fort Detrick Frederick, Maryland

Disaster management plan of Civil Hospital, Hazratganj, Lucknow.

On receiving the information of disaster, outdoor EMO will:-

- Identify the caller (name,p.h.no & address), site of disaster (approach to site), Magnitude, time of disaster
- Driver of ambulance & pharmacist will be instructed about site, time and magnitude of disaster to attend the site with emergency medical kit.
- Outoor EMO will Intimate Chief Medical Surgeon (CMS) about site, time, magnitude of disaster and expected time of arrival of cases.
- CMS will establish command center with a messenger and clerk and will intimate:-
    i. Higher department officials
    ii. District administration & superintendent of police
    iii. Ngo's or other authorities as per need
    iv. Other head of departments of hospital
    v. Press and media
- Establish visitor control & information system and display name, address, status of injured person and contact no. for enquiry.
- Secure and cardon off the area with help of internal security and police.
- Morgue facility and alert.

Indoor EMO will:-

- Inform all HOD's, Matron, chief Pharmacist, kitchen, Security and ICU EMO
- Perform triage and apply triage bands to emergency cases.
- With EMO female and EMO ICCU help in managing emergencies

Some other dos

1 Shortest route and time expected to reach.
2 Driver ambulance:-
phone no 0522-2239007/2239596/2239126

3 CMS (command centre)9235565347
4 Nodal officer Dr. Pradeep Tiwari,M.S,M.ch, mob 9235565356
5 Pharmacist on duty
6 To inform campus doctor(list of pharmacist desk)
7 Indoor EMO and sister ph no 0522 2239007/2239595/2239126
8 To inform specialist on call
9 Security guard(announce on public address system)
10 Cardon off area
11 Traffic control

For Ward boy:

1. Check splints, bandages, suction machine, oxygen etc.

2. Information to all wards for sending stretcher or wheel chairs.
3. Take out extra stretcher and wheel chairs and triage bands.

Personnel trained in disaster management

1. Dr A.K Chawla ,C.M.S for Administrative work
2. Dr. I.P. Gupta,anaesthetist
3. Dr. sunil chauhan, Skin splst.

Requirement to establish level -2 trauma centre manpower:

a. Specialist
    1 General surgeon trained in neurosurgery-
    2 Ortho surgeon
    3 Anaesthetist
    4 Casuality medical officer

b. Nursing staff
    1 Staff nurses
    2 Nursing attendant

C- Paramedics
    1 O.T. Techn.
    2 Lab .techn.
    3 Videographer

D- Class IV staff
    1 ward boy
    2 sweepers

Annex-10

Disaster management plan of Balrampur hospital Lucknow

On receiving the call, receiver should seek following information:

- Identify the caller(name address and contact No. mobile/landline)
- Place the site of disaster and its time of occurrence.
- Distance from Balrampur hospital lucknow.
- Easier approach path to the site
- Approximate time to reach the hospital
- Type of disaster
- Magnitude of disaster
- Size of area affected
- Human and animal loss.
- Communication way affected or not?
- Public conveyance disrupted or not?
- Electricity supply disrupted or not?

Any information received by any public servant of this hospital shall be transmitted to EMO(OPD) firstly, then to EMO(Indoor) as well as administrators of the hospital viz Director/CMS/superintendent**.**

Outdoor EMO on duty.

- EMO(outdoor) shall inform the director/CMS/MS at once.
- EMO shall receive or give information at once at dial no's 1077/100
- EMO(OPD) shall inform EMO(indoor) as well as EMO(ICCU)
- EMO shall pass prompt necessary instructions to interns, chief pharmacist/pharmacist,ward boy and sweepers for preparation to tackle the situation as per need and type of disaster.

EMO Indoor on duty

- EMO(Indoor) shall inform pharmacy in-charge,senior matron/matron,kitchen in – charge, security guard and officers of the telephone department.
- EMO(Indoor)shall keep triage band shall give priority to its need.

Prabhari Andhikari(Pharmacy)

Prabhari adhikari(pharmacy) shall prepare the list of all chief pharmacists/pharmacist with their residential address and mobile/landline telephone numbers and call them with the consultation of EMO(OPD/Indoor) as per need. Said list shall be kept at EMO(OPD/Indoor/ICCU) and also with all hospital administrators. Priority shall be assigned to those who are staying in the hospital campus.

Senior Matron/Matron

Senior matron/matron shall prepare the list of all class IV employees with their residential address and telephone numbers (landline/mobile).said list shall be kept at EMO(OPD/Indoor/ICCU) burn ward and also with all the administrators of the hospital. Sr.matron/matron shall call the sisters/staff nurses/class IV employee with the consultation of EMO (Indoor/outdoor/ICCU). Priority shall be assigned to those who are residing in the hospital campus.

In-charge of interns

Interns on duty at E OPD/ EIPD/ICCU shall inform to the I/C interns with keeping in mind the gravity of the situation. In-charge. interns shall recall interns for duty with the consultation of EMO(OPD/IPD/ICCU) as per need. He shall prepare the list of all interns with their residential address and telephone no's shall be kept as supra.

In-charge ambulance services kitchen/drug store

He shall appraise the situation to the chief medical superintendent. If CMS is outside Lucknow then he shall act as CMS immediately and then he shall call officer who is looking the work of CMS. In-charge ambulance services shall act upon as supra and kitchen shall be opened, if needed

In-charge electricity & water supply(Dr.B.P Bajpai,consultant(eye).

In charge electricity and water supply shall act upon as super .in charge of above services shall maintained continuous supply of above and shall in touch with LESA along with telephone no's of LESA . he shall apprise the situation to the M.S/C.M.S/Director.

Ward In charge.

Ward in charge shall recall hir or her and non employees as per need and shall procure medicines and other materials, as needed

Superintendent cum Store In charge

He shall issue necessary instructions to all gazette and non gazetted employees (except CMS & DIRECTOR) for proper care of the patients/procurement of medicines/surgical appliances including splint of various sizes, cotton and bandges etc.

He shall issue necessary instruction to senior matron/matron/prabhari adhikari (pharmacy), ministry staff to prepare the list of all employees with their residential address and telephone no's.

He shall inform immediately to the CMS and DIRECTOR.

He shall prepare the list of such inmates who are admitted or OPD cases, as the case may be.

He shall keep a separate register for visitors.

He shall comply the orders of the Director and CMS.

He shall also comply the orders of Director general medical and health services UP, bearing letter no.vi.pra./2009/79 dated: 02-02-2009 duly indorsed by director and

Chief medical superintendent

He shall keep strict vigil on the situation as a whole

He shall keep in touch of district administration as well as director of this hospital

He shall issue necessary instructions to all the officers and employees of this hospital except director cum SIC

He shall comply the orders of director cum SIC and other authorities

All officers and employees shall work under direct administrative control, direction/supervision

He shall brief the situation to the media

He shall inform, the director general as well as the government/Principal secretary/secretary (medical branch) to the government.

Assessment of trauma patient.

Evaluation of the trauma patient shall be on the following guidelines i.e CUPS

C. CPR(Cardiopulmonary resuscitation)
U. Unstable(patient in shock/respiration difficulty)
P. Potential unstable.(borderline abnormal initial signs and UI to be lost due to delayed and in adequate treatment.)
S. stable(normal initial signs& respiration system)

Order of Assessment of priority (ies)

1. Airway maintenance and control of cervical spine.
2. Assessment of breathing and circulation.
3. Control of bleeding
4. Treatment of shock.
5. Evaluation of further injuries of neurological examination and splinting of fracture.
6. Transportation with continuous monitories.

Annex 11

IMPORTANT CONTACT INFORMATION

CHIEF MINISTER (CHAIRPERSON OF UPSDMA)

Designation	Office Phone
Chief Minister	2239296, **Fax**: 2239234
Officer on Special Duty	2225757, 2239296
Secretary	2238251, 2239299, 2238286
Special Secretary	2238288, 2238258, 2238316
Joint Secretary	2237250
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 **Fax**: 22239283
Staff Officer	22238942, 22208553, 22205736 **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	22238200	9415906050
Nodal Officers Emergency Support Functions			
Communications			
Public health and sanitation			
Energy	Principal Secretary		9415906018
Transport	Principal Secretary		9415906029
Search and Rescue			
Donations			
Public works	Principal Secretary		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, Labor	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 Defense/ 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	2333076,	2336022	9454417500

District & STD Code	Post	Office	Residence	Mobile
	Commissioner	2335238		
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	Residence	Fax
Allahabad (0532)	I.G.	2624825	2621502	---
Bareilly (0581)	I.G.	2420215, 2511060	2457061	---
Gorakhpur (0551)	I.G.	2333707	2333777	---
Kanpur (0512)	I.G.	2214450	---	---
Lucknow (0522)	I.G.	2393300	2721212	2393350

District & STD Code	Post	Office	Residence	Fax
Meerut (0121)	I.G.	2763664	2763733	---
Varanasi (0542)	I.G.	2507575	2501433	---

Deputy Inspector General (D.I.G.)

District & STD Code	Post	Office	Residence
Agra (0562)	D.I.G.	2363343	2261000
Allahabad (0532)	D.I.G.	2609327	2603730
Azamgarh (05462)	D.I.G.	243201	243249
Bareilly (0581)	D.I.G.	2511049	2427075
Basti (05542)	D.I.G.	246487	---
Chitrakoot Dham (05192)	D.I.G.	224792	224792
Devipatan (05262)	D.I.G.	222253	229777
Faizabad (05278)	D.I.G.	224248	224247
Gorakhpur (0551)	D.I.G.	2333442	2201100
Jhansi (0517)	D.I.G.	2443351	---
Kanpur (0512)	D.I.G.	2304461	---
Lucknow (0522)	D.I.G.	2225480, 2217884	2225480
Meerut (0121)	D.I.G.	2642550	2641566
Mirzapur (05442)	D.I.G.	256366	257401
Moradabad (0591)	D.I.G.	2435532	2435698
Saharanpur (0132)	D.I.G.	2761795	2761465
Varanasi (0542)	D.I.G.	2508181	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,	231343	9454417563

District & STD Code	Post	Office	Residence	Mobile
		226440		
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

District & STD Code	Post	Office	Residence	Mobile
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
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,	9454417567

District & STD Code	Post	Office	Residence	Mobile
			257400	
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	Fax
Agra (0562)	S.S.P.	2262221	2227255	2227256
Aligarh (0571)	S.S.P.	2400444, 2400638	2703111, 2703110	---
Allahabad (0532)	S.S.P.	2641902	2640600	2440700
Badayun (05832)	S.S.P.	266342	224308	---
Bareilly (0581)	S.S.P.	2457021	2510500	2427003
Bulandshahar (05732)	S.S.P.	224705	224338	---
Etah (05742)	S.S.P.	233319	231942, 233307	---
Etawah (05688)	S.S.P.	254041	---	254978
Faizabad (05278)	S.S.P.	224214	224215	224220
Gautambuddhnagar (0120)	S.S.P.	2350241	2549330	2444546
Ghaziabad (0120)	S.S.P.	2710758	2710157	2711120
Gorakhpur (0551)	S.S.P.	2334629	2334204	2333127
Jhansi (0517)	S.S.P.	2443340, 2443341	---	2443304
Kanpur (0512)	S.S.P.	2304407	2530547, 2532153	---
Lucknow (0522)	S.S.P.	2228965	2225983, 2225984	2274204
Mathura (0565)	S.S.P.	2405172	2404600	2409620
Meerut (0121)	S.S.P.	2660548	2664634	2664588
Moradabad (0591)	S.S.P.	2412654	2412562	---
Saharanpur (0132)	S.S.P.	2727143	2661740, 2661737	
Varanasi (0542)	S.S.P.	2502644	2502655	2502655

Superintendent of Police (S.P.)

District & STD Code	Post	Office	Residence	Fax
Akbarpur (Knp. dehat- 05111)	S.P.	220211	2383575	220296
Ambedkarnagar (05271)	S.P.	244445	244229	---
Auraiya (05683)	S.P.	244421	---	244887
Azamgarh (05462)	S.P.	220107	220403	---
Bagpat (0121)	S.P.	220518	222395	220517
Bahraich (05252)	S.P.	232892	232407	232405
Ballia (05498)	S.P.	220373	220312	220859
Balrampur (05263)	S.P.	233100	232490	---
Banda (05192)	S.P.	224624	224444	---
Barabanki (0524)	S.P.	2822277	2822244	2822244
Basti (05542)	S.P.	282904	246309	246804
Bijnaur (01342)	S.P.	262002	262026	261071
Chandauli (05412)	S.P.	262480	262479	262478
Chitrakoot (05198)	S.P.	235500	235241	---
Dewaria (05568)	S.P.	222755, 241400	222311	---
Farrukhabad (05692)	S.P.	234410	234206	---
Fatehpur (05180)	S.P.	224413	224288	224288
Firozabad (05612)	S.P.	285110	285004	285052
Gazipur (0548)	S.P.	2220538	2220567	---
Gonda (05262)	S.P.	222544	222760	---
Hamirpur (05282)	S.P.	222329	---	244474

District & STD Code	Post	Office	Residence	Fax
Hardoi (05852)	S.P.	234749	234694	234904
Hathras (05722)	S.P.	232100	235100	234100
Jalaun (05162)	S.P.	252237	252233	252791
Jaunpur (05452)	S.P.	261660	261203	261205
Jyotibaraofulenagar (05922)	S.P.	259288	263244	263244
Kannauj (05694)	S.P.	235439	234808	---
Kaushambi (05331)	S.P.	233411	233603	---
Kushinagar (05564)	S.P.	242393	242390	242341
Lakhimpur Khiri (05872)	S.P.	253157	---	---
Lalitpur (05176)	S.P.	272387, 277100	278100	278100
Maharajganj (05523)	S.P.	222246	222062	---
Mahoba (05281)	S.P.	244168, 254068	244474	244475
Mainpuri (05672)	S.P.	234442, 234660	234402	234540
Mau (0547)	S.P.	2220629	2500620	2500620
Mirzapur (05442)	S.P.	252578	256655	256565
Muzaffarnagar (0131)	S.P.	2403294	2403393	2403393
Pilibhit (05882)	S.P.	257183	257182	257182
Pratapgarh (05342)	S.P.	220423	220403	220403
Raibareli (0535)	S.P.	2202315	2202304	2202126
Rampur (0595)	S.P.	2350996	2351900	2350080
Sant Ravidasnagar (05414)	S.P.	250236	250285	250227
Santkabirnagar (05547)	S.P.	222892	222891	223140

District & STD Code	Post	Office	Residence	Fax
Shahjahanpur (05842)	S.P.	222553	222415	223344
Shravasti (05250)	S.P.	222328	---	222715
Siddharthnagar (05544)	S.P.	222183	222302	222170
Sitapur (05862)	S.P.	243207	242229	242404
Sonbhadra (05444)	S.P.	252631	252614	252673
Sultanpur (05362)	S.P.	222301	222302	223685
Unnao (0515)	S.P.	2820228	2820202	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

Director General of Police, Headquarters	
Designation	**Office Phone**
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 Superitendent 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

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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http://www.webindia123.com/uttar/land/forests.htm

http://www.krishiworld.com/html/crop_pattern2.html

http://www.upenvis.nic.in/

II. National Disaster Management Guidelines on Management of Biological Disasters