



महाराष्ट्र शासन

STANDARD OPERATING PROCEDURE

***(FOR Terrorist Attack Using Chemical Weapon,
Terrorist Attack Using Biological Agents ,Terrorist
Attacks Involving Use Of Radio Active Material , and
Aftermath of Nuclear Attack)***

**Akola District Disaster Management Authority
Collector Office Akola PH- 0724-2424444**

INDEX

Sr.No.	SUBJECT	Page No.
1	SOP FOR Terrorist Attack Using Chemical Weapon	3-16
2	SOP FOR Terrorist Attack Using Biological Agents	17-77
3	SOP FOR Terrorist Attacks Involving Use Of Radio Active Material	78-99
4	SOP FOR Nuclear Attack	100-116
5	Akola Dist. Disaster Management Authority	117
6	SDO & Tahsildar Contact Number	118
7	Akola Dist. Police Contact Number	119 -120
8	Mantralaya Control Contact Number	121
9	NDRF & Other Contact Number	121

Standard Operating Procedure (SOP) for responding to Terrorist attacks using Chemical Weapons

CHAPTER – I

General

1.1 This SOP lays down the sequence of actions to be taken by different agencies of the Government in response to a terrorist attack using Chemical Weapons (C W). The SOP also lays down an institutional mechanism in unambiguous terms with the Central/State/ District administration functioning on a trigger mechanism basis.

1.2 The SOP encompasses four phases of activity levels as under :-

(A) Notification Phase

During this phase the incident is identified and relevant agencies are notified.

(B) Response Phase

1. In this phase the capabilities available with the Government at various levels are put into effect for
2. Controlling the situations.

(C) Recovery Phase

The setbacks suffered as a result of the CW attack are restored.

(D) Restoration Phase

The confirmation of the site sanitization and resumption of normal activity.

- a. When a CW attack is launched by a terrorist group, it is likely to focus on densely populated cities/ targets at sensitive places. These could be metros, economic nerve centers, entertainment, religious venues and sources of drinking water supply etc.
- b. While it is difficult to predict the sites likely to be attacked, it will make sense to focus only on locations/ sites which meet the above criteria because covering the whole country will be unacceptably costly.
- c. The Objective of the operations under this SOP is to reduce the casualties to the minimum extent possible rescue, relief and medical services and to mitigate, as far as possible, the destructive effects of a CW attack on the morale of the affected population.
- d. The terrorists are likely to use agents which are easily disseminated, rapid inaction, highly toxic, easy to prepare/ procure and difficult to recognize. These agents could be nerve agents (e.g. Sarin), choking agents (eg. Chlorine, Phosgene), and blood agents (eg. Hydrogen cyanide). The likelihood of use of blistering agents (eg. Sulphur Mustard) which acts late can also not be ruled out.
- e. The agents mentioned in para 1.6 may be disseminated as vapors or aerosols.

CHAPTER – II

Command And Control

1. The command and control structure is given at Annexure VII
2. District level /City level, the Command and Control functions will be with the Unified Commander who may be Collector/ Deputy Commissioner/ District Magistrate/ Commissioner of Police, as designated by the State Government. All departments/agencies of the Central and State Governments in the District/City will work in accordance with the directions of the Unified Commander. The State Government/ District Magistrate/ Commissioner of Police will constitute the Incident Command Teams under officers of appropriate seniority to be designated as Incident Commanders.

Flow of Information

3. As soon as the incident is confirmed as a terrorist attack using chemical weapons, the unified Commander will inform the Chairperson of State Emergency Management Authority (SEMA) who will in turn inform the chairperson of Crisis Management Group (CMG) in the Ministry of Home Affairs, New Delhi.
4. The Chairperson of CMG of MHA will inform the National Crisis Management Committee (NCCM).
5. It is clarified that all decisions regarding response to the incident at the site will be taken by the Incident Commander acting under the broad policy guidelines given by the Unified Commander. CMG of MHA/ SDMA/ SEMA will convey their policy guidelines to the Incident Commander only through the Unified Commander. These guidelines will not be in areas pertaining to operational and tactical decision making.

CHAPTER – III

Preparedness Stage

The preparedness stage will include following actions to be taken by the concerned Ministry/ Departments and organizations of the Central and State Governments.

- 3.1 Identification/ Annual review of potential targets.
- 3.2 Formation and training of Specialist Response Teams both at the Central and State.
- 3.3 The structure of the Specialist Response Teams is given at Annexure – IV. The Specialist Response Team will report to and function under the directions of the Incident Commander.
- 3.4 Fire services at metros and State capitals are to be trained and equipped to respond to all hazards including NBC. These will be re-designated as Emergency and Fire Services Units.
- 3.5 Awareness generation among the public in vulnerable areas has to be undertaken as a part of awareness generation for disaster management. Information suitable for the public domain will be identify from this SOP as well as the SOPs to be formulated by individual Ministries/ Departments/ Agencies/ State Governments/ UT Administrations and should be made available through suitable means of information dissemination and awareness generation.

3.6 The State Police will be the first responder to any incident. It will, therefore be necessary to ensure that they are appropriately trained in the do's and don'ts, of a chemical weapon attack. Training capsules should be developed and integrated into the training programme.

3.7 The list of equipment for detection, protection, decontamination and medical treatment has been identified and placed at Annexure-V and needs to be procured and made available to the Specialist Response Team. Each Specialist Response Team shall be provided with a complement of vehicle which will include one mini bus, one mini truck, one multi – stretcher ambulance, one decontamination vehicle, one portable generator set mounted vehicle and one jeep to facilitate effective response during operational deployments.

3.8 Suitable software for prediction of hazard zones after a chemical attack will be developed with inputs in terms of wind parameters viz. speed, direction, concentration and other properties of chemical agents.

3.9 The SOP envisages Incident Command teams with officers designated as incident Commanders under whose supervision the Specialist Response Teams will function. The incident Command teams will be trained in the technical aspects of NBC.

3.10 The Incident Command Teams will function under the overall guidelines/ directions of the District Magistrate of the Commissioner of Police. All Agencies of the Government will make available resources as required by the District Magistrate/ Commissioner of Police. The District Magistrate/ Commissioner of Police will be designated as the Unified Commander by the State Government.

3.11 Hospital preparedness by the State Governments to handle victims of a chemical symptoms and antidotes for various chemical weapons/ agents used. Adequate stocks of antidotes will require to be maintained as well as arrangements for in each of the six metros- Delhi, Chennai, Kolkata, Mumbai, Bangalore and Hyderabad and at least two in each State Capital and other identified probable targets cities. These identified hospitals will be prepared and equipped for handling victims of a chemical attack.

3.12 The Ministry of Health will identify institutions which will conduct in-service training for doctors and paramedical staff in responding to chemical attacks. The capsules for this in-service training will be developed by DRDO and the training of the trainers will also be conducted by them. The training being conducted by MOD will continue as hitherto fore. MOD and MOH will coordinate/ assist each other in organizing such training.

3.13 Each identified hospital will maintain adequate stocks of medicines, including essential antidotes such as atropine, PAM chloride, amyl nitrate, sodium nitrate and sodium thiosulphate to cater for a minimum of 100 casualties. A list of medicines including the five essential antidotes has been identified by the Ministry of Health.

Response Phase

- The Head of the Specialist Response Team will mobilize his team including the medical unit at the hospital and reach the site of incident and report to the Incident Commander.
- The Incident Commander will take will decisions regarding management of situation/ deployment of manpower. All relevant agencies including Quick Response Teams

(QRTs)/ Quick Medical Response Team (QMRTs) to Mode will provide manpower and material resources as re2quired to the Incident Commander.

The Incident Commander will :-

- i) Cordon off the area and restrict entry into the cordoned area except the designated response personnel.
- ii) Arrange to provide directions and instructions to the population on the public address system.
- iii) Use the Detection Team to identify all hazardous substances and the conditions prevailing.
- iv) Designate a staging area where all resources will report.
- v) Designate sites for setting up of decontamination centers.
- vi) Designate locations for triage and emergency treatment.

- The detection/ assessment team of SRTs will enter the area and deterring the sources/ typero chemicals, mark contaminated areas, designate hot, warm and cold zones and will monitor the entire decontamination process.
- The rescue and evacuation team of SRTs will evacuate the affected people.
- Decontamination sites will be set up on the periphery of the cordoned area.
- The medical units will set up triage and emergency treatment centers.
- Those affected will be taken to the triage area. Those requiring immediate medical assistance will be rushed at once to the hospital without waiting for decontamination. Those patients who can be decontaminated before being sent to hospitals will be decontaminated. The third category will be those who can be allowed to leave for the safe area after decontamination.
- The responsibilities and procedures to be followed by the Incident Commander is at Annexure – II.
- The Specific procedures for Specialist Response Teams in emergency response is at Annexure – III.
- The response worksheet for Incident Commander and Specialist Response Teams is at Annexure – VI.

Recovery Phase

The Incident Commander will take steps to :-

- i) Decontaminate the area, equipment, vehicles and dispose off left over contaminants,
- ii) Removal of dead bodies from the sites to pre-designated sites/ mortuaries,
- iii) Handover evidence to concerned poise authorities.

- iv) The Incident Commander will confirm to the District/State Administration/ Government through Unified Commander that the site of attack has been sanitized and normal activity may resume in the affected area.
- v) Feedback/after action reports will be given by the following agencies to CMG of MHA through the State Government :-
 - i) Unified Commander
 - ii) Incident Commander
 - iii) Police
 - iv) Ministry of Health

**LIST OF ANTIDOTES/ DRUGS AND RESUSCITATION ITEMS/
DECONTAMINATIONS/**

SUPPORTIVE EQUIPMENTS

ANTIDOTES

- 1.Inj. Atropine
- 2.Inj. PAM – 20 ml.
- 3.Inj. BAL
- 4.Inj. Sodium Nitrite
- 5.Sodium Thisulphate
- 6.Inj. Amyl Nitrite

DRUGS AND RESUSCITATION ITEMS

- 1.Potassium Chloride Oral
- 2.Inj. Soda Bicarb
- 3.Oxygen Cylinder
- 4.Ambus Bag 250/500 ml.
- 5.Tab. Paracetamol
- 6.Tab. Ibuprofen 400
- 7.Ciprofloxacin Eye Drops/ Oint.
- 8.ORS Powder
- 9.Diazepam

DECONTAMINANTS

- 1.Sodium Hypochlorite Solution – (Storage stability limited, not more than a month)*
- 2.Bleaching Powder – (Storage stability limited, not more than a month)**
- 3.Potassium Permanganate
- 4.Charcoal Powder
- 5.Caustic Soda
- 6.Soap, detergent and water
- 7.Fuller earth

* To be replaced every month.

**To be replaced every 3 months.

SUPPORTIVE EQUIPMENTS

1. Public address systems.
2. Torch or emergency lights.
3. Stretchers.
4. Recovery/ refuse bin.
5. Earth digging equipments.
6. Fire fighting extinguishers.
7. Water hoses.

**SPECIFIC PROCEDURES TO BE FOLLOWED BY AN INCIDENT
COMMANDER FOR
EMERGENCY RESPONSE**

ASSUME COMMAND

Assign responsibilities to each member of the team, coordinate communications of the team.

SIZE-UP AND EVALUATE THE SITUATION AS PER THE WORKSHEET

- * Cordon off the area in consultation with the safety officer and restrict entry to the affected area.
- * Arrange to provide directions and instructions to the population on the public address system.
- * To the extent possible, simultaneously identify all hazardous substances or conditions present.

SET UP THE COMMAND POST AND STAGING AREA

- I. Command post is a location where persons having the authority to command and persons necessary to support the process, are brought together and provided with necessary facilities. An information officer should also be stationed at the command post. Shifting wind direction, new information, requirement for better facilities, problems with communications, need for additional space, or inability to provide security for the command post initially selected could all be reasons for relocation for the command post.
- II. A staging area is often near to but separate from the command post. It is a marked area where responding personnel report with their equipment or apparatus to await direction. Specialist teams, fire, police, medical or other personnel are directed to the staging area.
- III. The person in charge of a particular team will report to the command post to make his or her equipment and expertise known, provide information, or standby for instructions.

SITE SECURITY AND CONTROL

- Limit the number of emergency response personnel at the site tot those who are actively performing emergency operations.
- Designate, hot, warm and cold zones and accordingly identify:-
 - (a) Evacuation routes and procedures
 - (b) Places for decontamination corridors/station, if required.
 - (c) Place for rapid treatment centre.
 - (d) Level of protection required for the responders.

RESCUE OPERATIONS

1. Evacuate victims and arrange immediate first-aid.
2. Decontaminate the victims, if required, using the appropriate dry/wet method.
3. Isolate casualties, prioritize treatment as per triage level.
4. A back up team shall standby with equipment ready to provide assistance of rescue.
5. Transport casualties to designated hospitals.
6. Request additional assets if required.

CONTAMINATION CONTROL

1. Identify the need and suitable protocol for the decontamination of personnel, equipment and area.
2. Monitor for the completeness of the decontamination process.
3. Re-designate the hot, warm and cold zones if required.
4. Neutralize the source of contamination.

RECOVER AND RESTORE

1. Remove dead bodies, left over items.
2. Complete contamination survey.
3. Hand over evidence to police.

TRANSITION BRIEFING

1. Prepare briefing for the unified command.
2. The emergency response team will work in appropriate protective gear as advised by the Safety Officer.

CERTAIN SPECIFIC PROCEDURES FOR SPECIALIST RESPONSE ITEMS IN EMERGENCY RESPONSE

The teams shall adhere to all safety norms while carrying out their role. Proper protective gear as advised by the safety officer should be donned. The duration for which the protective clothing is to be worn will be determined by the physiological status of the wearer. In case of unbearable thermal stress, the wearer should be advised to retreat to the cold zone. The team in protective gear should be preferably rotated. The canister should be replaced if there is any resistance in breathing and gas mask should be checked for face seal before entering the contaminated area.

The role of the specialists and certain other specific procedures are enumerated below:-

1.Detection Team

- I. Mainly responsible for the hazard identification and confirmation, neutralization of the source of contamination and an other tasks assigned by the Incident Commander. Certain specific procedures to be observed by the team are as follows :-
- II. The team should recognize any unusual smell, pools or puddles of liquids or droplets on water surfaces, dead animal or birds, munitions or their debris; and locate the source of contamination.
- III. On site detection methods using detection devices detailed in the list of equipment should be resorted to.
- IV. Off-site laboratory analysis using instrumental methods can be requested in case of ambiguities in detection.
- V. The samples (soil, water, air, contaminated belongings etc.) should be preserved and handed over for crime investigation at a later stage.

2.Decontamination Team

- I. Contamination control, decontamination of personnel, equipment and area and any other tasks assigned by the Incident Commander. The responsibilities/ procedures to be followed by this team are :
- II. Setting up of deacon corridors and stations for deacon of victims should be rapid.
- III. Equipment and area deacon is not time-constrained and accorded second priority.
- IV. The run-off water used for decontamination should be monitored for completeness of decon and preferably lead to a sewerage.
- V. The contamination survey should be carried out prior to restoring the site for normal operations.

3.Rescue and Evacuation Team

- I. Mainly responsible for rescuing and evacuating the victims and any other tasks assigned by the Incident Commander. The responsibilities/ procedures to be observed by the team are as follows :-
- II. Provide directions to the public through the information officer to control panic.
- III. Warn them form walking into hot zone.
- IV. Guide the public to the exit route/ treatment/ decon centre, as appropriate.
- V. Evacuate any trapped casualties.
- VI. Transport casualties to designated hospitals.
- VII. Assist the medical team

4. Medical Team

- I. The team shall be responsible for providing first aid and treatment to the extent possible to the victims at the incident site. The antidotes that may be used are listed in Appendix – I. If required the team shall also assist the doctors in the designated hospitals where the victims are transported. Certain specific procedures for the team are as listed below :-
- II. Develop treatment plans for ambulatory and non-ambulatory victims.
- III. Ascertain the triage level of the victim with respect to respiration, pulse and neurological status.

- IV. Decide dry/ wet decontamination procedures for the victim.
- V. Set-up treatment centre for providing first aid and treatment to the extent.
- VI. Reassure and relocate the psychological casualties.
- VII. Help in preservation of evidence.

ANNEXURE – IV

ORGANISATION STRUCTURE OF SEARCH AND RESCUE TEAM FOR NBC EMERGENCIES

ANNEXURE – V

List of Equipment for detection, protection and decontamination

Sr. No.	Component of Emergency Kits
1	Detector Paper (Three Color Detector Paper)
2	Residual Vapor Detection Kit (Detector Tube)
3	CAM
4	AP2C
5	NBC Suit permeable with hand gloves and boot
6	Casualty Bag Full
7	Casualty Bag Half
8	Gas Mask (Respirator) with disposable Filters
9	Integrated Hood Mask
10	Vsmodyrt
11	NBC Suit Impermeable (ensemble)
12	Auto Injector (Atropine PAM)
13	Resuscitator
14	Leak Tester for Mask
15	Medical Kit (First Aid Kit Type B)
16	Personal Decontamination Kit
17	Portable Decontamination apparatus
18	Decontamination Solution & decontaminants (Appendix-1)
19	Water Poison Detection Kit (Detect Cyanide, Arsenic, Mercury, Nerve agents in water)

RESPONSE WORKSHEET FOR THE INCIDENT COMMANDER AND SPECIALISED TEAM

Every Incident Commander and his specialized team should perform a size-up or incident evaluation soon after arriving at the incident scene. Such an evaluation must be a spontaneous response by trained and experienced responders. The following worksheet provides items for consideration.

Incident Commander

- Identification of rescue requirements.
 - Evacuation requirements.
 - Run- off considerations
 - Air-monitoring requirements
 - Placement of arriving emergency forces
- A. Staging area
 - B. Remote standby
 - C. Commitment as needed
 - D. Upwind and upgrade
 - E. Use natural barriers for protection
 - F. Protect equipment from run-off, vapors, sprays residues etc.

Access Control

- (a) Roadblocks, barriers, traffic control
- (b) Evacuation routes, shelter-in place
- (c) Police guards
- (d) Use of public address system

Environmental considerations

- (a)Streams, lakes, ponds, rivers
- (b) Sewers, drains.
- (c) Groundwater, wells and other drinking water sources.
- (d) Crops, vegetation and cattle.

Command post operations.

Maintaining incident vigilance and discipline.

Identification of additional resources.

- (a) Sorbent materials, decontaminants
- (b) Equipment, water hoses, generator sets.
- (c) Empty containers, refuse bins, recovery bins.
- (d) Ambulance, stretchers, transport
- (e) Manpower.

Communication

Control and containment\

- (a) Limit the area involved
- (b) Decontaminate
- (c) Cover equipment
- (d) Safe distance.

Detection Team

1. Identification of the hazard:

- (a) Smell, cloud persistency, solid/liquid/gas, reactivity, toxic etc=
- (b) Site, Dissemination device, configuration, labels etc.
- (c) Relative humidity
- (d) Rain, Snow or other moisture
- (e) Barometric pressure

2. Identification of primary and secondary exposures:

- (a) High residency dwellings (schools, nursing homes, hospitals, apartments, shopping complexes, entertainment venues).
- (b) Power lines, sewers, pipelines etc.
- (c) Industrial occupancies, gas stations, petrol bunks etc.
- (d) Storage areas for chemicals, gases, flammable liquids etc.

Safety Officer

Personal Protection

- (a) Briefing
- (b) Impermeable/ permeable clothing
- (c) Gas masks (Full/ Half/ Face let)
- (d) Vapors Vs. Liquid hazard
- (e) Exit route
- (f) Recognizable signal for retreat
- (g) Buddy system/ constant back up
- (h) Zone definition (cold/ warm/ hot) and adjustment

Decontamination Team

Decontamination considerations

- (i) Dry/ wet.
- (ii) Wash down.
- (iii) Discard clothing
- (iv) Chemicals, equipment, apparatus

Extinguishing agents

- (a) Water (straight streams, fog, spray, mist)
- (b) Dry Chemical
- (c) Foam
- (d) CO₂
- (e) Sand, tarpaulins and other smothering agents
- (f) Clean up
- (g) Disposal of chemicals and hazardous waste

Critique (Lessons learnt)

Annexure- VII

Structure of Command and Control

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National Crisis Management Comities

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Crisis Management Group of Ministry to Home Affairs

|

SDMA/ SEMA/ State Crisis Management Comities

|

Unified Commander

|

Incident Commander

|

Specialist Response Team

Standard Operating Procedure (SOPs) for responding To

TERRORIST ATTACKS USING BIOLOGICAL AGENTS

CHAPTER – I

INTRODUCTION

1.1 The Standard Operating Procedures (SOP) lays down in concise form the steps required to be taken to respond effectively to a terrorist attack using biological agents. The SOP lays down the sequence of action to be taken by different agencies in response to usage of biological agents by terrorist groups.

1.2 The SOP also lays down an institutional mechanism in unambiguous terms for the worst-case scenario with the Central/ State/ District administrations functioning on a trigger mechanism basis.

1.3 The concerned Central Ministries/ Departments/ Organizations/ Agencies will draw up detailed individual Sops on aspects identified in this SOP as within their sphere of responsibility within a period of one year so as to translate each action point into a number of steps required to be taken by each of them. The State Government/ UT Administrations will also draw up individual SOPs on aspects falling within their sphere of responsibility within a period of one year.

1.4 The Ministries/ Departments/ Organizations concerned with the SOP at the National level will be as under:-

- i. National Disaster Management Authority
- ii. Ministry of Home Affairs
- iii. Ministry of Health and Family Welfare
- iv. Ministry of External Affairs
- v. Department of Bio-Technology
- vi. Ministry of Defense
- vii. Ministry of Information & Broadcasting
- viii. Department of Drinking water supply
- ix. Ministry of Agriculture
- x. Department of Animal Husbandry Dairying

(xi) Technical Agencies – DGHS, AFMS, ICMR, NICD, DRDE, DRDO, DCGI

1.5 The organization concerned at the State level will be as under :-

- a) State Department of Disaster Management (SDDM/ State Disaster Management Authority (SDMA)/ State Emergency Management Authority (SEMA)
- b) District Magistrate/ Commissioner of Police/ Superintendent of Police.
- c) Health services.
- d) Public Health Engineering Department.
- e) Transport Services.
- f) Director, Agriculture
- g) Director, Animal Husbandry & Dairying

1.6 The National Disaster Management Authority may lay down policies and guidelines from time to

Time to be followed by different Ministries/ Departments/ Organizations/

Technical Agencies of the Government of India and the State Governments for preparedness and

response to a terrorist attack using Biological Agents.

1.7 The SOP encompasses five phase of activity as under :-

(a) Preparedness Phase :-

This will include all actions that have to be taken by various agencies to ensure the required state of preparedness. This will include documentation; having required equipments in place, exercises/ drills, training programs, awareness generation programs, communication strategy, establishment of command and control system, and storage of emergency medicines/ vaccines/ diagnostic agents etc.

(b) Early Warning Phase:-

As a majority of the bio-terrorism agents have an incubation phase before onset, the early warning mechanism in the surveillance system will play an important role. Activities like case definition, notification, compilation and interpretation of epidemiological data are important aspects and need to be strengthened in the existing surveillance system for developing the early warning signals related to bio- terrorism.

(c) Notification Phase:-

It would be mandatory to report any unusual syndrome or incidence of a usual syndrome in unusual numbers. The Central/ State/ Local Authorities, to make such events notifiable, would enact necessary legal provisions. The activities in this phase include rapid epidemiological investigation, quick laboratory support for confirming the diagnosis, quarantine, isolation, keeping health facilities geared up for impending casualty management and evolving public health strategies for control.

(d) Response Phase :-

The Capabilities available with the Government at various levels for handling the attack are put into effect. The activities include rapid epidemiological investigation, quick laboratory support, mass casualty management and initiation of preventive, curative and specific control measures for containing the further spread of the disease.

(e) Recovery Phase :-

The setbacks suffered as a result of the biological attack are restored and lesson learnt in this phase are incorporated in the future preparedness plan(s).

CHAPTER – II

COMMAND AND CONTROL

National level

2.1 At the National level, the Command, Control and Coordination of the emergency response will be overseen by the National Crisis Management Committee (NCMC) under the Cabinet Secretary. NCMC will issue guidelines from time to time as required for effective response to a terrorist attack using Biological Agents. All Ministries/ Departments/ Organizations/ Technical Agencies at the National level shall comply with the instructions of NCMC.

2.2 The NCMC will be assisted by a Bio-terrorism Management Committee comprising of the following members :

i.	Secretary, Ministry of Health and Family Welfare	- Chairman
ii.	DGHS	- Member
iii.	DG (AFMS)	- Member
iv.	DG (ICMR)	- Member
v.	Director (DRDE)	- Member
vi.	Director (NICD)	- Member
vii.	Drug Controller General of India	- Member
viii.	Advisor, DBT, New Delhi	- Member
ix.	Commissioner (Agriculture)	- Member
x.	Commissioner (Animal Husbandry)	- Member
xi.	Any other co-opted member(s)	- Member
xii.	Director (EMR)	-Member-Secretary

2.3 The role and functions of the Committee will be as under :-

- a. Reviewing the preparedness measures, identifying gaps and giving directions for meeting the deficiencies, issuing policy directions/ approving plans for putting requisite capabilities in place.
- b. Managing outbreak response.
- c. The Committee will review the list of biological agents and available control strategies.
- d. Assess International Scenario on emerging diseases with Bio-Terroristpotential.
- e. Any other technical matter.

The Committee will meet at least twice a year to review the preparedness measures and on the report of an outbreak, will meet as often as is necessary.

2.4 A Technical Committee headed by the DGHS will be responsible for overseeing epidemiological investigations and for issuing guidelines for case management. This Sub-Committee will comprise of :-

- | | | |
|--------------|--------------------------------------|--------------------|
| I | DGHS | - Chairman |
| ii. | DG , ICMR | - Member |
| iii. | DG, AFMS | - Member |
| iv. | Director, AIIMS | - Member |
| v . | Director, NICD | - Member |
| vi. | Director, DRDE | - Member |
| vii. | Director, IVRI | - Member |
| viii. | Microbiologist (ICAR) | - Member |
| ix. | Any other co-opted member (s) | - Member |
| x. | Director, EMR | - Secretary |

In an emergency (when there is an imminent threat or after an attack) it will assess the situation and issue guidelines for response/ case management.

State Level

2.5 The Command, Control and Coordination of the emergency response at the State level will be with the State Department of Disaster Management/ State Disaster Management Authority/ State Emergency Management Authority (SDDM/ SDMA/ SEMA), as the case may be. Where SDDM/ SDMA/ SEMA is not headed by the Chief Minister, it will function under the directions of the Chief Minister to be conveyed through the Chief Secretary.

2.6 At the State level, the response to bio-terrorism will be coordinated by the State Department of Disaster Management Authority. The coordinating authority will be assisted by a State Technical Advisory Committee comprising of the following members.

- | | | |
|-------------|---|-----------------|
| i. | Secretary, In-charge of Health Services- | Chairman |
| ii. | Specialist, Public Health | -Member |
| iii. | Microbiologist | -Member |
| iv. | Clinician | -Member |
| v. | Entomologist | -Member |

vi.	Director (Agriculture)	-Member
vii.	Director (Animal Husbandry)	-Member
viii.	Any other co-opted member	-Member
ix.	Director, Health Services	- Secretary

2.7 The role and functions of the State Technical Advisory Committee will be under :-

- A. The expert group will meet twice in a year/ as when required to review the preparedness measures. During an imminent threat/ attack, the group will meet on a daily basis to monitor the situation and give directions for response. The Committee will report to SDMA and the Bio-terrorism Management Committee of the Department of Health.
- B. The group will review the functioning of the existing disease surveillance network including laboratory support system.
- C. Review the available control strategies.
- D. Review the logistic availability at the State and District levels.
- E. Review the outbreak response system of Rapid Response Teams (RRTs) and identify the weak points and suggest suitable remedial actions.
- F. Discuss on any other technical matter.

District Level

2.8 The Command and Control at the district/ city level will vest in the District Magistrate/ Commissioner of Police as the case may be.

2.9 The District Magistrate/ Commissioner of Police will be advised on technical aspects by CMO.

2.10 In metropolitan cities/ capital cities, the command and control shall vest with State Health Secretary. In technical matters, he will be assisted by the Director, Health Services.

The Command and Control structure is given at Annexure – XII

CHAPTER – 3

CONCEPTS/ PARAMETERS AND STRATEGY

3.1 Bio-terrorism is the intentional use of biological agents to cause disease or death through dissemination of micro-organisms or toxins in food or water or insect vector or by aerosol to harm human population, food crops and livestock.

3.2 The effect of bio-terrorism imposes heavy demands on the National health care system and it will be the public health system that will be called upon to handle the consequences. An effective public health system with the component of a strong disease surveillance mechanism, facilities for rapid epidemiological and laboratory investigation, efficient medical management

and information, education and communication (IEC) are essential capabilities for countering bio-terrorism.

Potential agents in biological warfare

3.3 The potential agents which may be used by terrorists could range from pathogens like Bacillus Anthracis (anthrax), Yersinia Pestis (plague) etc to organisms such as Variola (small - pox) that have been certified as globally eradicated. Biological toxins or genetically modified pathogens could also be used. Terrorists might use new agents, or use organisms such as drug resistant or genetically engineered pathogens. A list of potential agents is given in Annexure- I. Details regarding symptoms etc. of agents likely to be used for bio-terrorism are given in Annexure I A.

Target population and mode of attack

3.4 Instituting preparedness measures in the whole country will be prohibitively costly and will not be the optimal use of resources. A terrorist attack is likely to focus on areas/cities to cause maximum panic, disruption/damage and public attention. Big metropolitan cities, urban conglomerations and districts having international borders could be the likely targets. A list of potential targets will be drawn up and the preparedness measures will focus on these target areas.

3.5 The mode of attack would depend upon the type of agents used. In order to infect or affect a large population, it is possible that the aerosol mechanism would be used in closed, confined areas where a large number of people assemble eg. Shopping complexes, metros, cinema halls etc. Another modality could be by contamination of food and water with toxins and pathogens. Deliberate infiltration of infected animals, pests or vectors through the borders could also be another modality of attack. Pest/ toxins/ micro-organism on plants could also be used to inflict economic damage.

Distinguishing between a natural outbreak of disease and bio-terrorist attack

3.6 With a covert biological attack, the most likely first indicator of an event would be an increased number of patients with common clinical features caused by the disseminated agents reporting to hospitals and dispensaries in the locality.

3.7 A sound epidemiological investigation of a disease outbreak will help identify the pathogen(s), institute the appropriate medical interventions and public health response. Diseases caused by genetically modified pathogens may present non-specific clinical features that could be difficult to diagnose. The disease pattern that develops will be an important factor in differentiating between a natural outbreak of disease and a bio-terrorism attack. Though this may give some clues, naturally occurring epidemics can have one or more of these characteristics and biological attack may have none. The points for differentiation between a natural outbreak of disease and a bio-terrorist attack are given in Annexure II.

Differentiating between biological and chemical attack

3.8 In release of a chemical or biological agents, the nature and degree of hazard will depend on a multitude of factors, including, among other things, the agents and the amount released, the method by which the agent is disseminated, factors that influence its toxicity, infectivity or virulence both during and after its release, its movement and dilution in the atmosphere, and the state of protection and immediate consequences whereas most biological agents will have an incubation period. The points to be considered for differentiation between a biological and a chemical attack are given at Annexure III.

Preparedness and Response strategy :

3.9 While attacks with biological agents may have some special features, they do not necessarily require the formation of completely new and independent response systems. A well designed public health and emergency-response system is quite capable of responding to a limited biological attack and can take the measures necessary to mitigate its effects. The Union Ministry of Health & Family Welfare is expected to review the preparedness, identify gaps in the existing system and issue guidelines on disease surveillance, emerging diseases, laboratory facilities, outbreak investigations and managements. The State Governments are required to act on the guidelines, especially in vulnerable areas and take measures for strengthening the above aspect wherever necessary.

3.10 The response mechanism will be on the same lines as that of the infection control strategies applied during any disease outbreak. However, in order to meet the challenge of bio-terrorism successfully, a multi-faceted strategy is necessary. The key counter-measures for bio-terrorism would include:-

- a. Deterrence i.e. certainty of being punished for the act perpetrated.
- B . Prevention i.e . by reducing the opportunity by enhanced intelligence.
- c. Surveillance and assessment i.e. by early detection or awareness by epidemiological methods.
- d. Notification.
- e. Quarantine/ isolation.
- f. Laboratory investigation for diagnosis and Characterization/ sensitivity of the biological organism.
- g. Medical management.
- h. Dissemination i.e. through public safety and law enforcing agencies.

3.11The present SOP does not cover deterrence and prevention; for which separate arrangements (legal provisions, intelligence network) are in place.

CHAPTER – 4

PREPAREDNESS STAGE

General

4.1 Various actions/ steps that are required to be taken by the concerned Ministries/ Departments/ Organizations/ Technical Agencies at the preparedness stage for mounting an efficient emergency response is given in the succeeding paragraphs.

Identification of Biological Agents

4.2 The Ministry of Home Affairs will identify in conjunction with the Ministry of Health & Family Welfare and Intelligence Agencies the potential biological agents that may be used for bio-terrorism. An indicative list of potential biological agents is given in Annexure – I.

4.3 The points to be considered for differentiation between a natural disease outbreak and a bio-terrorist attack is given in Annexure – II.

4.4 The points to be considered for differentiation between a biological and chemical attack are given Annexure – III.

Potential Target Areas

4.5 An assessment will be carried out of the potential target areas. The preparedness measures will focus on these target cities/ areas.

Surveillance

4.6 A system for collecting, maintaining and characterizing information and samples concerning naturally occurring organism capable of being used as biological agents with or without genetic modifications will be put in place. A Plan of Action will be drawn up to assess the requirements, the strategy and steps for putting the System in place.

4.6.1 The Integrated Diseases Surveillance program (IDSP) will cover the identified Cities / target areas in the first phase.

4.6.2 The ISDP and existing network of laboratories will be used for sample collection and

Characterizations of agents of identified diseases during suspected outbreaks.

4.6.3 A decentralized State based system of surveillance will be established with the following

objectives

- (i) To establish a decentralized State based system of surveillance for communicable and non-communicable diseases so that timely and effective public health actions can be initiated in response to health challenges in the country at the State and National level.
- (ii) To improve the efficiency of the existing surveillance activities of disease control programs and facilitate sharing of relevant information with the health administration,

- community and other stakeholders so as to detect disease trends over time and evaluate control strategies.
- (iii) Upgrading laboratories at the same level in order to improve laboratory support for surveillance activities. Adequate laboratory support is essential for providing on-time and evaluate control strategies.
 - (iv) Introducing a quality assurance system for assessing and improving the quality of laboratory data.

4.6.4 The laboratory support in States/ UTs will be strengthened and the available system will be integrated well with the State and District surveillance programme. The Specific roles of the various laboratories at PHCs, District and State levels will be defined.

4.6.5 Technology and infrastructure for performing essential diagnostic tests at the District level, particularly microbiology cultures, bio-safely management and quality assurance would be given special attention.

4.6.6 The laboratory network for IDSP will be established at five levels of functions :

(i)Peripheral Laboratories and Microscopic Centers (L 1 labs)

(ii)District Public Health Laboratory (L 2 labs)

(iii)Disease Based State Laboratories (L 3 labs)

(iv)Regional Laboratories IDSP and Quality Control laboratories (L 4 labs)

(v)Disease based reference Laboratories (L 5 labs)

4.6.7 These facilities will have accreditation to NABL to ensure QA/QC.

4.6.8 NICD will function as the nodal laboratory and the hub of these diagnostic centers.

NICD would develop a database of genetic profile of pathogens native to our country. Any exotic organism can be identified referring to the database.

4.6.9 Two more High Contaminant Facilities for holding virulent pathogens will be created for research purposes and data bank storage, one in the Eastern part and the other in the Southern part of our country.

4.6.10 Edusat system linking NICD with all districts is under establishment and the same will be used for communication strategy and connectivity.

Notification

4.7 Necessary legal provisions/amendments to existing provision would be made to notify any unusual syndrome or incidence of usual syndrome in unusual numbers. Linkages would be established with the disaster management authorities, identified nodal agencies in health sector and surveillance program for rapid epidemiological interventions.

Rapid Response Teams (RRTs)

4.8 The State Government will set up a minimum of two (2) Rapid Response Teams. The RRTs will comprise of at least one expert each in the field of Epidemiology; Public Health, Microbiology, Clinical medicine and Entomology. The charter of duties of the RRTs is given in Annexure - IV.

4.9 Each State, which has a target city/ district, will also have a State level RRT under the Director, Health Services with additional specialists.

4.10 Two RRTs will be set up at National level.

4.11 These RRTs will be given additional training in the potential agents likely to be used for bio-terrorism, epidemiological investigation and their medical management.

Quarantine and Isolation

4.12 The Centre/ States/ Local Authorities will prepare quarantine regulations supported by requisite legal provisions for enactments in their areas of jurisdiction. Quarantine and isolation protocols would be drawn up to support such regulations. Necessary Quarantine/ Isolations facilities would also be created.

Monitoring

4.13 At the District level, the CMO will review the surveillance reports, advise the District Magistrate/ Commissioner of police about a bio-terrorist attack; identify the areas/ people/ communities affected as well as any quarantine requirements.

4.14 The Director Health Services of the State will monitor and advise the Health Secretary on surveillance reports received from the different districts.

4.15 All hospitals/ dispensaries in the target area whether public or private will have reporting obligations for any clinical signs/ symptoms/ epidemiological diseases. The list of Early Warning Signals is at Annexure – V.

4.16 A terrorist attack using biological agents may also have impact on animal health in the affected areas. An impact assessment will need to be made by a team of experts in the aftermath of such attacks and appropriate measures will be taken to prevent the spread of disease in animals. Teams of Experts will be developed and designated at the National, State and District/ target city levels for making the impact assessment of such attacks on animals.

Laboratory facilities

4.17 Short orientation courses for laboratory staff in the public/ private sector as well as doctors/ paramedics regarding the reporting obligations will be conducted.

4.18 Identifying and equipping laboratories for sample testing of Biological samples and others such as air samples, food stuffs, postages, water etc.

4.19 Capacity for epidemiological investigation to be reviewed and strengthened as per requirements.

4.20 Each laboratory designated to handle bio-terrorism agents will have detailed SOPs listing out each step.

4.21 Laboratories will be designated at the National / Regional and State levels for analysis of samples for various types of agents which can be used in bio-terrorism. A list of National level designated laboratories as at Annexure – VI.

4.22 Highly infectious pathogens such as Marburg, Ebola and agents of other viral hemorrhagic fevers warrant high containment laboratories of Bio-Safety level 3 and Bio-Safety Level- 4 (BSL – 3 and 4). At least seven BSL – 3 and one BSL – 4 labs will be established under the health infrastructure which will include the up gradation of the existing BSL – 2 Labs.

4.23 The following laboratories may be upgraded from BSL – 2 and BSL – 3.

- a) Microbial Containment Centre, Pune
- b) National Institute of Communicable Diseases (NICD), Delhi
- c) National Institute of Cholera and Other Enteric Diseases, Kolkata
- d) Tuberculosis Research Centre, Chennai
- e) Entero - virus Research Centre, Mumbai
- f) PGI, Chandigarh
- g) JALMA, Agra

The tentative list of equipments required for BSL- 3 labs is at Annexure – VII.

4.24 Each District which has a potential target area should have a lab with a containment facility of level BSL – 1 and each State which has a potential target area will need to have a lab of the containment facility of level BSL – 2.

4.25 Establish international linkages for testing of pathological samples for hitherto unknown strains/ pathogens and their modes of treatment.

4.26 A terrorist attack using biological agents could also be by way of infecting imported livestock products viz. milk and milk products, met of goat, sheep, pig and poultry, egg and egg products, pet foods and other animal foods with the ingredients of animal origin. Arrangements for inspection of above imported items would be strengthened.

4.27 Laboratories will be developed at the port of entry and infrastructure created for impaction of livestock products being imported.

4.28 Registration of facilities of the exporters and their regular inspection will be made compulsory to prevent a bio-terrorism attack through imported livestock products.

Hospital preparedness

4.29 Four Hospitals in each metropolitan city and one hospital in each State/ UT with requisite infrastructure will be identified as associated medical institutions. These hospitals will be suitably geared up to handle mass casualty incidents resulting from a terrorist attack using biological agents. A minimum stock of medicines, vaccines and other material for handling a possible biological attack will be maintained at each identified hospital. The list, which also contains essential drugs/ equipment useful for natural calamities; is at Annexure – VIII.

4.30 The laboratory of the identified hospital to be upgraded to be able to handle diagnostic tests of all except the most virulent pathogens.

4.31 Physicians/ paramedical staff of the identified hospitals will be given orientation training to sensitize them on emerging infectious diseases with bio-terrorism potential and their case management.

4.32 SOPs for case management in case of an infectious disease outbreak/ rush of victims of a bio- terrorist attack to be drawn up for the identified hospitals.

Arrangement for vaccines/ drugs

4.33 Stocks of at least one million doses of small-pox vaccines would be ensured. MOH would identify the source. One National level small-pox vaccine producing centre would be made operational.

4.34 The indigenous drug/ vaccine production capability would be assessed and upgraded to meet the threat.

4.35 Stockpiling, distribution and administration of the vaccine in the target cities/ population at risk.

4.36 Sources of obtaining botulinum antitoxin at short notice to be identified.

4.37 Identify the drugs/ reagents which would be required for handling bio-terrorism attack; and identify the sources of procurement in advance.

Training

4.38 Training needs of doctors/ public health officers/ epidemiologists/ police/ civil authorities in the target districts would be identified and training curriculum and programmes evolved accordingly.

4.39 The laboratory personnel of the identified State and District level laboratories will be trained in handling the possible bio-terrorism agents. A training institution will be identified for this purpose and training courses will be organized.

Legal Provisions

4.40 Review and if necessary strengthen the legal framework as per illustrations at

Annexure – IX.

Epidemic Diseases Act, 1896

The Environment (Protection) Act, 1986

Rules for Manufacture, Use, Import, Export and Storage of Hazardous Micro Organisms, Genetically Engineered Organisms or Cells, 1989

Weapons of Mass Destruction (Prohibition of Unlawful Activities) Act 2005

Recombinant DNA Safety Guidelines, 1990

Revised Guidelines for Safety in Biotechnology, 1994.

Drinking Water arrangements

4.41 Source (s) of safe drinking water would be identified to be tapped in case of contamination of existing sources of town/ city till decontamination procedures is completed.

Data Base

4.42 GIS database to be maintained for areas in the target list showing maps/ roadmaps of identified areas, important places of gathering like schools, meeting places, community centres, fairs and festivals, strength of medical and paramedical staff, number of beds in all identified hospitals including railways & defense), location of sensitive installations, inventory of emergency services (fire, police and transport) etc.

Security Arrangements

4.43 Security for different types of biological agents being handled in different laboratories both public and private will be enhanced. A list of potential biological agents which would need appropriate security measures would be prepared by the Ministry of Health and intimated to IB. All laboratories which are handling these agents will inform IB as to the security measures in place for handling these agents. The IB will conduct a review of the security measures from time to time.

District Task Forces

4.44 In the identified target areas, the District administration will set up Task Forces as follows

Law and Order under SP.

Corpse and carcass disposal under the Municipal Administrator.

Transport under Regional Transport Officer/ District Transport Officer.

Food and Civil Supplies under the District Civil Supply Officer.

Decontamination arrangements under the Public Health Engineering Department.

Generating awareness amongst public in the targeted regions specifying the do's and don'ts by Civil Defense.

Mock Drills

4.45 Ministry of Health & Family Welfare will organize mock drills of the RRTs and other agencies responsible for the SOPs at least once every year. Separate SOPs will be laid down for mock drill/ exercises. The State Government would conduct mock drills through its RRTs and other agencies at least once a year to assess the preparedness.

Contact Details

4.46 The complete details i.e. name, designation, telephone nos. (office, residence, fax, mobile, e-mail) will be appended with this SOP and updated every year in respect of RRTs, the laboratories, identified hospitals, Central Ministries/ Departments/ Organizations and all the Technical Agencies involve.

Awareness Generation

4.47 Awareness generation among the public in vulnerable areas would be undertaken as a part of awareness generation for disaster management. Information suitable for the public domain will be identified from this SOP as well as the SOPs to be formulated by individual Ministries/ Departments/ Organizations/ Technical Agencies/ State Government/ UT Administrations and should be made available through suitable means of information dissemination and awareness generation.

Review

4.18 Review of the preparedness measures at the level of Cabinet Secretary once a year.

CHAPTER-5

NOTIFICATION OF PHASE

5.1 As soon as the surveillance mechanism indicates the incidence of a disease in increasing numbers pointing to a possible bio-terrorism attack, the following steps will be taken :-

- (i)The CMO will inform the District Magistrate/ Commissioner of Police.
- (ii)The District Magistrate will alert all the relevant agencies of the Government.
- (iii)The RRT would be mobilized for epidemiological investigation.

5.2 Standard case definitions would be circulated to the health functionaries through the official media.

5.3 The Centre/ State/ District Authorities would reiterate through print and visual media for all health institutions and professionals in Government and Private Sectors to notify the disease.

5.4 The quarantine and isolation protocols would be enforced.

5.5 Hospitals and Laboratories would be alerted for managing the clinical cases from the notified disease agent.

CHAPTER – 6

RESPONSE PHASE

6.1 Rapid Response Teams of the State/ District will investigate the causes of outbreak/ increased incidence of the disease and collect pathological samples and send it to the identified State/ National laboratories for testing. The team from the District will remain at the site till the diagnosis and proposed method of treatment is received. The reporting proforma by RRTs is at Annexure – X.

6.2 Where necessary, the National level RRTs/ QMRTs of MoD will be requisitioned by the Director Health Services of the State.

6.3 Hospitals to be informed of the incident and to be alerted for receiving the patients and their treatment.

6.4 If necessary, tented hospitals to be set up for treatment of patients. Doctors/ paramedical staff to be requisitioned from neighboring districts.

6.5 Measures to control the spread of infection/ quarantine measures to be instituted by CMO of the District/ Director, Health Services.

6.6 As soon as the pathogen is identified and treatment protocol received, it shall be disseminated to all identified hospitals/ clinics in the public/ private sectors of the District/ State.

6.7 SOP for laboratory testing for pathogen will be drawn up by the identified laboratory and will be circulated to the hospital laboratories/ other laboratories in the affected area.

6.8 Reagents for diagnosing the identified pathogen will be distributed to the designated hospitals and the District laboratories.

6.9 Medicines/ Drugs identified for treatment will be procured/ requisitioned and distributed to the designated hospitals.

6.10 Public to be taken into confidence to prevent panic. A list of do's and don'ts will be circulated through the print/ electronic media.

6.11 Hospitals will ensure appropriate isolation/ quarantine, waste disposal and personal protective measures so that no hospital staff/ community other patients are exposed to the infection.

6.12 All contaminated clothing / equipment etc will be carefully disposed off by incineration Annexure – XI.

6.13 Any attack involving use of biological agents like Bacillus Anthracis , Coxiella Bruneti and Clostridium Botulinum responsible for causing diseases in human beings will also have an impact on animal health in the affected areas. An impact assessment will be made by a team of experts, in the aftermath of such attacks and appropriate measures will be taken to prevent the spread of disease in animals.

CHAPTER – 7

[RESTORATION PHASE]

The damage done to public health utilities and the essential items utilized during the response phase will be replenished.

7.2 Public advisories will be issued regarding restoration of normalcy.

7.3 The District and the State RRTs will compile the data and analyze it to identify the deficiencies experienced in the implementation of the response measures. The

necessary modifications will then be incorporated in the contingency plan for future action.

Annexure – I

Agents likely to be used for Bio- terrorism

Sr. No.	Disease	Agent
1	Anthrax	Bacillus anthracis
2	Plague	Yersenia pestis
3	Tularemia	Francisella tularensis
4	Q fever	Cosiella brunetii
5	Botulism	Clostridium botulinum
6	Cholera	Vibrio cholerae
7	Shigellosis	Shigella dysenteriae (causes severe disease), S flexneri, S boyadii, S sonnei (Short clinical course)
8	Small pox	Variola virus
9	Viral Hemorrhagic fever	Ebola virus, Marburg virus, Lassa virus

Annexure – I – A

Brief summary of Agents likely to be used for Bio- terrorism

Diseases	Anthrax
Agent	Bacillus anthracis
Symptoms identifications	(a) Inhalation Anthras : (i) Mild non-specific onset like Upper Respiratory Tract infection (ii) Acute symptoms of Respiratory distress (iii) Fever & Shock after 3 to 5 days (iv) X-Ray findings of mediastinal widening (v) Death following toxemia & septicemia in 80% cases

	<p>B . Coetaneous anthrax</p> <p>(i) Onset as malignant pustule</p> <p>(ii) Progress to septicemia & death in 20 % cases</p> <p>(c) Intestinal anthrax</p>
	<p>(i) Explosive food poisoning type outbreak</p> <p>(ii) Fever with abdominal distress</p> <p>(iii) Septicemia & death</p>
Occurrence	<p>(1) Primarily disease of herbivores</p> <p>(2) Humans are incidental hosts</p> <p>(3) Occupational hazards among animal handlers & endemic in Asia, Africa, South & Central America, South East Europe</p>
Incubation Period	Few hrs to 7 days (most cases within 48 hrs.)
Communicability	Rare
Mode of transmission	<p>(a) By inhalation of spores through aerosol dispersion, dust, hides wool etc.</p> <p>(b) Contact with tissues of animal dying of the disease</p> <p>(c) Ingestion of contaminated meat</p>
Prevention & Control	<p>1. Action on occurrence of a case</p> <p>(a) Notification – reporting of cases to health authorities.</p> <p>(b) Isolation – May be isolated in Isolation Ward though not contagious, for better dis-infection as elaborated below and also nursing care.</p> <p>(c) All confirmed/ suspected cases to be administered procaine penicillin/ Benzyl Penicillin and treated as inpatient.</p> <p>(d) Dis -infection – both concurrent and terminal : following discharge/ death of patients</p>

	<p>Concurrent : Discharges – (i) By burning</p> <p>(ii) By contact with 5 % Cresol for 4 hrs</p> <p>Bedding & Linen : By chemicals with 0.5 % Cresol or 0.5 % Sodium Hypochlorite & Steam sterilization</p> <p>Floors & Walls : By scrubbing & spraying of 2.5 % Cresol</p>
	<p>(e) Wearing of protective clothing by attendants</p> <p>(f) Epidemiological investigation by searching for more cases and source of infection</p> <p>2. Control dust environment (better ventilation and mopping)</p> <p>3. Immunization – to all high risk persons only. Cell free vaccine prepared from culture filtrate though not available in India, can be Procured . Annual boosters if exposure continues.</p> <p>4. Care of skin abrasions and personal cleanliness</p> <p>5. Wearing protective clothing & gear for those who are at high risk</p> <p>6. Proper disposal of animal carcasses by incineration.</p>
(For Biological Warfare) Mode of transmission	<p>Inhalation of spores : By Powder form</p> <p>: By Aerosol sprays in vents/ tunnels</p>
Prevention & Control of	<p>(a) Immediate reporting to the police/ civil administration on receipt of any suspicious material through packets or suspicious exposure of aerosol</p>
	<p>(b) Washing thoroughly & dis-infection as mentioned above if there is accidental contamination</p> <p>(c) DO NOT –</p>

	<p>(i) Open any such unidentified or suspicious mail,</p> <p>(ii) Try to smell or taste such material</p> <p>(d) Immediate analysis of the material for Anthrax spores at local public health labs or referral labs</p> <p>(e) Persons handling mail and persons at risk where bioterrorism is suspected should wear protective clothing such as masks & gloves</p> <p>(f) Immunisation of all persons who are at high risk.</p> <p>(g) Treatment of confirmed cases of Anthrax ; Prolonged treatment with Antibiotics as mentioned above.</p>
Disease	Plauge
Agent	Yersenia pestis
Symptoms/ Identification	<p>Bubonic plague</p> <p>(i) Non specific onset with fever, chills, malaise, myalgia sore throat & headaches</p> <p>(ii) Lymphadenitis of drainage area of flea bite mostly Inguinal Region (90%) swollen, tender may suppurate</p> <p>(iii) Fever, Septecenia endotoxic shock, Disseminated Intravascular Coagulation (DIC) death</p> <p>(b) Pneumonic Plague (primary & secondary)</p> <p>(i) Onset similar as (a) (i) above.</p> <p>(ii) Signs & symptoms suggestive of pneumonia</p> <p>(iii) Fever with pleural effusion</p> <p>(c) Septecemic plague (primary or secondary to bubonic & pneumonic)</p>
Occurrence	<p>(1) Persists in environment in wild rodents</p> <p>(2) Human plague endemic in many countries of Africa, South East</p>

	Asia, China, and parts of S. America.
Incubation Period	1 to 7 days – Bubonic 2 to 4 days – Pneumonic
Communicability	Pneumonic – highly communicable
Mode of transmission	Rat flea Man Rodents, Cats
Disease	Tularemia
Agents	Francisella tularensis
Symptoms/ Identification	Depend on route of introduction: 1. Indolent ulcer with swelling of regional lymph node 2. Painful pharyngitis, abdominal pain, diarrhea & vomiting 3. Pneumonic involvement 4. Painful purulent conjunctivitis 5. Laboratory confirmation with serum specific Antibody
Occurrence	North America Europe
	China & Japan
Incubation Period	3 – 5 days
Communicability	Not from person. Ticks are infective throughout life time
Mode of transmission	a) Bite of wood tick, dog tick, star tick, deer fly b) Handling of or ingestion of insufficiently cooked meat of infected animals c) Drinking of contaminated water d) Inhalation of dust from contaminated soil, grains etc.
Prevention & Control	1. Prevention of bite of ticks & flies by use of personal protective Measures Avoid bathing, swimming or drinking water contaminated by 2. animals

	<p>3. Use of protective clothing while skinning / handling animals especially rabbits.</p> <p>4. Live attenuated vaccine applied intra- dermally (used in former USSR) to high risk groups especially animals handlers</p> <p>5. Action on occurrence of case –</p> <ol style="list-style-type: none"> a. Notify the case b. Isolation & prevention of man – vector contact c. Concurrent disinfection of discharges/ secretions d. Epidemiological investigation of contacts and search for source of infection
(For Biological Warfare) Mode of transmission	<ol style="list-style-type: none"> a) By aerosol dispersion of the bacteria to infect a large population b) Contamination of food and water by the bacteria can also be done c) Enzootic reservoirs among wild animals could be established which may serve as a future sources of infection.
Prevention & Control	<ol style="list-style-type: none"> a) Protective gears to be worn by susceptible persons if aerosol mode is suspected. b) Prompt isolation and prevention of man – vector contact c) Prior heating of water and all food stuff before consumption.
Disease	Q fever
Agent	Coxiella brunetii
Symptoms/ identification	<p>Onset sudden with fever & chills, retro bulbar headache,</p> <ol style="list-style-type: none"> 1. weakness, malaise and severe sweat. 2. May present as Pyrexia of Unknown Origin (PUO) 3. Pneumonitis on X-ray exam. 4. Acute or chronic granulomatous hepatitis

	<p>5. Emdpcarditis</p> <p>Laboratory confirmation – Specific Antibody detection by</p> <p>6. Immuno</p> <p>Flurescence (IF) in referral laboratories.</p> <ul style="list-style-type: none"> - Diagnostic isolation of coxiella by inoculation in white mouse and serial passage through them to identify the organism. - Complement Fixation Test (CFT) with Agar prepared from egg yolk
Occurrence	Reported from all continents especially where animals are being handled
Incubation period	2 – 3 weeks.
Communicability	Not from person to person
Mode of transmission	Airborne by dust/ grain contaminated by products of conception of animals & their excreta
Prevention & Control	1. Prevent access of people into sheds of infected animals

	<p>2. Immunization of person at high risk by an inactivated vaccine especially animals handlers and lab workers</p> <p>3. Adequate dis-infection and disposal of animal products of conception.</p> <p>Epidemiological investigation of contacts and search for more</p> <p>4. cases</p> <p>and source of infection.</p> <p>5. Specific treatment with Tetracycline or Chloramphenicol continued for several days till patient is afebrile</p>
(for Biological Warfare) Mode of transmission	<p>Aerosol mode most favored as it infects large number of people</p> <p>1. and</p> <p>also animals who in turn can re-infect others</p> <p>Food borne also a possibility as it is spread by food if</p> <p>2. contaminated.</p>

Prevention & Control	<ol style="list-style-type: none"> 1. Protective gears for those who are likely to be expose. 2. Preheating of all food stuff before consumption.
Disease	Botulism
Agent	Clostridium botulinum
Symptoms/ Identification	<p>a) Classical –</p> <ol style="list-style-type: none"> 1. Acute Bilateral cranial nerve involvement – visual difficulty/ dysphagia / dry mouth 2. Descending weakness/ Paralysis (flaccid) 3. Vomiting & Diarrhoea/ constipation may be present initially <p>b) Infant</p> <ol style="list-style-type: none"> 1. Constipation followed by lethargy, poor feeding, ptosis, dysphagia, loss of head control, generalized weakness – floppy baby; 2. Respiratory difficulty – death
Occurrence	Worldwide
Incubation period	12 – 36 hrs
Communicability	Not form person to person
Mode of transmission	<p>a) Ingestion of contaminated canned food containing preformed toxins which is improperly cooked</p> <p>b) Wound infection</p> <p>c) Infant botulism by ingestion of spores & germination in intestine.</p>
Prevention & Control	<ol style="list-style-type: none"> 1. Effective food processing while canning & preservation Information, Education & Communication (IEC) activity 2. emphasizing <ul style="list-style-type: none"> a. Proper cooking especially pressure cooking Bulging containers should not be opened & off odour foods b. not to be 'tested'

	<p>c. Food preservation techniques</p> <p>3. Action on occurrence of a case</p> <p>a. Report to local health authorities</p> <p>b. Concurrent dis-infection of containers used for cooking</p> <p>c. Prompt detection & treatment by Trivalent Botulism Antitoxin</p> <p>d. Management of Contacts : Those who are known to have also consumed the contaminated food should be given a cathartics, high enema, gastric labvage & kept under observations. At the earliest sign Antitoxin should be instituted.</p> <p>Epidemiological investigation for source of infection & search for more cases</p> <p>e.</p>
(For Biological Warfare) Mode of transmission	<p>1. Contamination of food with toxin or by the spores of the bacteria can lead to widespread explosive epidemic</p> <p>2. In experimental animals also known to spread by inhalation route.</p>
Prevention & Control	<p>1. Same as for Natural infection.</p> <p>2. In addition all food & water should be boiled or heat treated before consumption</p> <p>3. Strict security of all the plants engaged in processing and canning of food stuff.</p>
Disease	Cholera
Agent	Vibrio Cholerae
Symptoms/ Identification	<p>a) Sudden onset of painless and voluminous diarrhea, followed shortly by vomiting</p> <p>b) Rice – Water – Stools</p> <p>c) Features of Dehydration</p> <p>d) Muscle cramps</p>

	<p>e) Hypovolemic shock</p> <p>f) Lab diagnosis / confirmation –</p> <p>(i) Use of Cary Blair/ Vanuatu Raman (VR) Media R Media/ Alkaline peptone water as transport media</p> <p>(ii) Culture in Nutrient / Blood agar</p> <p>(iii) Selective plating media – Tourocholate Citrate Bile Salt (TCBS) Agar, GTTA</p> <p>(iv) Serological Tests : Agglutination Test</p> <p>Indirect Haemagglutination Test</p>
Occurrence	<p>El Tor Serotype – Endemic in Most part of Asia, Eastern Europe, Africa</p> <p>0139 Sero Var – Endemic in Bangladesh, China, India, Malaysia, Nepal, Pakistan & Srilanka</p>
Incubation period	24 to 48 hrs
Communicability	Till the organism is detected in stools i.e. few days after recovery. Use of Antibiotics shortens the period of communicability
Mode of transmission	Water & food borne especially raw and undercooked food
Prevention & Control	<p>Information, Education & Communication (IEC) activities on</p> <ol style="list-style-type: none"> 1. personal hygiene (of general population & food handlers) especially on hand washing & general sanitation 2. Sanitary disposal of feces, fly proofing of latrines. 3. Water treatment & purification 4. Control of flies 5. Food hygiene & sanitation – Use of chlorinated water for cooking. 6. Breast feeding of infants & boiling of milk. 7 Immunization : Partial protection (50%) with whole cell vaccine and live oral vaccine (not available in India) ‘Orachol’ – single dose gives high level of protection

	<p>Action on occurrence of case :-</p> <p>i. Notification :</p> <p>ii. Isolation : Enteric Isolation is important</p> <p>iii. Disinfection : Concurrent disinfection of vomiting & Feces, linen & items used by patient.</p>
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	<p>iv. Contacts : Epidemiological surveillance of contacts for 5 days. If transmission is detected chemoprophylaxis Doxycycline / Furoxone / Septran.</p> <p>v. Investigation – to find the source of infection</p> <p>vi. Specific treatment of cases – Rehydration, - Antibiotics' as for Chemoprophylaxis</p>
(For Biological Warfare) Mode of transmission	1. Contamination of public drinking water sources or food supplied to large population. Gatherings
Prevention & Control	<p>1. Adopt emergency measures to ensure a safe water supply</p> <p>2. Ensure careful preparation and supervision of food and drinks</p> <p>3. Drinking water sources and large kitchens where food is produced in bulk should be properly guarded and staff put on strict vigil.</p>
Disease	Shigellosis
Agent	Shigella dysenteriae (causes severe disease), S flexneri, S boydii, S sonnei (short clinical course)
Symptoms/ Identification	<p>1. Acute infection involving large and small intestine</p> <p>2. Characterized by diarrhea (with blood & mucous) with fever & nausea</p> <p>3. sometimes toxemia, vomiting, cramps & tenesmus.</p> <p>4. illness self limiting letting for 4-7 days.</p> <p>5. Laboratory diagnosis by</p>

	(a) Isolation of bacteria in faeces/ rectal swab (b) culture in selective media – CSLD & McConkey's agar
Occurrence	Worldwide :- Endemic in both tropical & temperate climates
Incubation period	1 to 3 days
Communicability	Till the presence of bacteria in faeces; usually up 4 weeks after illness. Asymptomatic carriers may transmit infection.
Mode of transmission	By faeco- oral route from patients or carriers
Prevention & Control	1. Same as for Cholera 2. no vaccine available 3. Notification
(For Biological Warfare) Mode of transmission	1. Contamination of public drinking water sources or food supplied to large population / gatherings
Prevention & Control	Adopt emergency measures to ensure a safe water supply Ensure careful preparation and supervision of food and drinks Drinking water sources and large kitchen where food is produced in bulk should be properly guarded and staff put on strict vigil.
Disease	Small pox
Agent	Variola virus
Occurrence	1. Onset with fever, backache prostration 2. Severe dermal eruptions on face, hands, legs & body in classical type 3. Milder infection in immunized persons 4. Flat type where the vesicles are flat and fever continues during eruption: high mortality
	5. Hemorrhagic type : severe prodromal period, bleeding from mouth, nose, haematuria with minimal eruption; high mortality

urrence	Nil, Stored at designated Laboratories at USA & Russia
Incubation period	10 to 15 days
Communicability	Highly contagious after eruption starts, scabs are also infective
(For Biological Warfare) Mode of transmission	1. Droplet infection 2. Skin contact {By introduction of the disease to a small group of people through inhalation route or direct skin contact of the virus. Being highly contagious hence would rapidly spread to secondary cases}
Prevention & Control	a. Verification of Diagnosis : By clinical & lab identification of virus b. Notification : Internationally notifiable. c. Concurrent & terminal disinfection d. Isolation of cases till all scabs fall off e. Search for new cases by Epidemiological investigation f. Mass vaccination of population residing in the near vicinity of the occurrence of the case. g. Protective clothing for contacts and those at high risk. h. Continue surveillance till six weeks of the last case.
Disease	Viral Hemorrhagic fever
Agent	Ebola virus Marburg virus Lassa virus
Symptoms/identification	i. Acute Viral illness ii. Sudden onset fever, myalgia, headache iii. Pharyngitis, vomiting, diarrhea iv. Maculopapular rash v. Hemorrhagic diathesis leading to hepatic and renal failure, shock vi. Laboratory diagnosis by ELISA for specific Immunoglobulin G

	(IgG) antibodies
Occurrence	<ol style="list-style-type: none"> 1. Ebola-many areas of sub Saharan & Saharan Africa 2. Marburg-only on 5 occasions this disease has been detected (in Africa countries) 3. Lassa : endemic in African countries like Sierra Leone, Libya, Guinea
Incubation period	<p>Ebola 2 – 21 days</p> <p>Marburg 3 – 9 days</p> <p>Lassa 6 – 21 days</p>
Communicability	As long as virus is in secretion
Mode of transmission	Direct contact with blood & infected secretion mainly noscomial Aerosol transmission for biological warfare
Prevention & Control	<ol style="list-style-type: none"> 1. Notification to local health authorities 2. Isolation of patient & treatment 3. Concurrent disinfection of all secretion of patients including all items with which the patient comes in contact – with 0.5 % sodium hypochlorite or 2.5 % cresol for bedding & linen and non disposable items – by heating /chemical treatment of secretion & discharge
	<ol style="list-style-type: none"> 4. Personal protective measures for patients handlers 5. Epidemiological investigation of contacts (in health care settings) 6. Specific treatment with antiviral drugs 7. Control rodent population (for Lassa fever)
(For Biological Warfare) Mode of transmission	By Aerosol mode to a large population and subsequent spread by human to human transmission as mentioned earlier
Prevention & Control	Same as for natural infection

Annexure – II

DISTINGUISHING BETWEEN A NATURAL OUTBREAK OF DISEASE AND BIO- TERRORIST ATTACK

Indicator	Intentional disease outbreak	Natural disease outbreak
Epidemiological features	<p>An outbreak that is unusual for a given geographic area or transmission season</p> <p>Unusual modes of transmission</p> <p>The occurrence of an epidemic with a similar disease or syndrome especially in a discreet population</p> <p>Multiple outbreak of an unexpected disease in a locality or in multiple localities. Clusters of patients arriving from a single locality or different vulnerable targets at the same time.</p> <p>Patients with a relatively uncommon disease that has bioterrorism potential (eg. Pulmonary anthrax, tularemia, plagues)</p> <p>Large number of patients</p>	<p>Outbreak having expected distribution in terms of time, place and person</p> <p>Transmission as per natural history of the disease</p> <p>Geographic Distribution on predictable lines.</p>

	with rapidly fatal illness (agent-dependent)	
Animal indicators	May have absence of vectors related to disease.	Vector of a disease present related to the outbreak
Devices, unusual liquid spray or vapour	Suspicious devices or packages	

Annexure – III

Differentiation of biological and chemical attack

Indicator	Chemical attack	Biological attack
Epidemiological features	<p>Large number of patients with very similar symptoms seeking care virtually simultaneously (especially with respiratory, ocular, coetaneous or neurological symptoms, e.g. nausea, headache, eye pain or irritation, disorientation, difficulty with breathing, convulsions and even sudden death)</p> <p>Clusters of patients arriving from a single locality.</p> <p>Definite pattern of symptoms clearly evident.</p>	<p>Rapidly increasing disease incidence (over hours or days) in a normally healthy population.</p> <p>Unusual increase in people seeking care, especially with fever, respiratory, or gastrointestinal complaints.</p> <p>Endemic disease rapidly emerging at an unusual time or in an unusual pattern.</p> <p>Large numbers of patients with rapidly fatal illness (agent-dependent)</p>

		Patients with a relatively uncommon disease that has bio-terrorism potential (e.g. pulmonary anthrax, tularemia, plague).
Animal indicators	Dead or dying animals Absence of insects normally present	Sick or dying animals or fish Unusual swarms of insect
Devices, unusual liquid spray or vapors	Suspicious devices or packages. Droplets, oily film Unexplained odors Low clouds or fog unrelated to weather.	Suspicious devices or packages.

Annexure – IV

Terms of reference of Rapid Response Team (RRT)

1. The Rapid Response Teams will be constituted in all the identified Districts and State Headquarters. The team will consist of a public health expert, laboratory expert, a clinician and an entomologist.
2. The RRTs will use the existing disease surveillance system and available laboratory surveillance data on a weekly basis to detect early warning signals of outbreaks as per the annexure enclosed.
3. Identify a team leader among RRT members with overall authority and accountability for rapid response.
4. Establish clear procedures for accessing funds and other resources for epidemic management.
5. Identify clear procedures for collection and transport of clinical material to concerned designated laboratories.
6. Identify competent laboratories for diagnostic confirmation.

7. Identify temporary shelters and/ or temporary hospitals in the event of severe epidemic emergency.
8. Update inventory of essential drugs quarterly.
9. Update information on health facilities including blood banks and manpower availability.
10. Institute quick, appropriate and effective area specific management of outbreak situations as follows;
 - a. To confirm the existence of an epidemic
 - b. Identify the outbreak with working case definition and estimating its magnitude and geographical distribution
 - c. Estimate its health impact in terms of morbidity and other losses
 - d. Describing the outbreak in terms of place, person and period distribution for understanding the population at risk, probable mode of spread and source of infection
 - e. To identify the etiological agent involved in the outbreak and arrange to send the material to concerned laboratories for confirmation of diagnosis.
 - f. Identify the most effective control measures, which will minimize the ill effects of outbreaks using the available clinical and epidemiological evidences. The control measures should not wait for the etiological diagnosis.
 - g. Assess local response capacity and seek the help of State/ National level RRTs if need arises.
 - h. Documentation of the episode and inform the higher authorities for dissemination of information & feedback.

JOB FUNCTIONS OF THE MEMBERS OF THE RAPID RESPONSE TEAM (RRT)

1. Microbiologist as RRT member:

- i. Help in development of infrastructure of district / peripheral laboratories for providing laboratory support to outbreak / epidemic investigation.
- ii. Participate in outbreak/ epidemic investigation and provide laboratory support.
- iii. Carry out / co-ordinate training programmer for district and peripheral laboratories under Integrated Disease Surveillance Programme (IDSP).
- iv. Carry out laboratory based surveillance of common epidemic prone diseases including antimicrobial resistance and agents of bioterrorism.
- v. Carry out quality assurance of district laboratories under IDSP.
- vi. Help in establishment of laboratory network.
- vii. Identify competent laboratories for diagnostic confirmation.

viii. Identify clear procedures for collection and transport of clinical materials to the concerned designated laboratories.

ix. Send regular laboratory based data to State and National level coordinating agencies.

2. Entomologist as RRT member :

i. Ensure availability of an Entomologist at the site of outbreak. If no entomologist is available, the service of an Entomologist from other areas to be utilized for the affected areas.

ii. Ensure availability of insecticides and equipment the areas identified as being prone to bio-terrorism.

iii. Periodic orientation and reorientation of entomologists working at the periphery with regard to surveillance and control of vectors, rodents and resources of human diseases.

iv. Regular supervision of the technical data of RRT which may include entomological data for monitoring the situation.

A. Function of Entomologist in Pre-Outbreak period (Prevention)

1. Based on epidemiological information, carry out surveillance of vector species frequently on regular

basis, for their seasonal density pattern.

2. Examine any unusual change in the vector density and investigate the reasons.

3. In case of rodent borne infection e.g. plague, any change in rodent behavior and the increase in

Parasite abundance.

4. Initiate immediate measures for the containment of vector density.

5. For rodent borne infections initiate anti-rodent measures in advance to prevent outbreak.

B. Functions of Entomologist in RRT (during Outbreak)

1. Identify species of Vectors involved in the episode.

2. Determine the density of the vector species in the affected area (s).

3. After assessment of the situation, suggest most effective vector control measures to prevent disease transmission.

3. Public Health Experts as RRT member

(i) The team will use the existing disease surveillance system and available laboratory surveillance data on a weekly basis to detect early warning signals of outbreaks.

(ii) Identify a team leader among RRT members with overall authority and accountability for rapid response.

(iii) Establish clear procedures for mobilizing funds and other resources for Epidemic management

(iv) Identifying temporary shelters and temporary hospitals in the event of severe epidemic / public health emergency.

(v) Update inventory of essential drugs on a quarterly basis.

(vi) Update information on health facilities including blood banks and manpower availability

(vii) Carry out the investigation along with the team

(viii) Institute quick, appropriate and effective area specific management of situations as outbreak

follows;

a. Confirm the existence of an epidemic

b. Identify the outbreak with working case definition and estimate its magnitude and geographical

distribution

c. Estimate its health impact in terms of morbidity and mortality and other losses

d. Describe the outbreak in terms of place, person and period distribution for understanding the population at risk, probable mode of spread and source of infection

e. Identify the etiological agent involved in the outbreak and arrange to send the material to concerned laboratories for confirmation of diagnosis.

f. Identify the most effective control measures, which will minimize the ill effects of such outbreaks using the available clinical and epidemiological evidences. The control measures should not wait for the etiological diagnosis

g. Assess local response capacity and seek the help of State/ National level RRTs if need arises.

h Document the episode/ outbreak and action taken and inform the higher authorities for dissemination of information & feedback.

4. Clinician as RRT member :

i. Participate in the investigation. Use of routine surveillance data to know the trend of the diseases.

ii. Examine and note the signs and symptoms of cases and make provisional diagnosis.

iii. Make a list of infected cases and deaths.

iv. Prepare a clinical definition based on the clinical presentation of cases for use by the health system.

- v. Make a provisional diagnosis and corroborate with the epidemiological and laboratory findings to the outbreak.
- vi. Advise the type of clinical samples to be collected in consultation with the laboratory expert.
- vii. Prepare a standard and clinical case management protocol for use of the health system
- viii. Assist in equipping the Hospitals/ Health Institutions in preparation of the management of cases.
- ix. Assist in preparing the report of the episode/ outbreak.

5.Chief Medical Officer of the district :

- i. Constitute a RRT in the district.
- ii. Arrange for their training.
- iii. Maintain a list of various hospitals, health facilities and laboratories in the district.
- iv. Provide required equipment, drugs and supplies.
- v. Strengthen surveillance system in the district and provide routine surveillance data to the RRTs.
- vi. Mobilize the RRT at short notice and ensure logistic support to it.
- vii. Initiate necessary action promptly on the advice of the RRT for containment of the situation.
- viii. Review the situation with RRT and monitor on daily basis.
- ix. Prepare report in consultation with RRT and disseminate.
 - xi. Coordinate with the district authorities and media agencies.
 - xii. Plan and organize appropriate information, Education and Communication (IEC) activities in order to avoid panic and to promote public cooperation.

Annexure – V

The possible epidemiological clues for which the public health system should be sensitized to capture the information and transmit it to the appropriate authority (District

/State nodal officers).

- The occurrence of an epidemic with a similar disease or syndrome, especially in a discrete population
- Many cases o unexplained diseases or deaths
- When the severity of the disease is more than the expected for a specific pathogen or failure to respond to standard therapy
- Unusual routes of exposure for a pathogen, such as the inhalation route for diseases that normally occur through other exposures

- A disease that is unusual for a given geographic area or transmission season
- Disease normally transmitted by a vector that is not present in the local area
- Multiple, simultaneous or serial epidemics of different diseases in the same population
- A single case of disease by an uncommon agent (smallpox, some viral hemorrhagic fevers)
- A disease that is unusual for an age group
- Unusual strains or variants of organisms, or antimicrobial resistance patterns different from those circulating
- Similar genetic type among agents isolated from distinct sources at different times or locations
- Higher attack rate in those exposed in certain areas, such as inside a building if released indoors, or lower rate in those inside a sealed building if released outside.
- Disease outbreak with zoonotic impact.
- Intelligence of a potential attack. Claims by a terrorist or aggressor of the use of such agents.

Annexure – VI

List of designated laboratories having the diagnostic capabilities but needing up gradations :

1. National Institute of Communicable Diseases, 22 – Sham Nath Marg, Delhi – 110 054 (Telephones : 011 – 23913148, 011 – 23971272 Fax : 011 - 23922677)
2. Departments of Microbiology, AIIMS, (Virology), (Telephone No. 011 – 26593288)
Defense Research Development Establishment, Gwalior
(Telephone No. 0751 – 2341550, 0751 - 2340730)
4. ICMR Institute :
 - National Institute of Cholera & Other Enteric Diseases, Kolkata (Diarrhoeal Diseases & other enteric pathogens). (Telephone No. 033 – 23501176, 033 - 23508493)
 - National Institute of Virology, Pune (Viral Diseases excluding HIV/ Polio) (Telephone No. 020 - 26124386)
 - Enter virus Research Centre, Mumbai (Enter viruses) (Telephone No. – 022 - 24148750)
 - Vector Control and Research Centre, (Vectors Filariasis) (Telephone No. – 0413 - 2372041)
 - Centre for Research in Medical Entomology, Madurai (Vectors & other vector borne diseases) (Telephone No. – 0452 - 2530746)
5. Institutes of Department of Biotechnology :
 - National Institute of Immunology, Aruna Asaf Ali Marg, JNU Campus, New Delhi – 110067 (Telephone No. – 26717102, 26717103)

•Centre for DNA Finger Printing and Diagnostics, 4-87/1, ECIL Road, Nacharam, Hyderabad – 5600076 (Telephone No. – 040 – 7155604, 5497)

•National Centre for Cell Science, NCCS Complex, Ganesh khind, pune – 411007 (Telephone No. – 020 – 56909-31)

Other laboratories will be identified to have a network of laboratories throughout the country with some up gradation. These can be Christian Medical College (CMC) Vellore, Institute for Preventive Medicine (IPM) Hyderabad, Medical College Imphal, BJ Medical College Gujarat, School of Tropical Medicines, Calcutta, PGI Chandigarh, Shimla Medical College. Tentative list of consumables and equipments are also enclosed.

Annexure – VII

List of equipments required for Laboratory handling samples from cases following Bioterrorist attack.

Microbiology Division.

1. Biosafety (BSL - 3) Cabinet

2. Mask

3. Gloves

4. Mask with disposable filter

5. Eye protector goggles

6. Disposable Gowns, cap, shoe cover

7. Biohazardous waste container – 20 litre capacity

8. Safety waste system for disposal of solvents, chemical and other biological waste – 20 Litre capacity.

9. Biosafety bag autoclavable, puncture resistant of different color code.

10. Hypochlorite (5 %)

11. Hand disinfectant solution.

12. Dispenser with stand for hand disinfectant.

13. Needle/ syringe destroyer

14. Double wall vertical Autoclave.

15. Humidifier / fumigation electrical operated.

16. Pipette (battery operated)

17. Triple container system for collection transport of hazardous samples.

18. Incinerator

19. Trolley for waste collection and disposal.
20. Any other items pertaining to biosafety measures being followed.
21. Chemical/ glass ware/ plastic ware and other consumables pertaining to laboratory requirements.
22. Real time Polymerized Chain Reaction (PCR) on-line gene sequencing detection system
23. Sequencer
24. Microwave Oven
25. Water Bath
26. Enzyme Linked Immuno Sorbent Assay (ELISA) reader
27. Automatic plate washing system
28. Biological Oxygen Demand (BOD) Incubator
29. Hot Air Oven
30. Class I and II Laminar Flow
31. pH Meter
32. Hand held pH meter
33. pH paper strips with various range
34. Deep Freezer – 200 Celsius
35. Micro Tips with different capacity
36. Micro pipettes
37. Multi channel Micro pipette
38. Trans Illuminator
39. Co2 Incubator
40. Vortex Mixer
41. Magnetic Stirrer
42. Automatic Washing Machine
43. Water Purifier system
44. Computer with internet
45. Ice making machine
46. Dry ice making machine

- 47.Co2 gas cylinder
- 48.Filter device unit
- 49.Automatic media dispensing device
- 50.Bactec system
- 51.Microscope with phase contrast and dark field microscopy attachment
- 52.Inverted microscope
- 53.Fluorescent microscope
- 54.Para film
- 55.Tough tags
- 56.Micro Lab kit containing 24 essential items required daily in microbiology, clinical and biotechnology laboratory.
- 57.High Power Liquid Chromatography (HPCL) system
- 58.Fax Machine.
- 59.Standard reference reagents for viruses and bacteria of Bioterrorist attack to be arranged from WHO.

Equipments required especially for Anthrax, Plague

- | | | |
|--|--------------|---|
| 1. BSL – 3 cabinet | - | 1 |
| 2. BOD Incubators | - | 2 |
| 3. Cold centrifuge with different heads | - | 1 |
| 4. Jacketed Autoclaves | - | 1 |
| 5. Hot Air Oven | - | 2 |
| 6. Fluorescent Microscope with Camera- | 1 attachment | |
| 7. Binocular Microscopes | - | 2 |
| 8. Deep Freezer - 200 Celsius | - | 1 |
| 9. Refrigerators | - | 2 |
| 10. Milli 'Q' Water purification system- | | 1 |
| 11. APIQ system | - | 1 |

Reagents

- 1.R- phage

- 2.Reagents, chemicals and strips for API system
- 3.Standard strains of Bacillus anthracis.
- 4.Panel of positive and negative control sera for plague.
- 5.Anti F-1 IgM capture ELISA Test reagents for plague.
- 6.F-1 antigens capture ELISA test reagents for plague.
- 7.FITC conjugated rabbit anti-F-1 antigen polyclonal serum.
- 8.Peroxidase conjugated rabbit anti F1 antigen polyclonal serum. Additional Equipment :

1.	RCR Thermal Cycler
2.	Gel documentation
3.	Laminar flow with adjustable motor stool stand
4.	Dry bath
5.	Micro centrifuge
6.	Gel Electro process system with power supply
7.	Refrigerated Centrifuge
8.	Ultra low temperature double door freezer with deluxe CO2 back up system
9.	Electric Balance
10.	Heated Circulating bath
11.	Chemical/ consumable and plastic ware for PCR test

Annexure – VIII

LIST OF REQUIREMENTS OF EMERGENCY DRUGS, MATERIALS AND CONSUMABLES

Disease agents	Medicines/ Vaccines
Anthrax	Fluoro Quinolones
	Doxycycline
	Penicillin
	Erythromycin
	Inactivated cell free anthrax vaccine

	0.5 % Hypochlorite solution for decontamination
Plauge	Tetracycline
	Chloramphenicol
	Streptomycin
Tularaemia	Streptomycin
	Gentamycin
	Tetracycline
Coxiella burnetti	Tetracycline
	Doxycycline
	0.01 % Lysol solution
Botulism	Polyvalent botulinum antitoxin
	Penicillin
Cholera	Oral Rehydration Solution
	Ringer lactate solution
	Tetracycline
	Doxycycline
	Co-trimoxazole
Shigellosis	Ciprofloxacin
	Ofloxacin
	Co-trimoxazole
	Ringer lactate solution
	Nalidixic acid
	Ampicillin
Small pox	Smallpox vaccine
	Human vaccinia immune globulin
Viral hemorrhagic fever including Ebola	Ribavirine- antiviral drug
	0.5% Phenol
	0.5 % Sodium Hypochlorite solution

Equipment

Nail Brush, Plastic, autoclavable	2 units
Bucket, Plastic approximately 12 litres	2 units
Gallipot, Stainless Steel, 100 ml	1 unit
Kidney dish, stainless steel, approximately 26 x 14 cm	1 unit
Dressing set (3 instruments + box) <ul style="list-style-type: none"> • One stainless steel box approximately 17 x 7 x 3 cm. • One pair surgical scissors, sharp/ blunt, 12-14 cm • One Kotcher forceps, no teeth, straight 12- 14 cm • One dissecting forceps, no teeth, 12 – 14 cm 	2 units
Dressing tray, stainless, approximately 30x15x3 cm	1 unit
Drum for compresses with lateral clips 15 cm H diam. 15 cm	2 units
Foldable jerrycan, 20 litres	1 unit
Forceps Kocher, no teeth, 12-14 cm	1 unit
Plastic Bottle, one Litre	3 units
Syringe Luer, disposable, 10 ml	1 unit
Plastic Bottle, 15 ml	1 unit
Scissors Straight/ blunt, 12-14 cm	2 units

Supplementary supply for 1000 persons for three months DRUGS Quantity

Anesthetics

Ketamine, inj. 50 mg/ml, 10 ml/vial 25 vials

Lidocain, inj. 1 % 20 ml/vial 50 vials

Analgesics

Morphine inj. 10 mg/ml, 1 ml ampoule 50 ampoules

Acetylsalicylic acid tablet 300 mg 30000 tablets

Paracetamol tablet 100 mg 10000 tablets

Anti-allergics

Hydrocortisone powder 100 mg for injection in One vial 50 vials

Prednisolone, 5 mg tablet 100 tablets

Epinephrine (Adrenaline) Antidotes

Antidotes

Naloxone injection 0.4 mg/ml, 2 ml ampoule 20 ampules

Anticonvulsants / Anti-epileptics

Dizepam, in 5 mg/ml – 2 ml ampoule 200 ampules

Phenobarbital tablet, 50 mg 1000 tablets

Anti-infective drugs

Amoxicillin, tablets/ Capsules 250 mg 3000 tabs/caps

200 vials

Ampicillin, injection 500 mg/vials

Benzathine Benzylpenicillin inj. 2.4 million IU/vial (long acting penicillin)	50 vials
Benzylpenicillin, inj 5 million IU/ml	250 vials
Chloramphenicol, caps 250 mg	2000 capsules
Chloramphenicol, inj 1 g/vial	500 vials
Doxycycline, tablets/ capsules 100 mg.	2000 tabs/capsules
Metronidazole, tablets 250 mg	2000 tablets
Nystanin, vaginal tablets, 1000000 IU/tabs	1000 tablets
Nystanin, vaginal tablets, 1000000 IU/tabs	1000 tablets
Procain Benzylpenicillin, inj 3-4 million IU/vial	750 vial

Quinine, inj 300 mg/ml 2 ml/ampoule	100 ampoule
Quinine, sulphate, tablets 300 mg	3000 tablets
Sulfadoxine + Pyrimethamine, tablets, 500 mg+ 25 mg	300 tablets
Mewbendazole, tablets 100 mg	5000 tablets
Cotrimoxazol, tablets 400 + 80 mg	20000 tablets
Chloroquine, tablets 150 mg	20000 tablets
Drugs affecting the Blood	
Folic acid, tablet 5 mg	1000 tablets
Ferrous Sulphate + folic acid, tablet 200 + 0.25 mg	20000 tablets
Cardiovascular drugs	
Methyldopa, 250 mg	500 tablets
Hydralazine, inj. 20 mg/ampoule	20 ampoules
Dermatological drugs	
Polyidone iodine 10 %, sol, 200 ml bottles	10 bottles
Silver sulfadiazine cream 1 %, 50 g tube	30 tubes
Benzoic acid 6 % + Salicylic acid 3 % ointment, 40 g tube	25 tubes
Benzyl Benzoate lotion 25 %	1 litre
Gentian Violet powder	1000 gm
Tetracycline eye ointment, 1 % 5 mg tube	500 tubes

Diuretics	
Flurosemide, inj 10 mg/ml/ampoule	20 ampule
Hydrochlorothiazide, tablet 25 mg	200 tablets
Gastrointestinal drugs	
Promethazine, tablet 25 mg	500 tablets
Prometnazine, inj 25 mg/ml, 2 ml/ampoule	50 ampoules
Atropine, inj 1 mg/ml, 1 ml/ampoule	50 ampoules
Aluminium hydroxide, tablet 500 mg	10000 ysn;ryd
Oxytocies	
Oxytocin inj 10 IU/ml, 1 ml/ampoule	20 ampoules
Psychlotherapeutic drugs	
Chlorpromazine, inj 25 mg/ml, 2 ml/ampoule	20 ampoule
Respiratory tract, drugs	
Salbutamol, tablet 4 mg	1000 tablets
Aminophylline, inj 25 mg/ml, 10 ml/ampoule	50 ampoules
Epinephrine (Adrenalin) inj 1 mg/ml, 1 ml/ampoule	50 ampoules
Solution correcting water, electrolyte and acid base disturbances	
Compound solution of sodium latate (Ringer's lactate) inj sol, with giving set and needle, 500 mg/bag	200 bags
Glucose, inj sol 5% with giving set and needle, 500 ml/bag	100 bags
Glocose, inj sol 50 %, 50 ml/vial	20 vials
Water for injection, 10 ml vials/ ampoules	2000 amps/ vials
Oral re-hydration salts	2000 sachets

Vitamins	
Retinol (Vitamin A), caps 200000 IU Capsule	4000 capsules
Ascorbic Acid, tablet 250 mg	4000 tablets
Renewable supplies	
Scalp vein infusion set, disposable 25 G (diam, 0.5 mm)	300 units
Scalp vein infusion set, disposable 21 G (diam, 0.8 mm)	100 units
IV placement canula, disposable, 18 G (diam, 1.3 mm)	15 units
IV placement canula, disposable, 22 G (diam, 0.8 mm)	15 units
IV placement canula, disposable 24 G (diam, 0.7 mm)	15 units
Needle Luer IV, disposable 19 G (diam, 1.1 mm x 38 mm)	1000 units
Needle Luer IM, disposable 21 G (diam, 0.8 mm x 40 mm)	2000 units
Needle Luer SC, disposable 25 G (diam, 0.5 mm x 16 mm)	100 units
Spinal Needle, disposable, 22 G (diam, 0.7 mm x 40 mm) black	25 units
Syringe Luer, resterilizable, nylon, 2 ml (diam, 0.9 mm x 90 mm)	20 units
Syringe Luer, resterilizable, nylon, 5 ml	100 units
Syringe Luer, resterilizable, nylon, 10 ml	40 units
Syringe Luer, disposable , 2 ml	400 units
Syringe Luer, disposable , 5 ml	500 units
Syringe Luer, disposable , 10 ml	200 units
Syringe Luer, conical connector (for feeding) , 60 ml	20 units
Feeding tube, CII 5 or 6 (premature baby), Luer tip, 40 cm disposable	20 units
Feeding tube, CH 8, Luer tip, 40 cm disposable	50 units
Feeding tube, CH 16, Conical tip 125 cm disposable	10 units
Urinary Catcher (Foley), (No. 12 disposable)	10 units
Urinary Catcher (Foley), (No. 14 disposable)	5 units
Urinary Catcher (Foley), (No. 18 disposable)	5 units

Surgical Gloves, sterile and re-sterilizable No. 6.5	50 pairs
Surgical Gloves, sterile and re-sterilizable No 7.5	150 pairs
Surgical Gloves, sterile and re-sterilizable No. 8.5	50 pairs
Gloves, examination non sterile disposable	1000 pairs
Sterilization test tape (for autoclaves)	2 Rolls
Thermometer, Celsius, clinical, flat type	60 units
Spare bulb for otoscope	4 units
Batteries R6 alkaline AA size (for otoscope)	12 units
Ball pens	100 units
Hard cover exercise book	5000 units

Review of various Acts and Laws :

Environment (Protection) Act, 1986

It defines an environmental pollutant as any solid, liquid or gaseous substance present in such concentration as may be, or tend to be ,injurious to the environment.

Genetically modified organisms are also regulated in India under the Indian Environment (Protection) Act of 1986. The objective of the EP Act is the protection and improvement of the environment. Under this Act, “the Central Government shall have the power to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing controlling and abating environmental pollution”.

The measures may include “examination of such manufacturing processes, materials and substances as are likely to cause environmental pollution”. A hazardous substance for the purposes of this Act, means “ any substance or preparation which by reasons of its chemical or physio-chemical properties on handling, is liable to cause harm to human beings, other living creatures, plants, micro-organisms, property or the environment”. It also provides for “inspection of any premises, plants, equipment, machinery, manufacturing or other process, materials or substances and giving, by order to take steps for the prevention, control and abatement of environment pollution”.

The Central Government may appoint officers, for purposes of this Act any duty entrusted to them powers to issue directions, which includes the power to direct the closure, prohibition or regulation of any industry, operation or process or stoppage or regulation of the supply of electricity or water or any other service.

The Central Government may make rules for the procedures and safeguards for the handling of hazardous substances, prohibition and restrictions on the handling, and on the location of industries and carrying on processes and operations in different areas.

Any person empowered by the Central Government “shall have a right to enter for the purpose of examining and testing any equipment, industrial plant, record, register, document or any other material, object or for conducting a search of any building in which he has reason to believe that an offence has been or is being or is about to be committed and for seizing any such equipment, industrial plant, record, register, document to prevent or mitigate environmental pollution.”

If any person willfully delays or obstructs in the performance of this function, he shall be guilty of an offence under this Act.

The Central Government “shall have powers to take for the purpose of analysis, samples..from any factory, premises or other places in such manner as may be prescribed.

Whoever fails to comply with or contravenes any of the provisions of this Act, shall be punishable with imprisonment for a term which may extend to five years or with a fine which may extend to one lakhs rupees or with both, and in case the failure or contravention continues, with an additional fine which may extend to five thousand rupees per day.

No civil court shall have jurisdiction to entertain any suit or proceeding in respect of anything done, action taken or order or direction issued by Central Government under this Act.

The Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005.

According to this Act :

- No person shall unlawfully manufacture, acquire, possess, develop or transport a biological or chemical weapon or their means of delivery.

- No person shall unlawfully transfer, directly or indirectly, to any one biological or chemical weapons.

- No person shall unlawfully transfer, directly or indirectly; to any one missiles specially designed for the delivery of weapons of mass destruction.

This Act also prescribes penalties and punishments for aiding non-State actors or terrorists as also for unauthorized export, etc.

Epidemic Diseases Act, 1896

This Act gives powers to take special measures and prescribe regulations as to dangerous epidemic diseases. It states that when the Government “is satisfied that the state or any part thereof is visited by, or threatened with, an outbreak of any dangerous epidemic disease, the Govt., if it thinks that the ordinary provisions of the law for the time being in force are insufficient for the purpose, may take such measures as shall deem necessary to prevent the outbreak of such disease or the spread thereof.”

Rules for genetically modified organisms

The Ministry of Environment and Forests used the broad definition of ‘ environmental pollutant’ as given in the 1989 Act to issue a set of legally binding rules to govern use of genetically engineered organisms under the Environment (Protection) Act.

The 1989 'Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms, Genetically Engineered Organisms or Cells' constitute the legally binding regulatory framework for genetically modified organisms in India. As required by the 1989 Rules, bio-safety guidelines were first issued by the Department of Biotechnology under the Ministry of Science and Technology in 1990. These guidelines were revised and expanded in 1994 and 1998.

The Indian Bio-safety Regulatory framework, comprising the 1989 Rules and the 1990, 1994 and 1998 Department of Bio Technology guidelines, covers the entire spectrum of activities relating to genetically modified organisms. This includes "research involving genetically modified organisms, as well as genetic transformations of green plants, Recombinant DNA technology in vaccine development, and large-scale production and deliberate/ accidental release into the environment of organisms, plants, animals and products derived from DNA technology." Production facilities such as distilleries and tanneries that use genetically modified organisms are also covered.

The 1990 'Recombinant DNA Safety Guidelines' and 1994 'Revised Guidelines for Safety in Biotechnology' provide guidance on containment and safe laboratory practices for Genetically Modified Organisms (GMOs) in the agricultural and pharmaceutical sectors. They also, however, contain an important change from the 1989 Rules in their treatment of deliberate release of GMOs. While the 1989 Rules effectively banned such releases (permitting them only under special circumstances), the 1990 guidelines permit them, with a shift to assessing and managing ecological and health risks that might result.

Annexure - X

PROFORMA FOR REPORTING INCIDENTS BY RRT

General Information

State :-----
 :-----
 District -----
 :-----
 Town/ :-----
 Village -----
 :-----
 Ward/ :-----
 Village -----
 :-----
 Popula :-----
 tion -----

Background Information

Person reporting the outbreak :-----

 Date of :-----

report

Date investigations started

:-----

Person (s) investigating the outbreak

:-----

Details of Investigation

Describe how the cases were found (may include: (a) house-to-house searches in the affected area; (b) visiting blocks adjacent to the affected households; conducting record reviews at local (c) conducting record reviews at local hospitals; (d) requesting health workers to report similar cases in their areas, etc):

Descriptive Epidemiology

I. Cases by time, place and person (attach summary tables and relevant graphs and maps).

II. Age-specific attack rates and mortality rates

III. High-risk age-groups and geographical areas.

Description of Control Measures taken

Description of Measures for Follow-up Visits:

Brief Description of Problems encountered

Factors which, in your opinion, contributed to the Outbreak

Conclusions and Recommendations

Date (Name and Designation)

Note : This report should be submitted by the investigating Officer (State/District/Public Health Centre (PHC) Nodal Officer to the next higher authority within a week of completion of investigation. Tables and Graphs should be included wherever appropriate.

Guidelines for management of bio-waste in health facilities and bio-safety measures

WASTE MANAGEMENT

Hospitals/ laboratory waste is a potential reservoir of pathogenic micro-organisms and requires appropriate handling. The commonest documented transmission of infection from waste to health care workers is through contaminated metallic wastes.

Principles of waste management

The “Cradle to grave” concept of waste management

- Hospital waste requires management at every step from generation, segregation, collection, transportation, storage, and treatment to final disposal.
- Segregation of waste into the prescribed categories must be done at the source i.e. at the point of generations.
- Color coded bags as per international norms need to be placed in appropriate containers with the appropriate label/logo e.g. biohazard symbol for infectious waste.
- Puncture proof containers made of plastic or metal with a biohazard symbol, in blood collection areas, injection trolleys and nursing stations, and operation theatres should be made available for collecting metallic wastes.
- A collection system for the transport of segregated wastes i.e. carts need to be provided for transportation of waste to the site of incinerator.
- A storage area for wastes which already has been disinfected prior to incineration needs to be demarcated.

Treatment of hazardous and infectious wastes

Sharps Alternatives available include :

- Needle burners at the workstation site ;
- Puncture proof containers, which can be autoclaved shredded and land filled or microwave/shredded and land-filled or treated by plasma pyrolysis ;
- Deep burial in a secured area,
- Cutting of needles using needle destructor, which is a mechanical method of disfigurement to avoid recycling, but is not a disinfections modality.

Wastes requiring incineration

- Anatomical parts and animal carcasses, and

Cytotoxic drugs (outdated) toxic laboratory chemicals other than mercury.

- Patient contaminated non-plastics and non-chlorinated plastics. Wastes that cannot be incinerated are

Chlorinated plastics, volatile toxic wastes Such as mercury.

Patient-contaminated plastics, non-plastics and infectious laboratory wastes should be treated by steam sterilization in autoclavable bags or microwave treatment. Shredding should follow both these methods. In case of non-availability of the above, chemical

treatment with 1% hypochlorite or similar is recommended. However, excessive use of chemical disinfectants may be a health and environmental hazard.

Radioactive wastes

These are dealt with according to local laws & per guidelines of Bhabha Atomic Research centre.

Used Laundry handling & decontamination

Two categories of used linen are recognized. Where there is visible contamination by blood, faeces of other biological fluids, it is termed “contaminated” Other linen is termed “soiled” These two categories should be segregated and treated separately-

- All linen should be handled with minimum agitation to avoid aerosolization of Pathogenic micro-organisms.
- Contaminated linen may be the source of infection to patients and staff and should be placed in impervious bags for transportation.
- Disinfection can be achieved by using hot water and/or bleach, using heavy- dutygloves ,eye protection and masks to protect against splashes.
- Heavy-duty washers/dryers are recommended for hospital laundry.
- Laundered linen should be autoclaved before being supplied to the operating rooms/ Theatres and high risk areas e.g. burns units and transplant units.

NO linen should leave the hospital premises unless it has been decontaminated either by boiling or autoclaved.

Sterilization and disinfections

(1) Sterilization

- Sterilization is the destruction of all micro-organisms including bacterial spores. Operationally, this is defined as a decrease in the microbial load by 10. Sterilization can be achieved by either physical or chemical means.
- Plastics such as polyethylene and polypropylene are suitable only for sterilization with chemical or low temperature methods.
- Sterilization is necessary for medical devices penetrating sterile body sites, as well as all parenteral fluids and medications.
- Cleaning to remove visible soiling in reusable equipment should precede sterilization.
- All materials must be packed before sterilization. Only packed sterilized materials should be described as sterile.

Materials for packaging include :-

•Paper: This prevents contamination if intact and can also be used to wrap used devices after the procedure.

•Non-Woven disposable textiles

•Containers: These can be used only if they contain material intended for a single treatment procedure for a single patient. They must be provided with a filter and a valve, and must be monitored regularly. The end-user check the physical integrity of the package before use.

•Quality control parameters for the sterilization process record information on the sterilization processing cycle and serve as a checklist for the CSSD;

Load number

Load content

Temperature and time exposure record chart

Regular physical/ chemical testing

Regular biological testing

Regular maintenance must be performed and documented.

(2) Disinfection

Disinfection is a process by which vegetative micro i.e. growing forms of pathogenic organisms are killed.

An antiseptic is a non-toxic disinfectant that can be used on skin and living tissues.

Decontamination is a process by which vegetative micro-vegetative micro-organisms are killed. Before cleaning, such processing may be required to make soiled instruments or material safe for handling and further processing.

Common Disinfectants

Name	Used for article	Precautions
Sodium hypochlorite 1% in use dilution 5% solution to be Diluted 1:5 in tap water.	Disinfections of material contaminated with blood and body fluids	<ul style="list-style-type: none"> • Should be used in well- ventilated areas. • Protective clothing required while handling and using undiluted • Not to be mixed with

		<p>strong acids to avoid release of chlorine gas</p> <ul style="list-style-type: none"> • Corrosive to metals
Bleaching powder 7g/liter with 70% available chlorine	Toilets, bathrooms, may be used in place of liquid bleach if liquid bleach is not available.	<ul style="list-style-type: none"> • Same as above
Alcohol (70%) Isopropyl, ethyl Alcohol, methylated spirit.	Smooth metal surfaces, table tops and other surfaces on which bleach cannot be used.	<ul style="list-style-type: none"> • Flammable, toxic, to be used in well-ventilated area, avoid Inhalation. • To be kept away from heat sources, electrical equipment, flames, hot surfaces. • Should be allowed to dry completely, particularly when using diathermy as it can cause diathermy burns.
Glutaraldehyde (2%)	For dis-infection of endoscopes, respiratory therapy equipment and for materials that are destroyed by heat. Can work as a	<ul style="list-style-type: none"> • Eye and nasal irritant, may cause asthma and skin allergies, hence should be used in well

	sterilant if contact time is 6-8 hrs and if used under strictly controlled condition.	<ul style="list-style-type: none"> ventilated area, keep covered with well fitting lids. Eye protection, plastic apron and plastic apron and gloves should be worn while handling

Disinfectant	Articles	Comments
Detergent with enzyme	Cleaning endoscopes, surgical instruments before dis-infection	
Chlorhexidine combined with alcohol or detergents	Antiseptic, for skin and mucous membranes, Preoperative preparation, skin dis-infection of hands	<ul style="list-style-type: none"> Inactivated by soap, organic matter Relatively non toxic Should not be allowed contact with brain meninges/eye or ear
Quaternary Ammonium Compounds (e.g Dettol) May be combined with chlorhexidine	Antiseptic, for cleaning dirty Wounds (Low level dis-infection only)	<ul style="list-style-type: none"> Relatively non toxic Dilutions in use are likely to get contaminated and grow gram negative

bacteria

- Should be used in correct dilution

- Solution in use should be changed every 8 hours
- Stock bottle should not be topped up

BIOSAFETY PRECAUTIONS

Standard/universal precautions

With the onset of the AIDS pandemic, the concept of universal precautions has been adopted i.e precautions that should be practiced with all patients and laboratory specimens regardless of diagnosis. It is presumed that every patient/specimen could be potentially infected with blood born pathogens such as HIV, hepatitis B and C. Universal (Standard) precautions are applied to all patients regardless of diagnosis, instead of universal testing. The main objective is to prevent exposure of staff and patients to blood and body fluids.

Body fluids considered to be potentially infected with blood-borne pathogens are: semen, vaginal secretions, amniotic fluid, pericardial fluid, pleural fluid, cerebrospinal fluid, synovial fluid or any body that is visibly contaminated with blood. Spills of blood or body fluids should be treated with hypochlorite.

Universal precautions do not apply to the following unless they contain visible blood: Faeces, nasal secretions, sputum, tears, urine, vomitus, breast milk and saliva. Since the

above may have the potential to transmit other pathogens. Precautions should also be applied to all body secretions and excretions. Spills of blood or body fluids should be treated with hypochlorite.

Standard precautions also apply to unfixed tissue and al pathological and laboratory specimens.

(1) Procedures for standard precautions

Hand decontamination

The role of hands in the transmission of hospital infections has been well demonstrated, and can be minimized with appropriate hand hygiene. Compliance with hand washing, however, is frequently sub-optimal. This is due to a variety of reasons, including lack of appropriate accessible equipment, high patient to staff ratios, allergies to hand washing products and insufficient knowledge of staff about risks and procedures.

Hand washing is the single most important means of preventing the spread of infection. Hand should be washed between patient contacts and after contact with blood/body fluids, secretion, excretions and equipment or articles contaminated by these.

HAND WASHING

The following facilities are required;

- Running water: large washbasins with hands free controls, which require little maintenance and with anti-splash devices.

- Products: dry soap or liquid antiseptic depending on the procedure.
- Suitable material for drying of hands; disposable towels, reusable sterile single use towels or roller towels which are suitably maintained.

For hand dis -infection

The specific hand disinfectants - antiseptics recommended are: 2-4% chlorhexidine, 5-7.5% povidone iodine, 1% triclosan or alcoholic rubs.

Alcoholic hand rubs are not a substitute for hand washing, except for rapid hand decontamination between patient contacts.

For surgical scrub (surgical care)

Training is needed in the current procedure for preparation of the hands prior to surgical procedures.

Scrubbing of the hands for 3-5 minutes is sufficient. The recommended antiseptics are 4% chlorhexidine or 7.5% povidone iodine.

Equipment and products are not equally accessible in all countries or health care facilities. Flexibility in products and procedures, and sensitivity should be instituted.

Clothing

Staff can normally wear clean street clothes. In special areas such as burn or intensive care units/uniform trousers and a short-sleeved gown are required for men and women.

The working outfit must be made of a material easy to wash and decontaminate. If possible, a clean outfit should be worn each day. An outfit must be changed after exposure to blood or if it becomes wet through excessive sweating or other fluid exposure.

Shoes

In aseptic units and in operating rooms, staff must wear dedicated shoes, which must be easy to clean. In other areas, change of footwear is unnecessary for prevention of infection.

Caps

In aseptic units, operating rooms, or performing selected invasive procedures, staff must wear caps or hoods which completely cover the hair.

Masks

Masks of cotton wool, gauze, or paper masks are ineffective. Paper masks with synthetic material for filtration are an effective barrier against micro-organisms. Masks are used in various situations and their requirements differ depending on the purposes for which they are needed.

Patient protection: Staff wear masks to work in the operating room, to care for immuno-compromised patients, to puncture body cavities- A surgical deflector mask which directs aerosols away from the surgical site is sufficient.

Staff protection: Staff must wear masks when caring for patients with airborne infections, or when performing bronhoscopies or similar examination. A high efficiency filter mask is recommended. Filter masks remove organisms, which might be inhaled.

Patients with airborne infections must use surgical deflector masks when outside their isolation room.

Gloves

Gloves are used for:

- Patient protection: Staff should wear sterile gloves for surgery, care for immuno-compromised patients and invasive procedures which enter body cavities. Non-sterile gloves should be worn for all patient contacts where hands are likely to become contaminated, or for any mucous membrane contact. When performing invasive procedures, the gloves should be decontaminated between patients. If visibly soiled with blood, a fresh pair should be used.
- Staff protection: Staff should wear non-sterile examination gloves to care for patients with communicable disease transmitted by contact. Hands must be washed when gloves are removed or changed.

Disposable gloves should not be reused.

The wearing of gloves, masks and other protective clothing is only necessary for the tasks at hand and these items should be removed after the procedure.

(2) Safe injection practices:

To prevent transmission of infections between patients:

- Unnecessary injections must be eliminated. Many medicines can be given orally and this is preferred to parenteral administration.
- Sterile needle and syringe should always be used. These should be disposable, if possible.
- Safe disposal practices in respect of metallic waste should be followed

Additional precautions for prevention of transmission of infection

In addition to standard precautions which are required for all patients in all situations, special precautions need to be taken for patients suffering from certain infections. These are based on the mode of transmission of these infections. The ICC should decide the policy for the individual hospital and procedures which are feasible in its situation.

(1) Routes of transmission

Transmission of Hospital Associated Infection can occur by one or more of the following modes:

Airborne:

Through small particles suspended in the air or large droplets expelled into the air by coughing, sneezing, talking (aerosols)/or by shedding of skin scales-contact

Through direct contact of hands or skin contact or indirectly through environmental surfaces and other items which come in contact with patient.

Inoculation or parenteral

Contaminated solutions, blood and body fluids can either through abrasions or other skin lesions, through mucous membranes but not through intact skin.

Faeco-oral

Micro-organisms found in the intestines can be transmitted either directly through contaminated food and water following unhygienic practices or indirectly.

Multiple routes

A disease may be transmitted by more than one mode e.g. respiratory viral infections can be transmitted through airborne (droplet) as well as by physical contact-Transmission-based precautions are special precautions taken in addition to standard precautions for known infections based on the mode of transmission of the infection. Education is most important. Awareness programmes for staff, visitors and patients must be established. Posters outlining the precautions should be placed at appropriate locations. As the name implies, additional precautions should be applied in addition to standard/universal precautions.

The following precautions are recommended:

(1) Respiratory precautions

- For infections transmitted by the airborne route through small droplets less than 5 micron in size which can be dispersed over long distances e.g. tuberculosis.
- The patient should be placed in a single room that ideally has good ventilation and sunlight, negative air pressure and 6-12 air changes per hour. If single room is not possible, patients should be in a cohort with other patients with same infection. Doors should be kept closed.
- For additional respiratory protection, well fitting filter masks should be worn.

Susceptible persons should not enter the room or patients having measles or chickenpox whereas person's immune to measles or chicken pox do not need to wear mask.

- Transportation of patient should be done when essential. Patient should wear a mask during transportation.

(2) Contact precautions

These precautions should be used in addition to standard precautions for patients who are infected or colonized with important organisms that can be transmitted directly by hand or skin

contact or indirectly through or environmental surfaces in contact with the patients, such as gastrointestinal, respiratory, conjunctiva, skin and wound infections or colonization with multiresistant bacteria.

- The patient should preferably be placed in a single room. If that is not possible, he/she should be placed with a cohort of patients having infection with the identical micro- organism.
- Clean, non-sterile gloves should be worn on entering the room or patients environment. Gloves must be removed after leaving the patients environment and hands washed immediately.
- A clean non-sterile gown should be worn on entering the patients room and removed on leaving the room.
- Sharing of patient care equipment between patients should be avoided. If sharing is necessary, the equipment should be adequately cleaned and disinfected before using on another patient.
- Transportation of patient must be limited. If transport is necessary, precautions must be taken to avoid contact with other patients and contamination of the environment.

(3)Blood/inoculation precautions

In addition to standard precautions, diseases transmitted through inoculation or parenteral route such as hepatitis B, HIV/AIDS, malaria can be prevented by:

- Rational Injection practice: Unnecessary injections suturing and blood transfusions must be reduced.
- Safe procedures for the handling and prevention of accidents with sharp metallic waste should be ensured.
- Recapping of needle should be avoided; if recapping is required/then well-established single-handed procedures should be used.
- Metallic waste should always be disposed into a puncture resistant container.
- Exposed sharp metallic waste should never be passed directly from one person to another.
- During exposure-prone procedures such as phlebotomy, the risk of injury may be reduced by having maximum.
- Visibility and proper positioning of the patient.
- Fingers must be protected from injury by using forceps for holding suturing needles.
- Overflow of sharp metallic waste disposal containers can be prevented by sending the containers for disposal before they are completely filled.

Standard Operating Procedure (SOPs) for responding To **TERRORIST ATTACKS INVOLVING USE OF RADIOACTIVE** **MATERIALS**

1 INTRODUCTION

This plan describes the Oregon Department of Human Services, Public Health Division (OPHD) response to a radiological incident. It outlines key assumptions, summarizes relevant authorities, explains the OPHD emergency management organization, and defines a concept of operations for a radiological incident. The responsibility for radiation incidents is a shared one:

- The Oregon Department of Energy (ODOE) is the lead state agency for incidents that occur during the transport of radioactive materials and for incidents at nuclear reactors or nuclear fuel storage facilities. OPHD provides technical assistance by responding to the scene, as appropriate, and by providing information on the health effects of a radiological incident.
- OPHD is the lead state agency for all other radiological incidents, including a terrorist incident or an accident at a hospital, research lab, or industrial site, as described in this plan.
- OPHD responds to emergencies at the Columbia Generating Station (CGS) in Washington to provide technical assistance to Oregon state workers. This plan is part of the state of Oregon Emergency Management Plan. It is an appendix to Annex F, Emergency Support Function (ESF) #8—Public Health and Medical Services. This plan is organized as follows:
 - This appendix covers the OPHD response to all radiological incidents.
 - Tabs to this appendix provide more detailed descriptions of these activities.
 - Attachment A describes response activities to a radiological dispersal device.
 - Attachment B describes response activities to an improvised nuclear device.

2. PURPOSE AND AUTHORITIES

2.1 Purpose

The purpose of the Radiological Emergency Response Plan is to lessen the health impact on Oregon residents after a release of radioactive material. This plan focuses on elements unique to radiological emergencies. Wherever response is typical to any public health emergency, reference will be made to the appropriate section of Annex F, ESF #8—Public Health and Medical Services. Annex F can be found on the Health Alert Network (HAN) Web site (<https://www.oregonhan.org/>) or can be requested by contacting the OPHD Emergency Preparedness Program (971-673-1308).

2.2 Authorities

Oregon is an “Agreement State” with the Nuclear Regulatory Commission (NRC) and, as such, has accepted responsibility for overseeing the licensing, use and disposal of all radioactive material in the state, except for that in federal or military facilities. Part of this responsibility

includes radiological emergency response. Table 1 lists the relevant Oregon statutes for radiological emergencies.

Table 1: Legal Authorities

Oregon Rule or Statute	Title
ORS 453.635	Designates OPHD as the state radiation control agency
ORS 469.533	Requires OPHD, along with Oregon Department of Energy and Office of Emergency Management, to develop radiological emergency procedures
ORS 469.611(3)	States that OPHD will maintain a trained and equipped radiation emergency response team.
OAR 333-100 through 123	Oregon Rules for the Control of Radiation

3 .SITUATION AND ASSUMPTIONS

3.1 Situation

Radioactive materials are widely used in commercial applications, research laboratories, and in medical care facilities in Oregon. In addition, radioactive materials are found in the two experimental reactors located at Oregon State University (OSU) and Reed College. Radiation could be released as the result of an accident at a site containing radioactive materials or as a deliberate act. OPHD will lead the state response and will make a radiological health assessment following an industrial accident or a terrorist attack when involvement of radioactive material is suspected by the on-scene Incident Commander or by another appropriate authority. For incidents managed by the ODOE, OPHD provides technical assistance to the Incident Commander and provides information on the health impact of the radioactive materials that were released. The public health response to the accidental or deliberate release of radiological materials will focus on protecting human health. A timely response is critical in limiting the health impact of public exposure to ionizing radiation, and it is essential in controlling the spread of radiological contaminants. A radiological incident may result in environmental contamination and thus the risk of ongoing human exposure and long-term health consequences. The incident may have psychological impacts among people who were not actually exposed, but who are still concerned about their health. Recovery operations involve the cooperative efforts of a number of state, local, federal and private agencies and organizations and are likely to be a long-term, time-consuming task. In large events, a Recovery Committee is convened and is chaired by the Governor or the Governor’s designated Recovery Manager. Throughout the remainder of this plan, all references to the Recovery Manager will imply the Oregon Public Health Officer if no Recovery Manager has been designated. Recovery begins when the incident is stabilized, and the response phase is complete. It is a time of planning, assessment, restoration and return to non-emergency operations.

This plan discusses the following types of radiological incidents:

- Radioactive materials could be released as the result of an accident during the transportation of materials or at an industrial site that uses radioactive materials.
- Radioactive materials could be sprayed into the air, introduced into food or water, or left in public places. Such methods are not likely to produce mass casualties.
- A radiological dispersal device (RDD), or “dirty bomb,” is a bomb that combines conventional explosives (such as dynamite or TNT) with radioactive materials. An RDD injures nearby people, damages buildings, and blasts radioactive materials into the area. An RDD attack is more likely to occur than other types of attacks because of the prevalence of commercial radioactive material and the relative ease of constructing an explosive device. Response activities and information specific to an RDD are described in Attachment A.
- An improvised nuclear device (IND) is a high-yield nuclear bomb that produces a nuclear explosion. An IND creates a fireball that emits intense heat and light along with ionizing radiation. An IND could be fabricated from diverted nuclear weapon components or built from scratch using nuclear materials (hence the term “improvised”). Because an IND requires enriched uranium or plutonium and a more sophisticated knowledge of bomb-building, it is less likely to be used in a terrorist attack. Response activities and information specific to an IND are described in Attachment B

3.2 Assumptions

- OPHD is the lead state agency for all radiological incidents except transportation incidents and incidents at nuclear reactors and nuclear fuel storage facilities, which are managed by the ODOE.
- OPHD provides technical assistance for all radiological incidents, from simple radiological accidents to terrorist incidents.
- The Federal Bureau of Investigation (FBI) leads the criminal investigation if the radiological release was intentional. The FBI is responsible for determining whether an explosion involved radioactive materials.
 - Federal agencies, including the U.S. DOE, the Environmental Protection Agency (EPA), and the NRC, will provide resources and coordination when Oregon’s resource demands exceed availability or when a radiological incident extends beyond state boundaries.
- The U.S. Centers for Disease Control and Prevention (CDC) is the lead federal agency to support public health actions when state capacity and expertise are exceeded.
- Local health departments have jurisdiction in their communities for public health.
- Local government authorities have response plans in place to deal with a radiological emergency.
- The initial response phase may be complicated by the fact that the incident site could be a mass casualty scene, possibly a life-threatening hazard area, and a crime scene.
- For a crime scene, it will be necessary to preserve the scene so that law enforcement can gather evidence.
- It may be necessary to provide medical treatment to on-scene victims, and victims may need to be decontaminated.
- The incident must be stabilized and the radioactive release stopped prior to initiation of recovery field operations.

- If a radiation plume is existed, recovery operations may not begin until it is dissipated and all significant deposition has occurred.
- Radiation Protection Services (RPS) (in OPHD) and regional hazardous materials (Hazmat) teams (in the State Fire Marshal's office) are the lead state groups for technical radiological and decontamination expertise during recovery.
- Recovery personnel will be subject to the exposure limits for occupational workers in the Oregon Rules for the Control of Radiation (OAR, Chapter 333, divisions 100-123).
- Exposures will be maintained as low as reasonably achievable (ALARA) during recovery.

4 CONCEPT OF OPERATIONS

Annex F, Public Health and Medical Services, Base Plan contains detailed information on incident management and the federal, state and local response systems. For a radiological incident, OPHD would lead the public health response using the base plan concept of operations. The Public Health Emergency Preparedness (PHEP) program will support all other public health programs during the response.

4.1 Notification

Notification of a radiation emergency will likely come from the Oregon Emergency Response System (OERS), which is managed by the Oregon Office of Emergency Management (OEM). Alternatively, OPHD staff may receive notification of an emergency from local health departments, other governmental agencies, or members of the public. When informed of a radiological emergency:

- OERS staff will notify the state PHEP on-call Duty Officer.
- The PHEP Duty Officer and the RPS Duty Officer will make an initial assessment of severity and scope and will notify the appropriate OPHD staff. See Annex F, SOP B-3, Duty Officer.
 - The PHEP Duty Officer and the RPS Duty Officer will recommend to management whether or not to activate the state public health Agency Operations Center (AOC). OPHD will notify OERS if the AOC is activated.

4.2 Operational Priorities

To minimize the health effects of a radiation incident, OPHD will:

- Assess the risk to people and recommend interventions.
- Provide information to the Joint Information Center (JIC) for release to the public.
- Provide technical information about the radiological material released in the incident.
- Identify activities with the potential for a high level of exposure.
- Recommend safety procedures for first responders, including advice on protective gear and exposure limits.
- Assist the on-scene Incident Commander by providing field personnel to monitor the site for radiation levels and monitor first responders for exposure levels.
- Evaluate the long-term health consequences and recommend follow-up actions for environmental decontamination and medical evaluation.

4.3 Activation of the OPHD Emergency Management Organization

- This section describes the emergency management structure that OPHD will use during a radiological incident to manage resources under state control.

he OPHD response to a radiological incident will comply with the National Incident Management System (NIMS) provisions.

- The PHEP Duty Officer (971-246-1789), who receives a call from the Oregon Emergency Response System (1-800- 452-0311), and the RPS Duty Officer (971-673-0515) will determine the initial activation of the OPHD emergency management organization in consultation with OPHD management and technical staff.
- RPS personnel reporting to the scene of an incident will report to the on-scene Incident Commander for instructions and will typically act as an on-scene advisor throughout the incident.
- The RPS Section Manager acts as the state Public Health Officer's designee on small events that don't require activation of the AOC.
- The Radiological Emergency Response Plan can be activated prior to or without a declaration of a radiological emergency by the governor.

4.4 Agency Operations Center

* The AOC is the physical location for OPHD staff to coordinate activities.

*The AOC is activated for large scale radiation emergencies. At the AOC, public health staff will:

- Notify, assemble and dispatch emergency response teams.
- Coordinate field team activities.
- Coordinate laboratory testing of environmental and human samples.
- Acquire resources to support local health department field emergency responses through the state Emergency Coordination Center (ECC).

*All resource requests are forwarded to and filled by the Logistics Section.

These include:

- * RPS personnel and equipment
- * Hazmat teams (once activated, these teams become a state resource)
- * Selected personnel from state universities acting on regional radiological field teams
- * OSU Radiation Center o Oregon 102nd National Guard Civil Support Team
- * Coordinate health information flow to and from: o Federal agencies o OPHD programs and other state agencies o Local health departments

* Tribal governments o Health care organizations o Providers of medical care, medical facilities, and medical suppliers o The Joint Information System/Joint Information Center (JIS/JIC).

4.5 Recovery

A Unified Command, called the Recovery Committee, will be formed to direct recovery activities pursuant to Volume III, State of Oregon Relief and Recovery Plan. The Unified Commander is the Governor or the Governor's appointee. Membership may include any state, federal, local or private agencies and organizations involved in the recovery effort, and will always include OPHD. As the most directly affected entities, appropriate local governments will be specifically requested to participate in planning and conducting recovery operations. The Recovery Committee will convene prior to commencement of recovery operations. It will continue to function until all phases of the recovery process are complete. It is tasked with overall recovery coordination and is responsible to:

- Direct the local jurisdiction(s) to establish an Emergency Worker Center
- Direct Hazmat teams or Radiation Protection Services (RPS) to conduct a contamination survey
- Develop a recovery plan
- Restore vital services
- Secure and coordinate resources

Direct recovery operations • Prepare necessary documentation

- **Coordinate with outside organizations and government agencies.**

OPHD will provide technical support and make recommendations regarding the radiological and health aspects of recovery activities to Recovery Committee. When restoration actions exceed the capacity of OPHD, federal assistance will be requested.

The four phases of recovery are re-entry, restoration, return, and relocation. The phases may occur concurrently. Within a specific phase, action items may be undertaken simultaneously or otherwise modified to meet the situation. Routes of exposure during all phases can be external (ground deposition) and internal (inhalation of re-suspended particles)

Recovery	Phase Definition
Re-entry	*A contamination survey is performed. <ul style="list-style-type: none"> • The results form the basis for protective actions or the release of designated areas to unrestricted use.
Restoration	*Begin reducing exposure rates and concentrations to acceptable levels. <ul style="list-style-type: none"> • This phase can last from months to years.
Return	*Individuals are permitted to reoccupy their homes and workplaces. <ul style="list-style-type: none"> • This phase may occur from several days to years after the incident.
Relocation	*Individuals are relocated when the affected areas cannot be restored for unrestricted use. <ul style="list-style-type: none"> • Decisions on whether to restore or relocate are based on both technological and economic considerations. • People are excluded for an indefinite period from the affected areas to avoid chronic radiation exposures in excess of established limits. • This phase can last from several months to several years.

5 . ROLES AND RESPONSIBILITIES

This section outlines the roles and responsibilities of the federal, state and local agencies involved in the preparation for and response to a radiological incident.

5.1 Federal Agencies

- The FBI is the lead federal agency for a radiological terrorist incident.
- The U.S. DOE provides federal radiological support with both equipment and personnel when called by the FBI for a terrorist incident or upon request from the state for a radiological accident.
- The NRC provides technical assistance and ensures compliance with the legal use of radiological material for any incident involving a radiological licensee or a nuclear power plant.

- The EPA provides technical assistance during the recovery phase of a radiological disaster. The EPA responds when called by the FBI for a terrorist incident or upon request from the state for a radiological accident that affects a large area, waterways or federal land.
- The CDC is the lead consulting agency in the collection of human clinical samples to test for heavy metal or chemical exposure.
- A federal representative, from FEMA, the EPA, or the U.S. DOE, will be on the Recovery Committee.
- In large scale incidents, a Federal Radiological Monitoring Assessment Center (FRMAC) will be established. Other federal agencies that have a support role in the response to or recovery from a radiological incident are outlined in the U.S. Department of Homeland Security National Response Plan.

(See <http://www.epa.gov/radiation/rert/nuclearannex.htm>)

5.2 State Agencies

This section outlines the roles and responsibilities of the state agencies involved in a radiological emergency.

5.2.1 Oregon Public Health

OPHD will staff the ESF #8 incident command positions (see Annex F, Attachment B, OPHD Emergency Management). Within OPHD, Radiation Protection Services is the lead program for the state public health response to a radiological emergency. This section describes the roles and responsibilities of the OPHD programs involved in a radiological emergency.

5.2.1.1 Preparedness

All staff

- Participate in preparing plans.
- Participate in exercises.
- Participate in appropriate training.

Radiation Protection Services

- Maintain radiological equipment: o Inventory equipment on a quarterly basis o Replace or maintain equipment as needed.
 - Form radiological emergency response teams (ERTs) and conduct training at least twice a year (see Tab 1 for training materials)

- Conduct refresher training for the state Hazmat teams at least once every 18 months.
- Update state radiological plans and standard operating procedures (SOPs) every other year.
- Review and distribute exposure guidelines for first responders (see Tab 2).
- Offer planning assistance to first response agencies (e.g., police, fire, and ambulance personnel).
- Coordinate planning and training with other agencies and assets.

Public Health Emergency Preparedness

- Coordinate public health planning, response, and recovery.
- Encourage local health department planning.
- Coordinate the design and evaluation of exercises.
- Standardize statewide response protocols.
- Act as point of contact with OERS.

Environmental Toxicology

- In coordination with RPS, provide chemical and radiological training to first responders.
 - Coordinate with public health programs and other agencies on the radiological emergency response plan and threat assessments.

Environmental and Occupational Epidemiology

- Create or expand role of pre-established networks of physicians and systems to detect unusual census or unexpected radiological syndromes.
- Increase the number of physicians and other providers with experience and skills in the diagnosis and treatment of diseases or conditions possibly resulting from a radiological terrorist incident.

Oregon State Public Health Laboratory (OSPHL)

- Ensure appropriate facilities receive key documents and training on how to respond to a radiological emergency when the public seeks medical care, including:
 - o CDC's protocols for phlebotomy and urine collection and packaging and shipping human clinical samples.

* OSPHL’s protocols for receiving human clinical samples.

Drinking Water Program

- Maintain an updated inventory of public water systems that use surface water sources or have uncovered reservoirs, along with contact information.
- Investigate the possibility of coordinating with Oregon’s Department of Environmental Quality and Water Resources Department on developing water-related geographic information system (GIS) databases.

Food Health and Safety

- Review and distribute protective action guides.
- Review and distribute derived intervention levels.
- Coordinate with RPS on the development of protective action guides and derived intervention levels.

Public Information/Risk Communication

The Risk Communication Team consists of the Oregon DHS Public Health Information Officer, the OPHD Risk Communication Section, and a content expert from RPS.

The Risk Communication team will:

- Prepare messages that focus on radiation response activities for state and local public health, hospitals, businesses, individuals and families, community organizations, and schools.
- Prepare communication materials on a variety of radiological agents for distribution to health care providers, emergency responders, the media, and the public during a radiation emergency.
- Participate in communication planning and exercises with radiation emergency response partners.
- Incorporate radiation events into JIS/JIC exercises. For more information, see Annex F, Attachment C, Public Information and Risk Communication.

5.2.1.2 Response

All staff

- Participate in the AOC (if activated) and coordinate deployment of appropriate public health resources.

Radiation Protection Services

- Staff the RPS Duty Officer position and, with the PHEP Duty Officer, form an initial assessment of the incident (see Tab 3).
- Lead public health activities during a radiological incident.

- Act as the OPHD Director's designee on smaller events not requiring the activation of the AOC or the state ECC.
- Lead the risk assessment process.
- Send RPS emergency response teams to the incident location as appropriate to become part of the operations and to provide technical assistance to the Incident Commander (see Tab 4).
- If the AOC is activated, designate a Radiological Branch Director and a Dose Analyst to report to the ESF-8 Incident Manager (see Tabs 5 and 6).
- Activate radiation laboratories to support any needed laboratory work. Lab facilities are located at OSU Radiation Center and RPS.
- Advise on appropriate personal protective equipment for the type and intensity of the radioactivity.
- Advise on Protective Action Recommendations (PARs).

Public Health Emergency Preparedness

- Serve as OPHD Duty Officer.
- If the AOC is activated, staff the AOC and direct its operation.
- Provide liaisons to the state ECC and to hospitals and health care systems.
- Issue appropriate Oregon HAN alerts
- Support state and local health department activities.
- Develop and coordinate preparedness related educational material.

Environmental Toxicology

- Provide input on personal protective equipment and safety procedures for both first responders and first receivers.
 - In collaboration with Environmental and Occupational Epidemiology, provide toxicological prognosis to the public for the short-term, mid-term and long-term health effects of exposure.
 - Assist with sampling plans.
 - Coordinate the issuance of appropriate advisories for food, air and water.

Environmental and Occupational Epidemiology

- Identify cohorts (groups of people) at risk of subsequent health effects and find out how to reach them for follow-up.
- Document the mortality and disposition of people acutely affected by radiation.

- Conduct ongoing community surveillance to document short-term, mid-term and long-term health effects using standard epidemiological methods.
- Document the identity and exposure factors of acutely affected subjects who were exposed but are not yet acutely symptomatic.
- In collaboration with the state toxicologist, provide toxicological prognosis to the public for the short-term, mid-term and long-term health effects of exposure.
- Send information using a variety of media (print, television, radio) to inform the public about their risk of exposure and to provide guidance on when to contact their medical providers.
- Work with partner agencies and the state Public Information Officer (PIO) to develop risk communication strategies and disseminate to community stakeholders. Oregon State Public Health Laboratory
- Work in consultation with the CDC to determine whether clinical samples will be collected for the Rapid Toxic Screen laboratory test.
- Provide technical assistance to various public and private medical facilities throughout the state to collect, package and ship human clinical samples from potentially exposed and legitimately concerned victims who report for evaluation and treatment.
- At CDC's direction, receive and process nonradioactive human clinical samples from various public or private medical facilities throughout the state.
- At CDC's direction, retrieve non-radioactive human clinical samples from various public or private medical facilities throughout the state.
- Coordinate all human clinical sample data processing functions between CDC, Level 1 and Level 2 state surge laboratories, local health departments, medical facilities, and other governmental agencies.

Drinking Water Program

- Provide locations of public water systems that use surface water or have uncovered reservoirs that might be subject to fallout contamination to the AOC or to RPS as needed.
- Assist public water systems with public notification, water sampling, emergency interim measures, and treatment/operational considerations appropriate to the radioactive element in question.

Food Health and Safety

- Direct the issuance of advisories for food safety.
- Initiate recall procedures as necessary.

Provide input on food safety procedures for first responders and first receivers.

- Review recommended derived intervention levels.

Public Information/Risk Communication

- Activate the public health JIS/JIC to ensure information flow to local health departments, medical providers and other health care partners.
- Send technical information about the radiological materials and decontamination procedures to local health departments, hospitals and clinicians.
- Distribute fact sheets, FAQs and other informational materials via the news media, e-mail lists, HAN, the JIS/JIC and the public health emergency broadcast fax system. (See Tab 7 and Tab 8)
- Focus messages on who is likely to be affected (based on geographical proximity to the radiological incident, wind speed and direction, health and age vulnerability and other factors), actions necessary to prevent or mitigate the effects of exposure, availability and location of treatment, and the numbers of confirmed illnesses or deaths.

5.2.1.3 Recovery

Radiation Protection Services All phases

- Coordinate actions of the RPS ERTs (see Tab 4).
- Provide guidance to the Recovery Committee regarding health physics, radiation safety, decontamination methods and materials, exposure limits, regulatory requirements, and disposal of radioactive materials.
- Control contamination and manage exposure to radiation.
- Provide technical support to utilities.
- Provide technical background for public information.
- Ensure that supervisors and emergency workers know that exposures are subject to the occupational worker limits expressed in the Oregon Rules for Control of Radiation (OAR, chapter 333, divisions 100-123)

Re-entry Phase

- Provide technical assistance to the Recovery Committee and agencies overseeing reentry.

Restoration Phase

- Review the Recovery Plan and issue a license for its performance (see OAR-333-102), if needed.
- o Evaluate the professional and technical qualifications of people and/or firms providing services prior to issuance of a license
- Approve or disapprove (for cause) the radiological portions of contracts to perform work under the license
- o Perform periodic inspections to ensure compliance.
- * Ensure that all decontamination license conditions are met.
- Determine areas, structures and equipment that need to be decontaminated.
- Follow progress of restoration by sample collection and analysis.
- Assure monitoring and decontamination, as necessary, of people, vehicles and equipment leaving the relocation zone.
- Assure decontamination of essential facilities and their access routes. Perform periodic contamination checks and assure decontamination as needed.
- Require that radioactive waste be packaged, stored, shipped, and disposed of in accordance with applicable regulations. Inspect as necessary to ensure compliance.
- Perform post-decontamination surveys as appropriate. Use the results to determine whether Return Phase exposure guidelines and decontamination plan requirements have been met.
- Release areas, buildings, equipment, etc. to unrestricted use when Oregon Rules for Control of Radiation and decontamination plan license requirements are met.
- Recommend release of portions of the relocation zone to unrestricted use when Return Phase exposure guidelines and decontamination plan license requirements are met.
- Advise city and county officials regarding the temporary return of area residents and local workers to relocation zone.
- Monitor worker performance to assure compliance with radiation work permit requirements, exposure limits and radiation safety.
- Periodically monitor areas adjacent to restricted zones to determine the effectiveness of contamination control measures in the environment.
- Coordinate actions with the Recovery Committee.
- Recommend medical screening, examination and diagnosis of exposed personnel, and medical reassurance to people not exposed.
- Monitor relocation zone boundaries in order to detect the spread of contamination. Take required actions to prevent the spread of contamination.

Return Phase

- If directed by the Recovery Committee, survey each dwelling, work space or accessible area prior to the return of evacuees.
- Use results of the survey will be used to project first, second, and fifty-year dose commitments.
- Provide guidance to the Recovery Committee regarding the return of people to former relocation zone areas. Recommend limitations as appropriate to meet return phase exposure guidelines.
- Ensure that use restrictions are posted in the relocation zone and other affected areas. Update restrictions when conditions change.
- Monitor areas adjacent to remaining relocation zone areas in order to determine if contamination is being spread beyond zone boundaries. Require decontamination as necessary to maintain exposures within return exposure guidelines and ALARA.
- Monitor occupied areas and buildings to verify dose projections and determine the need for additional protective action recommendations.

Relocation Phase

- Ensure that use restrictions are posted in affected areas. Update restrictions when conditions change.
- Ensure that residents and local workers are provided dosimetry and appropriate protective clothing (if necessary) when entering the relocation zone, and that all people entering the zone receive a briefing on radiological conditions prior to entry. Escorts will be provided by the local government.
- Assure that contaminated materials are not removed from the relocation zone except for the purpose of decontamination or proper disposal.
- Monitor people, vehicles and other items leaving the relocation zone. Ensure that appropriate decontamination is performed prior to release.
- Monitor relocation zone areas and buildings periodically in order to determine when access control is no longer warranted.
- Monitor areas adjacent to the relocation zone in order to determine whether contamination has spread beyond zone boundaries. Require decontamination, as necessary, to maintain exposures in those areas within return exposure guidelines and ALARA.

Coordinate actions with the Recovery Committee.

Public Health Emergency Preparedness • Provide subject matter expertise to the state Medical Examiner's Office for the handling and disposition of contaminated bodies (<http://www.bt.cdc.gov/radiation/pdf/radiation-decedent-guidelines.pdf>).

Environmental Toxicology All Phases

- Continue to coordinate the assessment of the risk to humans and recommend interventions.
- Work with the Public Information Officer on the development of information for the public on how to decontaminate themselves and their possessions.
- Work with the Public Information Officer on the development of information concerning any risks of breastfeeding children of exposed mothers and any risks to the fetus of exposed mothers.
- Help provide an assessment of longer-term effects from acute exposures and extended periods of personal contamination to members of the public and first responders.

Environmental and Occupational Epidemiology All Phases

- Actively support and participate in the Recovery Committee.
- Conduct on-going community surveillance to document short-term, mid-term and longterm health effects using standard epidemiological methods.
- Establish a registry of exposed individuals for the purpose of long-term cohort tracking to characterize and mitigate health impacts (e.g., genetic counseling). Oregon State Public Health Laboratory All Phases
- Make clinical results available to patients, physicians and other agencies as needed and permitted

Drinking Water Program All Phases

- Continue to work with public water systems on public notification, water sampling, emergency interim measures, and treatment/operational considerations until the danger is past. Public Information/Risk Communication All Phases
- Continue JIC operations to assure that affected people receive periodic information updates.
- Participate in the process of establishing when it is safe to return to residences and businesses and communicate that to the public.

- Continue to communicate information to the public regarding any on-going risks or long-term health effects of radiation exposure, and availability of treatment, as necessary.
- Continue to disseminate any information regarding long-term health effects and availability of treatment, as necessary.

5.2.2 Governor’s Office

5.2.2.1 Recovery

Recovery Committee

The Governor (or his/her designate) convenes the Recovery Committee and serves as the Unified Commander.

The Recovery Committee will convene prior to commencement of recovery operations.

All phases

- Provide oversight and coordination of outside resources.
- Determine the need for personal protective equipment appropriate to the health risk
- Coordinate emergency worker entry into restricted zones with local officials.

5.2.2 Oregon Department of Energy

- Is the lead state agency for transportation-related radiological incidents in Oregon. It is also the lead state agency in the case of an incident at the two nuclear research reactors in Oregon (at Reed College and Oregon State University).
- Supports OPHD in all other radiological events occurring in Oregon

5.2.4 Oregon State Fire Marshal

5.2.4.1 Preparedness

- Establish and maintain the statewide Hazardous Materials Emergency Response system, which includes 15 regionally located response teams with specialized training and equipment.

5.2.4.2 Response

- **5.2.4.3** • When requested through OERS, send Hazmat response teams to serious incidents involving radiological materials when the incident exceeds first responder training and equipment.

5.2.5 Oregon Office of Emergency Management

- Coordinate state agency response through OERS and the ECC.
- Coordinate state agency support to the Recovery Committee.
- Provide access to the Oregon Civil Support Team if needed.

5.2.6 Oregon Poison Center

5.2.6.1 Response

- **5.2.6.2** • Provide technical and clinical expertise to assist in hazard assessment and patient management, including real-time assistance with patient diagnosis, treatment and antidotal therapy.
 - Provide medical consultation to health care workers in local and regional hospitals, clinics and offices.
 - Provide immediate toxicological information to OPHD to help with scientific and risk communication for the public.

5.2.6.3 Recovery

- Provide medical consultation to organizations concerning occupational exposures to radiological material during recovery.

5.2.7 Oregon Department of Agriculture

5.2.8.1 Preparedness

- Advise on county animal evacuation plans, including transportation, shelter and care of domestic animals.

5.2.8.3 Recovery

- Assist county governments with their recovery efforts involving the transportation, shelter and care of domestic animals.

5.3.1 Preparedness

- Plan and exercise for radiological incidents.

5.3.2 Response

- Call RPS Duty Officer (971-673-0515) • Aid RPS and law enforcement in control of site.
- Manage Emergency Worker Center, including finding emergency workers
- Ensure that anyone entering the relocation zone receives appropriate dosimetry and protective clothing (to include respiratory protection).
- Assure that monitoring and if necessary decontamination of people and vehicles is conducted when they leave the affected zone.

5.3.3 Recovery

All Phases

- Ensure that anyone entering the relocation zone receives appropriate dosimetry and protective clothing (to include respiratory protection).
- Assure that monitoring and if necessary decontamination of people and vehicles is conducted when they leave the affected zone.

5.3 Local Health Departments

5.4 Oregon’s public health system relies on the authority and responsibility of local health departments (LHDs) for public health preparedness and response.

5.4.1 Preparedness

- Write an emergency response plan that includes a radiological annex.
- Develop a hazard vulnerability assessment for known radioactivity sources for the jurisdiction. (See Tab 9). • Develop and maintain standard operating procedures for the public health response to a radiological incident. (See the sample SOP in Tab 9)
- Include local stakeholders and volunteer groups in planning and training for a radiological emergency.
- Ensure telephone numbers and points of contact are current, including:
 - o Local emergency management
 - o Hazmat
 - o Fire/police
 - o Public utilities
 - o Local hospitals, nursing homes, clinics, and other health care facilities
- Provide training to appropriate LHD personnel regarding radiation response.

- Participate in training, exercising and coordinating with the county emergency manager and state agencies to ensure everyone's plans interrelate appropriately

5.4.2 Response

5.4.2.1 General Emergency Response

- Follow your SOPs for radiation emergencies. • Call RPS Duty Officer (971-673-0515)
- Provide public health updates to key agencies as requested. • Coordinate all activities with the local Emergency Operations Center (EOC).
- Ensure that public health messages are routed through the Joint Information Center.
- If the LHD building is considered contaminated, evacuate the building and leave all supplies in the building to prevent the spread of radioactive materials.
- Instruct public health employees who might be contaminated with radioactive material to seek decontamination at the hospital or other designated location and not to report to work.
- If requested, assist with monitoring potentially contaminated people. Ensure that staff members wear appropriate personal protective equipment.

6. TRAINING AND EXERCISES

6.1 Training Regional training of first receivers and first responders will be conducted every 1-3 years depending on their needs.

6.2 Exercises PHEP, in collaboration with RPS, will design and deliver an orientation, tabletop, functional or full-scale exercise as described in the OPHD exercise schedule. OPHD also participates annually in the CGS/U.S. DOE full-scale exercise.

7 VULNERABLE POPULATIONS

Radioactive materials that pose health risks to adults in the general population pose a significantly higher risk to some vulnerable populations because of the potential for longer exposures, pre-existing medical conditions, and the likelihood of not understanding disaster preparedness. Vulnerable populations should be given the highest priority for evaluation, shelter-in-place removal, and medical attention due to the high probability that these individuals would perish without immediate attention in a radiological emergency.

For radiation emergencies, children and pregnant women are at particular risk because children and fetuses are more sensitive to radiation than adults.

Children are growing more rapidly, so there are more cells dividing and a greater opportunity for radiation to disrupt the process. The affect of radiation on a fetus depends on the developmental stage of the fetus:

- During the first 2 weeks of pregnancy, the radiation-related health effect of greatest concern is the death of the fetus. Of the fetuses that survive, few will have birth defects related to the exposure, regardless of how much radiation they were exposed to.
- Large radiation doses to the fetus between weeks 2 and 15 of pregnancy can cause birth defects, especially to the brain.
- Between the 16th week of pregnancy and birth, health effects due to radiation exposure are unlikely unless the fetus receives an extremely large dose of radiation. At these higher doses, the mother would also be showing signs of acute radiation syndrome.
- After the 26th week of pregnancy, the radiation sensitivity of the fetus is similar to that of a newborn.

8 PLAN MAINTENANCE

This appendix was developed by and will be maintained by the RPS Section of OPHD. It will be reviewed once every two years, coincident with the review of the Oregon State Public Health Procedures for CGS and Hanford Emergency Response.

ACRONYMS ALARA as low as reasonably achievable AOC Agency Operations Center CDC Centers for Disease Control and Prevention CGS Columbia Generating Station DHS Department of Human Services ECC Emergency Coordination Center EOC Emergency Operations Center EPA Environmental Protection Agency ERT Emergency response teams ESF Emergency Support Functions FAQ Frequently Asked Question FBI Federal Bureau of Investigation FRMAC Federal Radiological Monitoring Assessment Center GIS Geographic Information System HAN Health Alert Network Hazmat Hazardous materials IND improvised nuclear device

ACRONYMS

ACE	Atomic Energy Commission
AERB	Atomic Energy Regulatory Board
ARC	Aviation Research Centre

BARC	Bhabha Atomic Research Centre
CD	Civil Defense
CP	Commissioner of Police
CPMF	Central Para Military Forces
DAE	Department of Atomic Energy
DGCD	Director General Civil Defense
DIA	Defense Intelligence Agency
DM	District Magistrate
DRDO	Defense Research and Development Organization
ERC	Emergency Response Centers
SRT	Specialist Response Team
IB	Intelligence Bureau
I&B	Information & Broadcasting
IC	Incident Commander
IO	Information Officer
MHA	Ministry of Home Affairs
MOD	Ministry of Defense
MEA	Ministry of External Affairs
MOHFW	Ministry of Health & Family Welfare
NDMA	National Disaster Management Authority
NSC	National Security Council
R&AW	Research & Analysis Wing
RDD	Radiological Dispersal Device
RSO	Radiological Safety Officer
SAP	State Armed Police
SDDM	State Department of Disaster Management
SDMA	State Disaster Management Authority
SEMA	State Emergency Management Authority

STANDARD OPERATING PROCEDURES (SOP) FOR DEALING WITH

AFTERMATH OF A NUCLEAR ATTACK

INTRODUCTION

1.1 This SOP lays down, in a consolidated manner, the specific actions required on the part of various Ministries/Departments/Organizations and concerned State Governments to deal with the aftermath of a nuclear attack. The SOP is designed to specify major actions that will be required to be taken by various authorities at national, state and district level.

1.2 The instructions contained in this SOP should not be regarded as exhaustive of all the actions that might be considered necessary. It will also be necessary for each Ministry/Department/Organization and the relevant state Government Where the potential targets are located to prepare detailed SOPs so as to translate each action point in a number of steps require to be taken by each of them.

1.3 The Ministries/Departments/Organizations concerned with these SOPs at national level will be as under:-

- (i) Ministry of Home Affairs-Nodal agency
- (ii) Ministry of Defense
- (iii) Department of Atomic Energy
- (iv) Ministry of Health
- (v) Department of Telecommunication
- (vii) Director General Civil Defense
- (viii) Intelligence Agencies – DIA, NSE, IB, R &AW and NTFO
- (IX) Ministry of Information
- (x) Ministry of Urban Development
- (xi) Ministry of Petroleum & Natural Gas
- (xii) Department of Drinking Water Supply
- (xii) Doordarshan /All India Radio/ARC/ CPWd
- (xiv) Ministry of Agriculture
- (xv) Department of Animal Husbandry
- (xvi) Ministry of Consumer Affaires.

1.4 The organizations concerned at the state level will be as under:-

- (i) State Department of Disaster Management (SDDM)/ State Disaster Management Authority (SDMA)/State Emergency Management Authority (SEMA)
- (ii) District Magistrate/Commissioner of Police
- (iii) Police/Fire and Civil Defense Services
- (iv) Health Services
- (v) Transport Department
- (vi) Public works
- (vii) Agriculture
- (viii) Food & Civil Supplies.

1.5 The objectives of the SOP are-

- (a) To provide, in concise and convenient form, a list of major executive actions involved in passing from a state of peace to a state of war involving the use or potential use of nuclear weapons by an adversary and necessary preparation/remedial measures required to be taken;
- (b) to ensure not only that all concerned Ministries/Departments of the Government of India, State Government and District Administrations know the process measure required of them at each stage of the process but also that all actions are closely and continuously coordinated; and
- (c) to indicate the nature of the action which would be required by the state Governments /UT Administrations within their sphere of responsibilities so that they may prepare the plan in peace time accordingly.

1.6 This SOP will be reviewed every three years; in the month of June.

CHAPTER -2

COMMAND AND CONTROL

The Command and Control structure is given
2.1 at Annexure- I

District Level

2.2 At the District/City level, the command and control Functions will be with the Unified Commander who may be District Magistrate/Commissioner of Police, as designated by the State Government. All departments/agencies of the Central and State Governments in the District/City will work in accordance with the directions of the Unified Commander.

Alternate Command

For each of the levels of command enumerated above, there will be an alternate command structure designated by Government – to be located outside the potential target area, so that in the event of any level of command being decapitated by a sudden nuclear attack, the alternate designated command being decapitated by a sudden nuclear attack, the alternate designated command structure can take its place.

CHAPTER-3

CONCEPT OF OPERATIONS

3.1 The SOP has been formulated taking into consideration both the possibilities that the hostilities with an adversary may start to begin within form of conventional war which escalates into a nuclear conflagration or the hostilities may begin with a sudden nuclear attack. It is expected that even where the hostilities begin with a sudden nuclear attack, there would be a certain period of building up of tensions which would enable precautionary measures to be taken; nevertheless the preparedness measures also take into account a contingency where this country is subjected to a sudden nuclear attack without any warning time whatsoever.

3.2 When a nuclear strike is launched by adversary, it will seek to be so overwhelming as to minimize the possibility of a retaliatory strike. In order to adversary State may be in the form of simultaneous hits at multiple sites. The attack is likely to be focused on the specific types of targets. The target sites are likely to be :

- (a) Command, control and communication system/centers.
- (b) Sites/Bases Where nuclear assets are located.
- (c) Defense and other vital installations
- (d) Major metropolitan centers

3.3 There fore, instead of covering the whole country insofar as nuclear preparedness

is concerned, it will make sense to focus only on locations/ towns/sites which meet the above criteria because covering the whole country will be unacceptably costly. A list of potential targets for a nuclear attack will be drawn up by the Ministry of Defense with inputs from different intelligence agencies and updated at least once a year in the month of January. This list will be circulated to the Ministries/Departments charged with the responsibility for building up capabilities and making arrangements for dealing with the aftermath of a nuclear attack under this SOP.

3.4 The objective of the operations under this Manual shall be to reduce the casualties to the minimum possible by providing rescue, relief and medical services and to mitigate, as far as possible, the destructive effects of a nuclear attack on the morale of the affected population and on the command, control and communication systems.

3.5 Based on the level of damage, the area which has been subjected to a nuclear attack can be segmented into four Zones. The Central Zone A is expected to be completely devastated with no likely survivors. Emergency Response Teams will not be expected to enter into this area

as the radiation levels will be very high. The area surrounding it will be termed as Zone B which would also have seen massive destruction but where about 50% of the people are expected to have survived although with high doses of radiation. ERTs would be able to enter this area with full protection gear, and dosimeters. In Zone c, the casualties are expected to be up to the level of 20% The Radiations Safety Officer will determine whether protection suits are required to be worn by ERTs/Civil Defense Teams working in this zone depending upon the prescribed intervention levels; the duration which the team is expected to spend in the said area and the radiation level in that area. In Zone D, no casualties are expected. Insofar

as Zone 'D' is concerned, protection suits will not be necessary. However all search and rescue teams/Civil Defense teams working in Zones B, C & D will at all times carry monitoring equipments and dosimeters.

3.6 The typical areas covered by these four Zones in the aftermath of an attack using a 20 KT weapon are shown at Annexure-ii. The size of the zones will vary depending on the size of the device and the height of the burst. The SOP provides that after a nuclear attack, the yield will be assessed and a tentative marking of the four zones done by the monitoring teams located in the Emergency Command Centers. The final marking of the zones will be done by the monitoring/assessment groups of the Emergency Response Teams.

3.7 Various other aspects covered in the SOP include avoidance of panic/exodus, massive training programme for doctors and paramedics, development of data base of doctors/paramedics including in private sector in the vicinity of the target areas, organization of specialized search, rescue and evacuation teams in the satellite towns on the periphery of the targeted area and involvement of para-Military Forces and Civil Defense in carrying out these functions.

3.8 The level and nature of protective equipment to be provided to the Civil Defense volunteers/Paramilitary Forces personnel will be the same for similar type of operations.

3.9 The following three stages are envisaged:-

(a) Preparedness stage (peace time) – CODE GREEN.

This will include all actions that have to be taken during peace time by various agencies to ensure that the response plans are in a state of preparedness. This will include documentation, having equipment in place, exercises, drills, Training programs, awareness programs, purchase of equipment establishment of command and control systems etc. The preparedness measures also keep the possibility of a sudden nuclear attack in view the implementation of code green should commence immediately upon the approval of this SOP. The details of actions to be taken are given in Chapter -4

(b) Precautionary stage – CODE YELLOW.

This is a stage which could be considered as a deviation from normal relations due to rising tensions with an adversary. The functions in this stage will need to be carried out by various agencies in order to enable movement from a stage of preparedness to the precautionary stage on the presumption that there could be an imminent nuclear attack. The precautionary stage will be declared by the Government. The details of actions to be taken are given in Chapter-5

(c) Post –unclear attack stage- CODE BLACK.

This will cover all actions which are to be taken once a nuclear attack has been confirmed. The details of actions to be taken are given in Chapter-6

3.10 In case of a sudden nuclear attack, the measures listed in the precautionary stage (code yellow) and the post attack stage (code Black) will come into operation concurrently.

CHAPTER-4

PREPAREDNESS STAGE: CODE GREEN

4.1 The preparedness stage will include all preparatory measures required to be taken by concerned Ministries/Departments, state Governments and their organizations for an effective and timely response.

Potential Targets

4.2 Identification and Annual review of potential targets will be undertaken by MOD in association with intelligence agencies and a list of such targets will be maintained as a part of this SOP.

{*MHA/MES/CPWD/DOT/MOD(DRDO)}

4.4 Establishment of state ECC. Detailed protocol for manning the ECC to be laid down as above

{SGs}

4.5 Establishment of District ECC. Detailed protocol for manning the ECC to be laid down as above.

{*SGs/Disst Admn}

4.6 SIS database to be maintained at the ECC for areas in and around targeted region with detailed information on-

(i) Maps/Roadmaps of potential targets and satellite towns.

(ii) Important places of shelter which will include schools, community centers, location (with strength) of medical and paramedical staff, number of beds in the hospitals, inventory of emergency services (fire, police and transport).

(iii) Related satellite based aerial imageries of target areas.

{*MHA/SGs/ARC/Disst Admn}

Emergency Response Teams

4.7 The Emergency Response Teams will be formed and trained both at the Central and State level. The Structure of the Emergency Response Teams is given at Annexure-iii

(Responsibility : MHA/SGs) {Assistance : DAE/MOD(DRDO)}

4.8 The list of equipment for equipping ERTs to be drawn from CPMFs/State Police / Fire services is given in Annexure-iv.

4.9 The monitoring equipment and personal protective gear will be sanctioned and procured in advance for the emergency response and for other medical/civil defense personnel involved in rescue, evacuation and decontamination.

(MAH/DAE/DRDO/MOH/SGs)

4.10 UAVs to be procured and kept in readiness with NTFO/Emergency Response Teams.

(MHA/DAE/NTFO/BARC)

4.11 Constitute Route Clearing Teams along with compatible engineering equipment in Engineering Divisions of satellite towns-personnel to be trained and equipped to operate in a radiation environment. These teams will carry out joint mock drills/training with ERTs and QRT

[*SG/MHA/MOD]

4.12 Engineering Teams for restoration of power and communication links to be identified in satellite towns.

[*SGs/CPWD/SPWD]

4.13 Raise Auxiliary Fire services on all large scale both in the target areas as well as in the satellite towns.

[*SGs/MFA]

4.14 Identify/create sufficient water sources for firefighting in potential target town and satellite towns.

[*SGs/Disst Admn]

4.15 Constitute monitoring teams of personnel from DAE/ DOS/IMD/DRDO/NTFO/ARC to evaluate the yield/impact of the strike and monitor the movement of the radiation cloud/fall out – one team for the National level and one for each concerned State ECC.

[*DAE/DOS/IMD/MOD(DRDO)]NTFO/ARC]

4.16 Helicopters and necessary radiation monitoring equipment to be procured. Personnel required for aerial monitoring to be trained by BARC.

[*MHA/DAE(BARC)/NTFO/ARC/MOD(DRDO)]

Civil Defense

4.17 Legal powers at present included in the Civil Defense Act, 1968 and the Defense of India Act and the Rules framed there under provide overriding authority to the District Magistrates/Controllers to requisition any property for war/civil defense effort. These may be reviewed time to time for updation, where necessary.

[*MHA]

4.18 A massive programme for training of Civil Defense/Home Guard personnel in the potential target towns and satellite towns to be taken up implementation. NCDG will devise an appropriate course/syllabus in consultation with DAE for training of Civil Defense volunteers.

[DGCD/NCD/DAE]

4.19 Raising training and equipping of Civil Defense teams for functioning in high radiation environment both in the target towns and satellite towns. It will be ensured that the strength of the Civil Defense teams to be raised in satellite towns is sufficient to cater

for carrying out rescue and relief activities in the potential target areas. Sanction of appropriate equipment for Civil Defense teams located in and around the target areas.

[*MHA/CD]

4.20 In the satellite towns at least 10% of the Civil Defense strength will be called up on a roster basis every quarter. This will ensure that these teams remain in training and also enable organized response to a sudden attack.

[*DGCD]

4.21 Finalization of procedure for communication with the Civil Defense workers including sirens and signals.

[*DGCD/DOT/DAE]

4.22 The list of equipment required by the Civil Defense has been worked out for the purpose of illustration, for Greater Mumbai only which is at Annexure-v

Similar exercise will have to be conducted by DGCD in respect of all vulnerable cities/areas/installations.

[*DGCD]

4.23 Procurement of potassium iodide tablets and their distribution to Civil defense Bodies.

[*DGCD/MOH]

4.24 Procurement of flash lights (torches) and radio sets to be placed with the District Command Centers for distribution to affected population, post-nuclear attack.

[*DGCD/SG s/ Distt Admn]

Medical preparedness

4.25 Identification and equipping of Hospitals for treatment for radiation cases and Mass Casualty Management in satellite towns around the target area.

[*MOH/SGs]

4.26 Hospitals to be identified and capabilities built up therein for providing specialized medical facilities including bone marrow transplant facilities.

[*MOH/SG s]

4.27 All identified hospitals to have Disaster Management Manual including SOP for steps to be taken following a nuclear attack.

[*MOH/SG s]

4.28 Earmarking and organization of static and mobile first aid posts and mobile field hospitals in satellite towns and training of the Doctors/Paramedics in these teams.

[*MOH/DGCD/DAE]

4.29A data-base of the doctors and paramedics including the medical practitioners in private sector in the vicinity of the target areas to be developed for each target area.

[*MOH/SG s]

4.30 Training capsules for training of doctors and paramedics for treatment of radiation-induced injuries be developed. Training/orientation courses of doctors/paramedical staff in Government, Public/Private Sector hospitals in and around the targeted regions including the satellite towns in handling of mass casualty/radiation injuries-to be organized.

[*MOH/DAE/MOD(DRDO)]

4.31 Identification of sources (manufactures/wholesalers) for all appropriate types of medicines. An illustrative list of the medicines required is at Annexure-vi

[*MOH/SG s]

4.32 Procurement of minimum quantity of medicines including Potassium Iodated tablets and their distribution amongst designated hospitals in and around the targeted regions.

[*MOH//SG c]

4.33A mechanism to rotate the medicine stocks by consumption and regular replenishment of the stock.

[*MOH/CD/SG s]

4.34 Identifying and equipping existing laboratories in satellite towns for sample testing of foodstuffs and water.

[*MOH/SG s]

4.35 Four mobile laboratories for sample testing of foodstuffs and water to be kept in readiness in satellite towns outside each target area. These will be manned by chemists from state Laboratories who will be specifically trained for this purpose by DAE.

[*MOD/DAE/MHA/DRDO/SG s]

4.36 The mobile hospitals will have satellite communication equipments enabling telemedicine/consultation with experts in different field through video conferencing.

[*MOH]

4.37 All existing crematoriums in the satellite towns to have incinerators.

[* MOUD/ SG s/Distt. Adman.]

4.38 Construct/Identify shelters for Local Command Post/Civil Defense Teams/Depots/Emergency Response Teams both in target and satellite towns.

[* DGCD/SG s/DISTT Admn.]

4.39 Procurement of adequate number of wireless and storage of these sets out-side the targeted region in appropriate sage shelters.

[*SG s/Disttt Admn]

4.40 Designate appropriate grounds for housing evacuees outside the target areas covering al directions.

[*SG s/DGCD/MHA]

4.41 Locating/creating water sources near the identified premises

[*SG s/Distt Admn]

4.42 Identification of stores for procurement/requisitioning of tents, shamans, tin sheets, emergency sanitation and mobile diesel generating sets and entering into per-contracts to be reviewed every year.

[*SG s/DGCD/ Distt. Admn]

4.43 Identify towns/places far from the target area from where uncontaminated food stock/perishables can be drawn in the event of a nuclear attack. Transport arrangements/rates to be tied up and reviewed every two years.

[*SG s/DGCD/Distt. Admn]

4.44 Establishment of linkages between NGOs, Civil Defense, Government Organizations and other volunteers for adequate arrangements for clothing, for men, women and children and its dispatch to civil defense centers located in the satellite towns outside the targeted regions.

[*SG s/DGCD]

4.45 Putting in place fail proof alternative communication linkages between national, state and district Emergency command Centers, DAE, Indian Met. Dept of Space, ARC/NTFO and National Remote Sensing Agency. Hardening the communication links will be tested once every month.

[*DOT]

Transportation

4.46 Identification of transport vehicles both in public and private sectors.

[*Distt Admn]

4.47 Rates of requisition of vehicles/premises to be finalized and reviewed every two years.

[*SG s]

4.48 Sources of POL to be identified in periphery towns with arrangements for augmentation of supply within a short time of say 45 hours.

[*MOP&NG]

4.49 POL reserves to be kept ready

[*MOP7NG/SGs/Distt Admn]

4.50 Contingency plan for restoration of power supply within the shortest possible time.

[*SGs/Electricity Boards]

District level preparedness

4.51 Constitution of Teams by the District Administration as under:-

(i) Law & order under S.P.

(ii) Search and Rescue under ADM

(iii) Auxiliary Fire Service under chief Fire Officer

(iv) Corpse and Carcass disposal under the Municipal Corporations.

(v) Transport under the Regional Transport officer/District Transport officer.

(vi) Camp administration under SDM/Dy. Collector

(vii) Food and Civil Supplies under the District Civil Supply Officer.

(viii) Decontamination arrangements including disposal of contaminated water under the public Health Engineering Departments.

(ix) Mobilization of adequate health services for treatment of radiation induced injuries under the District Chief Medical Officer.

(x) Generating awareness amongst public in the targeted regions which will include preparation, distribution and demonstration of simple methods for preparing safe shelters within or adjacent to their houses and display of appropriate designs of shelters under Dy. Controller Civil Defense.

(xi) Evacuation under Dy. Controller Civil Defense.

All the above mentioned Teams will function under the overall charge and direction of Dist. Magistrate.

[*Distt. Admn]

4.52 Necessary law & order arrangements to be worked out and orders drafted and

kept ready for:

- (a) Providing security at relief camps.
- (b) Preventing panic
- (c) Preventing people from going into the affected area.

[*SG s/MHA/Dist Admn]

4.53 District administrations to draw up draft orders for management of relief: Camps assigning specific responsibilities to specific officers/departments. These orders will be updated in the month of April each year.

[*SG s//Dist Admn]

4.54 Draft orders to be kept ready for mobilization of CPMF s to report to state/District Command Centers Scheme for such reporting to be worked out by MHA.

[*MHA]

4.55 AIR transmitters located in satellite towns to be set up/strengthened.

[*I&B/SGs]

4.56 A massive programme for dissemination of information to people to be undertaken by integration it with the awareness generation campaign for natural disasters to ensure that it does not result in panic or exodus of population from the potential targets.

[*MHA/DAE/I&B/SGs/Dist Admn]

4.57 The Civil Defense mechanism will also carry out awareness generation as a part of its duties. Pamphlets containing do's/don'ts, make shift shelter designs, health precautions, etc in case of a nuclear attack to be printed and distributed to the population in and around the targeted regions by civil defence/home guard volunteers as a part of regular Civil Defense exercises.

[*DGCD/I&B]

4.58 Material for dissemination through Doordarshan and other TV channels, All India Radio and print media for awareness generation to be developed and kept in readiness.

[*DGCD/MHA/DAE/I&B]

4.59 Population in the potential target areas to be advised to maintain radio sets.

[*DGCD/I&B/SGs]

Mock drills/Exercises

4.60 Mock drills/exercises will be carried out for each fact of preparedness. Mock drills will be carried out for, in particular:-

- (a) Rescue and evacuation-with ERTs/SAPs/Civil Defense Teams /Route Clearing Teams working together. This will also cover transport.

(b) Decontamination.

(c) Setting up relief camps, first aid posts mobile hospitals

(d) Activation of ECC s and deployment of monitoring and assessment teams-the

aspect of communication will also be exercised together with this.

[*DGCD/CPMFs/SGs]

4.61 These mock drills/exercises will be carried out as a part of the general mock drills for disaster management so as not to create any unnecessary panic.

[*DGCD/CPMFs/SGs]

4.62 Keeping considerations of economy in view, instead of carrying out mock drills/exercises throughout the country on all facets, one aspect will be taken up for exercise in some selected towns while another aspect is covered in other selected towns.

[*DGCD/CPMFs/SGs]

Contact details

4.63 Complete details (Name designation, Telephone Nos. both office/Residence/Mobile and e-mail) in respect of the following will be attached as an Appendix form part of these SOPs:

i. Nodal Offices of-

4.64 Redundancy/Reserves

Insofar as personnel equipment is concerned, reserves of 10% of the authorized strength. Insofar as monitoring equipment is concerned, a reserve of 25% of the authorized strength.

4.65 Updation/Modernization

Equipment will be reviewed every year and where necessary the list of equipment will be updated from time to time depending upon the technological advances.

Review

4.66 Preparedness and Response measures will be reviewed and updated in the month of may every year and a report sent to MHA.

[*MHA/MOH/DGCD/MOD/DRDO/DEA/SGs/ERTs/ERCs]

CHAPTER-5

PRECAUTIONARY STAGE: CODE YELLOW

5. The precautionary stage is divided into two stages stage-I in which activation measures required prior to response will be put in place and Stage-II where all the resources will be mobilized to be ready for response in case of a nuclear attack. The precautionary stage will be declared by the Government based on assessment and evaluation of various factors including

intelligence inputs. The declaration of the precautionary stage will trigger off the following sequence of actions:

STAGE-I (Activation)

5.1 ECC s at National, State and district level outside the targeted regions to be activated.

[*MHA/DAE/NRSA/DOS/MOD(DRDO)/ARC/IMD/SG s/Districts]

5.2 All teams mentioned in preparedness stage to be called up.

[*MHA/ALL concerned]

5.3 Civil Defense volunteers to be called to the assembly points for briefing.

[*DGCD/I&B]

5.4 Personnel from IMD, DOS, DAE, ARC/NTFO and DRDO to man the national/State monitoring centers.

[*MHA/SG s/IMD/DOS(NRSA)DAE/ARC/NTFO/MOD(DRDO)]

5.5 All intelligence inputs to be provided to National and State command posts.

[*MOD(DIA)/IB/R&AW/NSC]

5.6 Engineering units/route clearing units to be mobilized and kept on standby in satellite towns for route clearing/clearing up radioactive debris, and restoration of power/communication links.

[*SG s/DOT]

5.7 Mobile laboratories for sampling foodstuff/water to be activated.

[*MOH/DAE/SG s]

5.8 Medical teams to be kept in readiness

[*MOH/SG s/CMO]

5.9 Potassium Iodide tablets to be supplied to potential target areas.

[*MOH/CD/SG s/Distt Admn]

5.10 Doordarshan, Media (visual & print) to intensify their awareness campaign. Civil Defense to provide necessary material.

[*DGCD/I&B]

5.11 Pamphlets/posters highlighting important do's and don'ts to be disseminated to the population in the potential target areas simultaneously ensuring that it does not result in panic or exodus of population.

[*DGCD/SGs/Distt Admn]

STAGE-II (Mobilization)

5.12 The command and control structures to be shifted to the Emergency Command Centres

[*MHA/SG s/Districts]

5.13 All teams mentioned in stage I do be moved to their assembly points.

[*MHA/ALL Concerned]

5.14 Civil Defense services for rescue first aid, decontamination, temporary shelters, evacuation, command and control and communication to be mobilized and moved to their designated stations.

[*DGCD/SG s/Distt. Admn]

5.15 Arrangements to be made for disposal of very large quantities of radioactive waste material. This could be in the form of large tanks for storing the contaminated water, plastic bags for holding contaminated clothes and arrangements for disposal of contaminated bodies/carcass.

[*SG s/DAE/Distt Admn.]

5.16 Establishment of decontamination centers with adequate arrangements for disposal of contaminated water.

[*SG s/Distt Admn]

5.17 Government and public sector vehicles to be mobilized except those which are involved in emergency services.

] [*SG s/Distt Admn]

5.18 Private transport to be requisitioned for evacuation/transport of food and supplies etc.

[*SG s/Distt Admn]

5.19 Private medical practitioners to notified to be on standby

[*MOH/SG s/Distt Admn]

5.20 Potassium Iodate Tablets to be distributed to the public with the instructions to take one tablet per day for two weeks immediately after a nuclear attack.

[*DGCD]

5.21 Requisitioning of tents/shamianas, tin-sheets, emergency sanitation, mobile diesel generating sets and its dispatch to the District Command Centres.

[*SG s/Districts/DGCD]

5.22 Adequate supply of baby food to be moved ot designated shelters.

[*SG s/F&CS/Distt Admn]

CHAPTER-6

POST NUCLEAR ATTACK: CODE BLACK

6.As soon as a nuclear attack takes place, following actions will be takebn:-

Impact assessment

6.1 Monitoring teams of DAE/DOS (NRSA) / IN\MD/ARC/NTFO/MOD(DRDO) located at National Command /centre to assess impact and advise the command Authority regarding the extent of damage, level of radiation hazards etc.

[*DAE/NTFO/NRSA/DOS/ARC/DRDO]

6.2UAV s with monitoring equipmen/sensor/video to owrfly the area.

[*NTFO/ARC/DAE]

6.3 Yield of the bomb to be assessed by a team of DAE/DOS/NRSA/IMD/ARC/NTFO/DDRO etc based in the National command Centre.

[*DAE/DOS/NRSA/IMD/ARD/DRDO/NTFO]

6.4 Monitoring equipment already procured to be fitted in the helicopters which will be sent for recce for impact assessment.

[*ARC/DAE/NTFO]

6.5Radioactive cloud to be tracked continuously and wherever possible, fallout to be monitored and measured.

[*DAE/Monitoring Teams]

6.6 Assessment teams from Emergency Response Battalions to move to the affected areas and assess radiation levels for earmarking areas in which search and rescue teams can operate-as also levels of protection required for each area.

[ERT s]

Earmarking of Zones

6.7 After taking inot account the assessment made, the Unified commander, on the advice of the Assessment Team, and the Radiation Safety Officer will earmark the areas in Zone 'B' from where the population is be evacuated.

[*SG s/DAE/Distt.Admn/ERT s]

Search and evacuation

6.8 Based pm the assessment, the search/rescue/evacuation teams of Emergency Response Battalions will move in earmarked area of Zone 'B' for rescue and evacuation. The rescue and

evacuation, from 'C' and such areas in Zone 'D' which are to be evacuated, keeping in view the direction of the plume and the area covered by fall out will be carried out by the Civil Defense Teams assisted Where necessary by Emergency Response Teams.

[Distt.Aemn./ERT s]

6.9 Road clearance teams to be deployed for road clearance to facilitate evacuations.

[*SG s/Distt. Admn]

6.10 All emergency response personnel to be administered potassium iodate tablets.

[*DGCD/CPMF s/SG s/Distt.Admn]

6.11 Fire fighting teams to commence operations the earmarked areas of Zone B and in Zone C and D

[*SG s/Distt.Admn/CD]

6.12 CPMF s/Police deployment to prevent panic/exodus or entry into the area.

[*CD/SG s/Distt.Admn]

6.13 First aid posts to be set up at the periphery of Zone 'D' and activated.

[*MOH]

6.14 Decontamination centres to be activated

[*MOH]

6.15 Camps to be established Evacuated population which does not have any injuries will be decontaminated and housed in the camps

[*SG s/Distt Admn/CD]

6.16 Persons who are injured to be evacuated and brought to the first aid posts where they will be decontaminated. After first aid and providing new clothes they will be shifted to evacuation camps/field hospitals, depending on their condition.

[*SG s/ERT s/CD/Distt.Admn]

6.17 Seriously injured patients, who cannot wait for decontamination will be sent to designated hospitals which have "dirty treatment" areas.

[*MOH/Distt Admn]

Decontamination/Disposal

6.18 Contaminated clothing material to be packaged and dumped in Zone 'A'

[SG s/Distt.Admn/DAE]

6.19 Disposal of dead bodies/carcasses in incinerators.

[SG s/Distt.Admn/DAE]

6.20 Information Centres to be activated. Additional police stations to be set up near relief camps

[SG s/Distt.Admn]

6.21 People in the affected areas to be advised regarding precaution to be taken with regard to consumption of foodstuff and water.

[*I & B/CD/SG s/ Distt. Admi.]

6.22 Mobile sampling units to sample foodstuff and water in satellite towns on a continuous basis.

[*MOH]

6.23 Core monitoring team at National COC/State EOC comprising of DAE/NRSA/DRDO/IMD/DOS to continue assessment and updating of the situation, based on the latest information, and advise the command authority.

[*MHA/DAE/NRSA/IMD/MOD(DRDO)/ARC/NTFO/DOS] *Coordinating agency for the activity

Akola Dist. Disaster Management Authority

Sr.No.	Member Name	Denegation	Office No.	Mobile No.
1	Shri Aastik kumar Pandey Collector Akola	President Authority	0724- 2424442	7030918899
2	Sau.Sandhyatai Waghode President ZP Akola	Co- President Authority	0724- 2435676	8888114757
3	Shri S. Ramamurti CEO ZP Akola	Member	0724- 2435213	7768866060
4	Shri Rakesh Kalasager SP Akola	Member	0724- 2435002	9823885899
5	Dr.Rajkumar Chavan Dist. Civil Sergen Akola	Member	0724- 2434918	9850311675
6	Shri Mithilesh Chavan Executive Engineer PWD Akola	Member	0724- 2435068	9422184300
7	Dhri Jayant Shinde Executive Engineer Irrigation Dept. Akola	Member	0742- 2435316	9890597343
8	Shri Shrikant Deshapande Resident Depty Collector Akola	Secretary	0724- 2435193	9850356083
9	Jitendra Wagh Commissioner AMC Akola	Member	0724-243503	

Akola Dist . Contact Number

Sr. No	Officer Name	Denegation	Office No.	Mobile No.
1	Shri Aastik kumar Pandey	Collector Akola	0724-2424442	7030918899
2	Shri Narendra Tapre	Add. Collector	0724-2432153	
3	Shri Shrikant Deshpande	Resident Dy. Collector	0724-2435193	9850356083
4	Shri Sanjay Khadase	Sub divisional Officer Akola	0724-2435336	7588803334
5	Shri Uday Rajput	Sub divisional Officer Akot	07258-222674	9422920500
6	Shri Bhagwat Saidane	Sub divisional Officer Murtizapur	07256-243472	7588688997
7	Shri Sanjay Khadase	Sub divisional Officer Akola	0724-2435336	7588803334
6	Shri Rajeshwar Hande	Tahsildar Akola	0724-2435047	9921463279
8	Shri Vishwanath Ghuge	Tahsildar Akot	07258-222625	9422884485
9	Shri Ravi Kale	Tahsildar Barshitakali	07255-252034	9422148157
10	Shri Santosh Yeolikor	Tahsildar Telhara	07258-231336	8007846177
11	Shri Dipak Punde	Tahsildar Balapur	07257-232123	9823704217
12	Shri Rahul Tayde	Tahsildar Murtizapur	07256-244133	9423847149

Akola Dist. Police Department Contact Number

Sr.No.	Officer Name	Denegation	Office No.
1	Shri Rakesha Kalasager	Superintendent Of Police	0724-2435002
2	Shri Vijaykant Sager	Add. Superintendent Of Police	0724-2445301
3	Shri Khanderao	PI DSB	0724-2445307
4	Police Control Room		100/2435500

• Akola Police Subdivision & Police Station

Sr.No.	Subdivision & Police Station	Contact Number
1	Sub divisional Officer, Akola	0724-2445303
2	Police Inspector, City Kotwali	0724-2445320
3	Police Inspector, Ramdas Petha	0724-2445324
4	Police Inspector, Civil Line	0724-2445330
5	Police Inspector ,Old city	0724-245340
6	Police Inspector ,Akot Phail	0724-2445336
7	Police Inspector, Khadan	0724-2445332

• Akot Police Subdivision & Police Station

Sr.No.	Subdivision & Police Station	Contact Number
1	Sub divisional Officer, Akot	0724-2445303
2	Police Inspector, City Kotwali	0724-2445320
3	Police Inspector, Ramdas Petha	0724-2445324
4	Police Inspector, Civil Line	0724-2445330
5	Police Inspector ,Old city	0724-245340
6	Police Inspector ,Akot Phail	0724-2445336
7	Police Inspector, Khadan	0724-2445332

- **Balapur Police Subdivision & Police Station**

Sr. No.	Subdivision & Police Station	Contact Number
1	Sub divisional Officer, Balapur	07257-222360
2	Police Inspector, Balapur	07257-222120
3	Police Inspector, Ural	07257-226012
4	Police Inspector, Patur	07257-243228
5	Police Inspector ,Channi	07257-248011

- **Murizapur Police Subdivision & Police Station**

Sr.No.	Subdivision & Police Station	Contact Number
1	Sub divisional Officer, Murtizapur	07256-243493
2	Police Inspector, Murtizapur	07256-243469
3	Police Inspector, Mana	07256-246032

Municipal council CEO Contact Number

Sr.No.	Municipal council Name	CEO Name	Office Number	Mobile Number
1	Akot	Shrimati Geeta Thakare	07258-222652	9420239444
2	Telhara	Manohar Akotkar	07258-231371	9767610690
3	Balapur	G.S.Pawar	07257-222124	9923153231
4	Patur	Milind Darokar	07254-243241	9763476183
5	Murtizapur	Dadarao Dolharkar	07256-243422	9921237270
6	Barshtakali	Nandu Parlkar	-	7249448555

- **Disaster Management Unit Mantralay Mumbai- 022-2025274/228372259**
- **Mantralay Control Room – 022-22026712**
- **NDRF Pune - 02114-231509**
- **Dist. Control Rome - 0724-2424444**
- **Toll Free No. - 1077**
- **Police Control Room No. - 100**
- **Divisional Control Room - 0721-2661364**
- **Health Service Toll Free -108**
- **Akola Municipal Corporation Fire Service - 0724-2434460**
- **Fire Service Toll free - 101**

Sr.No.	Designation	Office No	Resi. No.
1	Chief Minister	022- 22025151	022- 236330551
2	Dy. Chief Minister	022- 22025014	022- 23631505
3	Chief Secretary	022- 22025042	022- 22815083
4	ACS Home	022- 22025042	022- 24939493