सत्यमेव जयते

NATIONAL DISASTER MANAGEMENT GUIDELINES

MANAGEMENT OF THE DEAD
IN
THE AFTERMATH OF DISASTERS

August 2010

NATIONAL DISASTER MANAGEMENT AUTHORITY
GOVERNMENT OF INDIA

National Disaster Management Guidelines

Management of the Dead in the Aftermath of Disasters

National Disaster Management Guidelines - Management of the Dead in the Aftermath of Disasters

A publication of:

National Disaster Management Authority
Government of India
NDMA Bhawan
A-1, Safdarjung Enclave
New Delhi - 110 029

ISBN: 978-93-80440-05-7

August 2010

When citing this report, the following citation should be used:

National Disaster Management Guidelines - Management of the Dead in the Aftermath of Disasters, 2010. A publication of the National Disaster Management Authority, Government of India.

ISBN:978-93-80440-05-7, August 2010, New Delhi.

The National Guidelines are formulated under the Chairmanship of Lt. Gen. (Dr.) J. R. Bhardwaj, PVSM, AVSM, VSM, PHS, (Retd.), Hon'ble Member, NDMA, in consultation with various specialists, regulators and stake-holders in the subject field concerned, from all over India.

National Disaster Management Guidelines

Management of the Dead in the Aftermath of Disasters

National Disaster Management Authority
Government of India

Contents

सत्यमेव जयते

Vice Chairman
National Disaster Management Authority
Government of India

FOREWORD

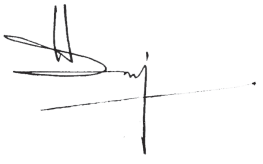
India's unique geo-climatic conditions make it vulnerable to a host of disasters, which despite all the technological advancements, can not be prevented even though, we can be and ought to be, better prepared for them. Each disaster in its trail leaves behind sufferings, some of which can be alleviated to some extent by relief and rehabilitation measures, but its indelible scars are the loss of precious lives (human, livestock and poultry). The Administration is thus saddled with indomitable task for the retrieval and recovery of the dead followed by their identification to enable handing over of the mortal remains to their next-of-kins. On the contrary, history of disasters is replete with mass burials or mass cremations by the governmental agencies of both the developed and developing countries, without being able to go through the identification process or without preserving the individuality of the deceased, on account of the decomposition process of the dead subject to the environmental factors. Such happenings culminate into social, psychological, emotional, economic, and legal repercussions (financial compensation, property rights, inheritance and issues of remarriage) regarding the legacy of the deceased, thereby exacerbating the damage caused by the disasters.

With the paradigm shift from the erstwhile response-centric approach after the enactment of the Disaster Management Act, 2005, to the holistic management of disasters, amongst multitude of tasks, the laying down of these guidelines has assumed great importance. In this backdrop, the National Disaster Management Authority embarked upon the task of formulating the guidelines on this sensitive and vital issue. These Guidelines are designed to provide not only technical information, but also dwell on administrative aspects that will support the correct approach in handling of the dead bodies and animal carcasses, with the highest possible quality of standards/measures, functioning in an interdisciplinary manner, to ensure positive identification of victims. In the aftermath of disasters, the Management of the Dead under the ambit of the Incident Response System will be incorporated in the National, State and District "all hazard" Disaster Management Plans, and thereupon, institutionalize standard procedures for the correct and appropriate management of dead.

I am confident that these Guidelines, when imbibed into the State and District Disaster Management Plans by the concerned authorities and its directives implemented by all the stakeholders at various echelons of administration, will achieve the desired aim that no dead body should be laid to rest, unidentified.

I take this opportunity to express my deep appreciation of the commitment shown by various stakeholders who extended their wholehearted support and cooperation to our efforts in the preparation of these Guidelines. I express my gratitude to experts of the Core Group, and of the Extended Core Group, for their dedication and endless hours of work in assisting NDMA in this venture. In the formulation of these Guidelines, I would also like to gratefully acknowledge and commend the noteworthy and valuable contributions from the International Committee of the Red Cross.

For this monumental and pioneering work, I am pleased to place on record my deep appreciation of Lt. Gen. (Dr.) J. R. Bhardwaj, PVSM, AVSM, VSM, PHS (Retd.), Member, NDMA, who has not only contributed immensely himself, but also very commendably, steered the formulation of these Guidelines.



New Delhi
26 August 2010

General NC Vij
PVSM, UYSM, AVSM (Retd)

सत्यमेव जयते

Member
National Disaster Management Authority
Government of India

ACKNOWLEDGEMENTS

Disasters of any aetiology have a common denominator of a large number of deaths in a short span of time, thrusting an uncommon challenge on the Authorities for handling a large number of dead bodies and animal carcasses. The initial media focus is on the dead coupled with the myth of being causative for epidemics, have culminated into mass burials or mass cremations. Management of the dead, a major social responsibility of the government, entails positive identification of the deceased for correct and dignified disposal according to religious, cultural, ethnic and psycho-social needs of the affected community. In view of response-centric mass-disposal of the dead in the past by the administrations, it became imperative for the National Disaster Management Authority to formulate the National Guidelines so as to institutionalize standard procedures for prompt and appropriate management of dead bodies and animal carcasses in the aftermath of disasters.

The National Disaster Management Guidelines on Management of the Dead in the Aftermath of Disasters is the product of the indefatigable efforts and collective wisdom of the Core Group members and experts in the field. I would like to place on record, a special word of thanks to all those who extended their unstinted cooperation and proactive participation, in the consultative process of this project.

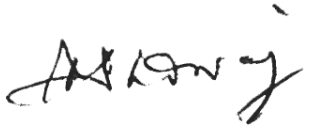
It was the keen involvement of Ministries/Departments of the Government of India coupled with valuable technical contributions from academic institutions, research establishments and non-governmental organisations that have been helpful in designing the format of this document. The draft document has also been deliberated in 11 States, across the country, to nearly 1100 stake-holders - Government functionaries, United Nations agencies, and NGOs (local, national and international). The brainstorming sessions that ensued of these Conferences brought forth valuable ideas to be incorporated in this document.

I would like to place on record the significant contribution made by the Core Group members. Of special mention are Dr. D. N. Lanjewar as its Convenor, Mr. Nicholas Bachmann and Mr. Dusan Vujasanin of the International Committee of the Red Cross for their substantial inputs which have enriched the content of this document, Dr. N. Madhusudan Reddy for DNA technologies, and Dr. A. K. Sinha for his chapter on the disposal of animal carcasses.

It is with great pleasure that I acknowledge the valuable contributions rendered by Dr. T. S. Sachdeva, Senior Consultant (Medical Preparedness & Mass Casualty Management) in provisioning technical inputs, editing, shaping, refining and coordinating the release of this Guidelines. Also, I appreciate and thank the two other Senior Consultants viz. Major General (Dr.) J. K. Bansal and Dr. Vivek Chhabra, for their valuable contributions and efforts, in preparing these guidelines.

I would like to acknowledge with thanks, the active support provided by Sh. A. B. Prasad, Secretary, NDMA, and the administrative staff of the NDMA. I express my sincere appreciation for the dedicated work of my secretarial staff, comprising of Sh. Deepak Sharma and Sh. Sanjay Singh, in convening of various meetings and assistance in the preparation of this Guidelines.

Finally, I express my profound gratitude to General N. C. Vij, PVSM, UYSM, AVSM (Retd.), Vice Chairman, NDMA, and all the Members NDMA, for their constructive criticism, suggestions and guidance in the formulation of this document.



New Delhi
26 August 2010

Lt. Gen. (Dr.) J.R. Bhardwaj
PVSM, AVSM, VSM, PHS (Retd)
MD DCP PhD FICP FAMS FRC Path (London)

Abbreviations

The following abbreviations and acronyms used throughout this document are intended to mean the following:

AIDS	Acquired Immuno-deficiency Syndrome
AM	Ante-Mortem
ATI	Administrative Training Institute
CBDP	Community Based Disaster Preparedness
CBRN	Chemical, Biological, Radiological and Nuclear
CD	Civil Defence
CDFD	Centre for DNA Fingerprinting and Diagnostics
CFSL	Central Forensic Science Laboratory
Cr PC	Code of Criminal Procedure
CRF	Calamity Relief Fund
DDMA	District Disaster Management Authority
DDMP	District Disaster Management Plan
DG ESIS	Director General Employees' State Insurance Scheme
DM	Disaster Management
DNA	Deoxyribonucleic Acid
DVI	Disaster Victim Identification
ESF	Emergency Support Function
GoI	Government of India
HIV	Human Immuno-deficiency Virus
IC	Incident Commander
ICP	Incident Command Post
ICRC	International Committee of the Red Cross
IDRN	India Disaster Resource Network
INTERPOL	International Criminal Police Organization
IRCS	Indian Red Cross Society
IRS	Incident Response System
IRT	Incident Response Team

MCI	Mass Casualty Incident
NCC	National Cadet Corps
NCCF	National Calamity Contingency Fund
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
NEC	National Executive Committee
NGO	Non-Governmental Organization
NIDM	National Institute of Disaster Management
NYKS	Nehru Yuva Kendra Sangathan
PM	Post-Mortem
PRO	Public Relations Officer
RO	Responsible Officer
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Force
SEC	State Executive Committee
SOP	Standard Operating Procedure
UID	Unique Identification
UNESCO	United Nations Educational, Scientific and Cultural Organization

Glossary

The definitions of legal and technical terms used in this document are intended to mean the following:

Ante-mortem data

Ante-mortem Data is any information obtained from relatives or other reliable sources that can be compared with data obtained from a dead body or body part(s) (post-mortem data) and that enables a positive identification to be made.

Anthropology

The study of the human being in terms of distribution, origin, classification of races, physical characteristics, environment, social and cultural relationships.

Capacity Building

Capacity building includes:

(i) Identification of existing resources and resources to be acquired or created;

(ii) Acquiring or creating resources identified under sub-clause (i);

(iii) Organising and training of personnel and coordination of such training for effective management of disasters.

Central Government

Central Government means the Ministry or Department of the Government of India having administrative control of disaster management.

Chain of Custody

For any evidence collected in forensic sciences in general, and for the correct identification of dead body or body part(s), in particular, it is imperative to ensure a secure and robust chain of custody for the benefit of the next-of-kin. The chain of custody should include systematic labelling of all evidence and appropriate documentation to show "the order of places where, and the persons with whom, physical evidence was located, from the time it was collected to its handing over for final rituals".

Collective Grave

It is burial of the dead in an orderly process, preserving the individuality of every body, and maintaining identification with each body.

Common or Mass Grave or Mass Burial

Indiscriminate burial of more than two bodies in the same hole with no identification made of the bodies buried.

Death Certificate

Documented proof of the death of an individual; a legal instrument which includes the victim's name, age, sex, the cause and manner of death, the hour and date of death, and the name of

the professional who confirms the death.

Disaster

Disaster means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, or destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.

District Authority

District Authority means the District Disaster Management Authority constituted under Sub-section (I) of Section 25 of the DM Act, 2005.

District Plan

District Plan means the plan for disaster management for the district prepared under Section 31 of the DM Act, 2005.

DNA

DNA or Deoxyribonucleic Acid is a molecule found in most cells of all human beings, animals, plants and other organisms. Variations in the DNA sequence enable the distinction between individuals.

DNA Profile

It is a set of DNA identification characteristics at numerous specific DNA locations that is used to distinguish one person's body from that of another person.

Embalming

This procedure using chemicals and disinfectants preserves a dead body for more than 72 hours after death.

Exhumation

Exhumation means digging out a body, which has already been buried, from a grave. Exhumation is done for legal purposes to determine the cause of death, time since death, and the manner of death. Sometimes it is conducted even to establish identity of the deceased or to bury it at another place. Under the written order of the District Magistrate, the body should be exhumed by the Police in the presence of revenue officials and a medical officer. In India, there is no time limit fixed for the exhumation of a dead body.

Fingerprint

A fingerprint is a deposit of fatty residue left behind after a finger touches a surface and the sweat evaporates. The pattern left behind is unique to an individual and can be used to identify and link evidence in a way similar to DNA.

Genetic Information

It is the DNA code sequence which contains an individual's traits.

Inquest

An Inquest is a legal inquiry into the circumstances and the cause of death of a deceased person in cases of sudden, suspicious and unnatural deaths which are of two types:

(i) Police Inquest

In accordance with Section 174 of Cr PC, an Officer, usually of the rank of a Sub-Inspector of Police in charge of a Police Station, on receiving information of any accidental or unnatural death of any person, immediately informs the nearest Magistrate of the same and proceeds to the place where the body of the deceased is lying. There, in the presence of two or more respectable inhabitants of the neighbourhood (panchas), he makes an investigation and draws up a report (panchnama) which is then signed by all of them. In a case of suspected foul play, or doubt regarding the cause of death, the police officer forwards the dead body for post-mortem examination to the medical officer of the district or any other qualified medical doctor authorised to hold such an examination, furnishing a descriptive roll and full particulars, to find out the probable cause of death.

(ii) Magisterial Inquest

As per Section 176 of Cr PC, the District Magistrate, Sub-Divisional Magistrate, Judicial Magistrate or the Revenue officials such as District Collector, Deputy Collector or Tehsildar, designated as Executive Magistrate by the Government hold an Inquest in cases of death occurring in prison, in police custody, due to police firing, exhumation, and as dowry death.

Local Authority

Local Authority includes Panchayati Raj Institutions, Urban Local Bodies (Municipalities), District Board, Cantonment Board, Town Planning Authority or Zila Parishad or any other body or authority, by whatever name called, for the time being, invested by law, for rendering essential services, or with the control and management of civic services, within a specified local area.

Mass Cremation

Mass Cremation is the process of cremating more than one body at the same time.

Mass Casualty Incident

Mass Casualty Incident is defined as any event resulting in a number of victims, large enough to disrupt the normal course of emergency and health care services (PAHO/WHO 2001).

Mortuary or Morgue

Place where bodies are temporarily deposited until final disposal is decided on.

Myth

Belief that is ingrained in the psyche of a population over time. It is usually the result of distortions of religious norms, superstition, or simple observation of an apparent reality.

National Authority

National Authority means the National Disaster Management Authority established under Sub-section (I) of Section 3 of the DM Act, 2005.

National Plan

National Plan means the Plan for Disaster Management for the whole of the country prepared under Section 11 of the DM Act, 2005.

Personal Data

Personal Data means personally identifying information or sensitive data, including but not limited to, name, addresses, occupation, contacts and other personal details including DNA profile.

Post-Mortem

Post-mortem is otherwise known as Autopsy or Necropsy. The objective of the post-mortem examination is to establish the identity of a body, when not known, to ascertain the time since death, and the cause of death; and whether the death was natural or unnatural and if unnatural, whether it was homicidal, suicidal or accidental. Post-mortem is of two types:

(i) Clinical or Academic Post-mortem

Is one in which medical practitioners perform a post-mortem with the consent of the relatives to know the extent of the illness for which the deceased was treated.

(ii) Magisterial Post-mortem

This is performed on the requisition of the legal authority, responsible for the investigation of sudden, suspicious, obscure, unnatural, litigious or criminal deaths. The legal authority is usually a Police officer, not below the rank of a Sub-Inspector, or an Executive Magistrate.

Preparedness

Preparedness means the state of readiness to deal with a threatening disaster situation or disaster and the effects thereof.

Reference Sample

It is a DNA profile, obtained from a known individual, to cross-match with the victim.

State Authority

State Authority means the State Disaster Management Authority constituted under Sub-section (l) of Section 14 of the DM Act, 2005 and includes the Disaster Management Authority for the Union Territory constituted under that Section.

State Government

State Government means the Department of Government of the State having administrative control of disaster management and includes Administrator of the Union Territory appointed by the President under Article 239 of the Constitution.

State Plan

State Plan means the Plan for Disaster Management for the whole of the State prepared under Section 23 of the DM Act, 2005.

Zoonosis

Zoonosis is any disease which can be transmitted to humans from animals.

Executive Summary

Background

India has been a victim of both natural and man-made disasters. In the last decade, there were Earthquakes in Gujarat and Kashmir; recurring Floods in Bihar, Assam and even in drought-prone areas of Andhra Pradesh and Karnataka. In addition, Cyclones of varying intensity ravaged Andhra Pradesh and Orissa coasts; the Indian Ocean Tsunami created havoc in the Andaman archipelago, Kerala, Tamil Nadu, Puducherry and Andhra Pradesh. Lastly, in the year 2010, there were the Air Crash in Mangalore, the Train Accident in Midnapore district of West Bengal and the Fire in Park Street, Kolkata. Each disaster had thrown the gauntlet of handling a massive number of dead bodies and animal carcasses, overwhelming the capacity to effectively respond to this aspect of emergency wherein a number of unidentified bodies had to be disposed of, by the Administration.

Another classification of Disasters, as elucidated by the Interpol in their Disaster Victim Identification Guide, accessed from their website www.interpol.int on 6th April, 2010, is that they "are of two types - open and closed. An **open disaster** results in the deaths of a number of unknown individuals for whom no prior records or descriptive data are available, and therefore, it is difficult to obtain information about the actual number of victims following such events. A **closed disaster** results in the deaths of a number of individuals belonging to a fixed, identifiable group (e.g. aircraft crash with a passenger list). As a rule, comparative ante-mortem data can be obtained more quickly in the case of closed disasters. Combinations of these two forms of disasters are also conceivable, for example, an aircraft crash in a residential area". This classification is advantageous in the identification of Dead Bodies for the process of legal and monetary compensation.

Death does not end human suffering, especially when death is sudden, as the result of a disaster. The death of a loved one leaves an indelible mark on the survivors, and unfortunately, due to lack of information, families of the deceased suffer additional harm because of the inappropriate way that the bodies of the dead are handled. The secondary trauma so inflicted is unacceptable, particularly, if it is a consequence of direct authorization or action on the part of the Authorities or those responsible for humanitarian assistance.

Even in this modern era, we continue to be witness to the use of common graves and mass cremations for the rapid disposal of dead bodies owing to the myth that dead bodies pose a high risk of epidemics. The most serious aspect is that these measures are carried out without respecting the identification process or without preserving the individuality of the deceased, going against the cultural and religious practices of our population. They have social, psychological, emotional, economic, and

legal repercussions (financial compensation, property rights, inheritance and issues of remarriage) regarding the legacy of the deceased, which exacerbate the damage caused by the disaster.

The management of dead bodies involves a series of activities beginning with the search, *in situ* identification of the body, and its transfer to the facility that serves as a mortuary. It also encompasses delivery of the body to family members, and assistance from the State for final disposal of the body, in accordance with the wishes of the family and the religious and cultural norms of the community. However, the procedures get compounded in the case of unidentified bodies when every effort must be made to identify them, necessitating a battery of sophisticated investigations like Fingerprint and DNA profile matching. It requires the involvement of a diverse team of people: search and rescue personnel, medical professionals, forensic medicine experts, police, administrative personnel, psychologists, and support teams for the personnel who are directly handling the bodies, representatives from non-governmental and international organizations, as well as community volunteers. To this end, the State has a vital role in standardizing and guiding the tasks in the management of dead bodies, ensuring that legal norms (National and International) are followed, and guaranteeing that dignity of the deceased and their families is respected, in accordance with their cultural values and religious beliefs.

Likewise, activity more or less on similar lines, but with no storage and less elaborate identification modalities, is necessary for the disposal of animal carcasses.

Structure of the Guidelines

The Guidelines are designed to acquaint the reader about the basics of the Management of Dead Bodies and Animal Carcasses in the aftermath of disasters. It not only provides the technical information, but also dwells on administrative aspects that will support the correct approach in handling dead bodies and animal carcasses, with the highest possible quality standards/measures, functioning in an interdisciplinary manner, designed to contribute to positive identification of victims. It deals with the subject in a balanced and thorough manner giving the information required to formulate this facet in the National, State and District "all hazard" Disaster Management Plans, and thereupon, the Standard Operating Procedures (SOPs) by all stake-holders.

Chapter 1 - Introduces the subject and provides the background to the genesis of Guidelines, its aims and objectives. The strategy for Management of the Dead for this traumatic aspect of disaster is spelt out for seamless execution by all stake-holders with the target of ensuring that all dead bodies are identified.

Chapter 2 - Is a reality check of the present capability, pertaining to the Management of Dead Bodies and Animal Carcasses in the aftermath of disasters. Armed with legislative and regulatory framework, the need for creation of institutional mechanism is stressed so as to avoid chaos. The salient gaps identified pertain to capacities of trained manpower (ranging from recovery and retrieval teams, forensic scientists including DNA experts), requisite operational equipment, mortuaries (temporary and permanent) for preservation of the dead,

transportation (hearse vans and embalming facilities) and specialized DNA identification laboratories.

Chapter 3 - Provides guidelines for individual stake-holders to prepare for the comprehensive management of Dead Bodies in their respective "all hazard" Disaster Management Plans.

The Preparedness Phase calls for establishment of command, control and coordination structure under the Incident Response System. It is duly supported by Capacity Development of the vast spectrum of human resources, their training and education, and the thrust being on community preparedness. Critical Infrastructure and Logistics encompass Recovery and Retrieval from the incident site, including documentation, transportation to the mortuary (permanent or temporary), Storage and Preservation, ideally by refrigeration, which if not available, then either by dry ice, ice, temporary burial or chemical methods. The Primary methods of Identification discussed are Fingerprinting, which will become significant once the database of the Unique Identification Project is generated; the lesser used disaster techniques (Forensic Odontology, Forensic Radiology and Forensic Anthropology); and DNA profiling, regarding which there is an acute shortage of trained personnel and laboratories for our vast country. The Secondary methods of Identification which are useful in the initial stages of death are Visual Identification, Photography, Personal description with evidence found on the dead body.

In the Response Phase, the Dead Body is identified either with the observation, based on the data collected from the Dead Body, whereby the Dead Body Identification Form is initiated, matched with the Missing Person Form or Ante-mortem Personal data or DNA cross-matching. Information Management is a very important facet which should function, round the clock, to quell the lurking fears in the minds of the victim's near and dear ones.

Post-Disaster Phase entails Research and Development for provisioning definite identification procedures efficiently and Disaster Victim Identification Cells as established in developed countries. Lastly, support to the bereaved in the form of psycho-social support and financial relief packages, which of course, in no way, can compensate for the valuable human life.

Chapter 4 - Spells out guidelines for the Authorities to prepare for comprehensive Management of Animal Carcasses in their respective "all hazard" Disaster Management Plans. For Preparedness and Capacity Development, it outlines the Command and Coordination structure, Planning components, Human Resource Development, and Logistics. Response methodologies for carcass disposal encompass retrieval, identification and disposal methodologies with Burial being the method of choice in disasters. Lastly, financial relief packages are given by the Government to defray the losses.

Chapter 5 - Dwells on the aspects to be covered in the Response Phase in the District Disaster Management Plan to be initiated by the District Authorities. In order to achieve the operational capabilities for a quick and efficient response, the sequential steps of the Action Plan have been outlined.

Chapter 6 - Rounds off the Guidelines by listing the Summary of Action Points for Management of the Dead in the aftermath of disasters.

The timelines proposed for implementation of various activities in the Guidelines are considered both important and desirable, especially in the case of non-structural measures for which no clearance is required from central or other agencies. Precise schedule of structural measures will, however, be evolved in Management of the Dead in the aftermath of disasters. The Disaster Plan that will follow, at the Central Ministries/State level, duly takes into account the availability of financial, technical and managerial resources. In case of compelling circumstances warranting change, consultation with the National Disaster Management Authority will be undertaken, well in advance, for adjustment on a case-to-case basis.

Milestones for Implementation of Guidelines

A) DEAD BODIES

1. Phase - I (0 to 3 years)

i) Preparedness

(a) Command, Control and Coordination Functions

- Disposal of the Dead will be made an integral part of "all hazard" District Disaster Management Plans and SOPs on the subject will be prepared by the District Authorities, based on these National Guidelines, their past experience and best practices available.
- Establishment of Dead Body Management Group in the Incident Response System.

(b) Capacity Development

Expenditure from Calamity Relief Fund, not exceeding more than 10% of the State's Annual allocation, will be incurred for:

- Training State personnel Specialist multi-disciplinary teams.
- Procurement of Equipment for the management of disasters.

Note :-

Consequent to the acceptance of Recommendations of the Thirteenth Finance Commission, the Calamity Relief Fund (CRF) will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010.

(b-1) Human Resource Development

- Short training courses for various teams for management of the dead to meet the immediate deficiency.
- Short, standardized courses for training of general duty medical officers, for carrying out medico-legal post-mortem.
- Pooling Specialists in Forensic Medicine and Pathology, from nearest medical colleges and professional institutions, where such expertise is available.
- India Disaster Resource Network,

displaying the availability of forensic experts and those associated with DNA profiling.

- Fingerprint expertise.

(b-2) Education and Training

- All professional and scientific institutions will impart education, related to management of the dead, both at undergraduate and post-graduate levels, followed by refresher courses at periodic intervals.
- Educational curriculum for technicians (laboratory and forensic), professional embalmers and other skilled personnel will include knowledge, related to management of the dead in their respective field.
- Syllabus on Disaster Management courses to impart knowledge related to management of the dead.
- NIDM, State ATIs and district institutions will train District Administration and other stake-holders on disposal of the dead, including administrative aspects.
- Short courses on the management of dead bodies for Medical First Responders of all stake-holders.
- Body handlers will be sensitized with ethnic, cultural and religious issues, prevailing in different communities.

(b-3) Community Preparedness

- Sensitized to various issues related to management of the dead.
- Community teams, constituted and trained in dead body handling, its transportation, soft skills, assistance in identification and documentation.

(c) Critical Infrastructure and Logistics

- Based on their Disaster Management Plans, Authorities should acquire equipment for various components of the disposal of dead bodies or identify sources that will supply them at short notice.
- Surge capacity in hospital mortuaries to be explored.
- Identification of suitable sites and buildings for temporary mortuaries.
- Refrigerated transport container's sources of provisioning to be identified.
- Sources of Dry Ice and Ice to be identified for supply when required for preservation of the dead, in a disaster scenario.
- Embalming facilities will be created in medical colleges, district and other major hospitals, as per vulnerability profile.
- Upgrade or increase the number of forensic and DNA analysis laboratories for identification processes.
- All Forensic Science laboratories to continuously upgrade methodologies for fingerprints, forensic dentistry, forensic radiology, forensic anthropology

and DNA analysis.

- DNA laboratories will collect samples from the disaster site for analysis in their establishment.
- Facilities for DNA profiling will also be created in Central and State Medical institutions.
- Ministry of Defence, Railways and DG ESIS will create at least one laboratory for DNA profiling.

(d) Research and Development

Development of software for matching the ante-mortem data as per the Missing Person Form against the post-mortem data recorded on Dead Body Identification Form, for prompt identification.

ii) Response Phase

- Trained dog squads for recovery of the survivors/the injured and the dead.
- Dead Body Identification Form as per Annexure-E will be filled, in duplicate, for every dead body or body part and allocated separate Individual Identification Number.
- Each dead body or body part will be placed individually in a body bag.
- Personal belongings or any other evidence pertaining to the deceased will also be put in plastic bags to accompany the body with chain of custody ensured, till handed over to the rightful inheritors.
- Large trucks with canopy to maintain dignity of the dead during transportation if hearse vans are not available or are inadequate.
- Site of temporary burial shall be carefully selected and secured for possible future exhumation.
- Requisite documentation such as "Brought in Dead" and Death Reports, as stipulated by the State will be initiated.
- Victims of CBRN disasters require special disposal to stop the spreading of contamination.
- State/Union Territory website, displaying the correct procedure of management of the dead and Information related to the dead bodies.
- Financial Relief from Calamity Relief Fund and National Calamity Contingency Fund by the Government, disbursed towards:
  - Ex-Gratia payment to families of the deceased persons.
  - Compensation for disposal of dead bodies, on actual basis.

Note :-

Consequent to the acceptance of Recommendations of the Thirteenth Finance Commission, the directives on the aforesaid Funds are as follows:

- The National Calamity Contingency Fund (NCCF) will be merged with the National Disaster Response Fund, constituted under Section 46 of the DM Act, 2005, with retrospective effect from 1st April 2010; and

- ❒ The Calamity Relief Fund (CRF) will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010.

2. Phase - II (0 to 5 years)

i) Preparedness

(a) Critical Infrastructure and Logistics

Create a larger number of forensic and DNA analysis laboratories to hasten the identification process.

(b) Research and Development

- Utility of newer methods of preservation like "Complucad".
- Disaster Victim Identification Cells model of developed countries, established for disasters taken up as a pilot study.

3. Phase - III (0 to 8 years)

i) Preparedness

(a) Education and Training

- Mock drills, conducted for various disasters, will also focus on all activities related to management of the dead.
- All Laboratories and Institutions conducting DNA analysis will train the required staff of other laboratories.
- Specialized training modules for the handling and disposal of CBRN contaminated bodies.

(b) Research and Development

Software for matching fingerprints of the deceased with the Unique Identification Card database for prompt identification, except when fingerprints are compromised due to severe burns.

B) ANIMAL CARCASSES

1. Preparedness (0 to 3 years)

- Carcass disposal will be made an integral part of "all hazard" District Disaster Management Plans and SOPs prepared by District Authorities based on these National Guidelines, their past experience and best practices available.
- Animal Carcass Management Group will be constituted in the Incident Response System
- Expenditure from Calamity Relief Fund, not exceeding more than 10% of the State's Annual allocation will be incurred for:
  - ■ Training State personnel Specialist multi-disciplinary teams.
  - ■ Procurement of Equipment for the management of disasters.

Note :-

Consequent to the acceptance of Recommendations of the Thirteenth Finance Commission, the Calamity Relief Fund (CRF) will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010.

- State Animal Husbandry Department will prepare a training module on various aspects of the management of animal carcasses.

- Identification of adequate number of First Responders from Civil Defence, Home Guards, NGOs and community volunteers.
- First Responders will be trained in Animal Carcasses Management, under the overall responsibility of District Animal Husbandry Officer.
- Animal Carcass Retrieval Teams, at the community level, will be constituted and trained.
- Modalities for Animal Carcass Identification will be formulated by the State Animal Husbandry Department for compensation.
- Based on their Disaster Management Plans, Authorities should acquire equipment for various components of the disposal of animal carcasses or identify sources that will supply them at short notice.
- Selection of suitable site for disposal of animal carcasses and the methodology, based on disaster characteristics and terrain.
- Requirement of chemicals, for various non-traditional methods of disposal, will be planned and sources identified.

2. Response

- Provisioning of equipment for lifting carcasses and for transport to the disposal site will be ensured by the District Authorities.
- Financial Relief from Calamity Relief Fund and National Calamity Contingency Fund by the Government towards:
  - Relief Assistance to small and marginal farmers/agricultural labourers for replacement of draught animals, milch animals, animals used for haulage or poultry (on account of the notified natural calamity).
  - Compensation pertaining to disposal of animal carcasses, on actual basis.

Note :-

Consequent to the acceptance of Recommendations of the Thirteenth Finance Commission, the directives on the aforesaid Funds are as follows:

- The National Calamity Contingency Fund (NCCF) will be merged with the National Disaster Response Fund, constituted under Section 46 of the DM Act, 2005, with retrospective effect from 1st April 2010; and
- The Calamity Relief Fund (CRF) will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010.

These Guidelines provide a framework for action at all levels. The nodal Ministry - Ministry of Home Affairs and Department of Animal Husbandry will prepare their Action Plan to enable all sections of the government machinery and technical agencies at all levels, to prepare and respond effectively to the Management of Dead Bodies and Animal Carcasses respectively, with the aim that no unidentified Dead Body should be laid to rest.

1 Introduction

1.1 Introduction

1.1.1 India's unique geo-climatic conditions make it vulnerable to natural disasters like floods, drought, cyclones, earthquakes, and epidemics leading to a sizable number of human casualties. To elucidate, in the last one decade - the Orissa Super Cyclone in October 1999 caused more than 9,000 deaths; the Bhuj Earthquake of January 2001 resulted in 20,000 deaths while the Indian Ocean Tsunami in December 2004 accounted for the death of nearly 15,000 victims - depict the mass casualty potential of natural disasters. Consequently, disasters result in a large number of deaths in a short span of time, placing overwhelming stress on individuals, society and the administration with the uncommon challenge of handling large numbers of dead bodies and animal carcasses. The initial media focus is often on the dead; and graphic images of dead bodies, among the debris, require action by various authorities for their proper management. In the past, Mass Casualty Incidents (MCI) in the aftermath of disasters, wherein the cause of death was due to crush injuries in earthquakes/landslides, or drowning in floods/cyclones/tsunami, or burns in fire, culminating in mass burials or mass cremations. In any disaster situation, appropriate recovery and management of the dead bodies is an important and essential component of humanitarian response, along with rescue and relief measures for the survivors, and the provision and restoration of essential services. Inadequate measures in the past for proper management of the dead and for caring of the bereaved, coupled with limitations of medical and forensic services, perpetuated the tragedies leading to "profound complicated mourning" of the survivors.

1.1.2 The care of the dead is not a primary responsibility of the health sector. There are no public health threats from dead bodies and this misapprehension leads to unnecessary diversion of medical resources at the critical time of disaster response. However, it has been noticed that doctors and paramedical staff, along with hospital infrastructure, are deployed for management of the dead. This is not only an incorrect practice but it also causes deficiencies in the medical logistics which could have been utilized for taking care of the survivors. Similarly, needless precautions like excessive spraying of disinfectants or covering dead bodies with lime or improper mass burials/ mass cremations are also not justified as they carry a potential risk of polluting the water resources.

1.2 Infections and Dead bodies

There is a widespread but erroneous belief, even among some health professionals, that dead bodies are a source of disease, and therefore, a threat to public health. This gets wrongly promoted, at times, by media as well. On the contrary, there has never been a documented case of an epidemic occurring after

a natural disaster that could be traced to exposure to dead bodies. This is attributable to the fact that those killed by natural disasters are generally healthy at the time of their death. Therefore, these victims are very unlikely to be a source of infection to others, unless they are in direct contact with drinking water which may get contaminated by faecal material released from dead bodies. The micro-organisms responsible for the decomposition of dead bodies are not capable of causing disease in living people. Most infectious agents of public health concern, present in the body, die within 48 hours of the death with the exception of Human Immuno-deficiency Virus (HIV) which survives in cadavers up to 16 days, if stored at 2°C. However, in the absence of proper safety measures, body handlers may get exposed to viruses (Human Immuno-deficiency Virus, Hepatitis 'A' Virus, Hepatitis 'B' Virus, Hepatitis 'C' Virus, Hepatitis 'E' Virus, Ebola, Rotavirus), bacteria (Diarrhoeal diseases, Tuberculosis, Plague, Meningitis, Tetanus) and prion diseases (Creutzfeldt-Jakob disease).

1.3 Strategy for Management of the Dead

1.3.1 The Task

Management of the dead encompasses the process of appropriate handling of the deceased in the post-disaster period to minimize the physical, psycho-social, ethical, religious and cultural issues raised by the dead for the surviving community. It is a multi-stage and multi-disciplinary task performed by skilled professionals and unskilled first responders of variable capabilities. It should commence in the immediate post-disaster period to achieve the best results. Delayed disposal will lead to prolonged and complicated procedures, resulting in psychological consequences to the community.

1.3.2 Social Responsibility

Management of the dead is an important concern after a disaster and it is a major social responsibility of the community and the government. It is very important for the psychological recovery of survivors to have their dead relatives returned to them for culturally appropriate rites and disposal. Accordingly, a well-organized management system is an essential part of a disaster management structure that must be properly planned and resourced by incorporating a well-designed practical strategy on management of the dead into the Disaster Management (DM) Plans of the country.

1.3.3 Tiers of Strategy

The essential tiers of this strategy are:

i) Appropriate recovery, retrieval and storage of the dead bodies.

ii) Positive identification of the deceased is an essential requirement for proper disposal and financial compensation, property rights, inheritance and issues of remarriage.

iii) Dignified disposal of the dead bodies, according to religious, cultural, ethnic and psycho-social needs of the affected community.

iv) Proper information management which involves analysis of the data for identification of the dead, along with its proper dissemination through the media.

1.3.4 Basis of Planning

Coordinating the above-mentioned activities is a core component of early disaster response for efficient management at local, regional and national levels. These Guidelines will be the basis of preparing an integrated plan for the management of dead bodies and safe disposal of animal carcasses.

1.4 Aims and Objectives of the Guidelines

1.4.1 Aim

The aim of these National Guidelines is to institutionalize standard procedures for the proper management of dead bodies and animal carcasses in the aftermath of disasters.

1.4.2 Objectives

I To develop capacity for proper, dignified and rapid management for disposal of the dead in accordance with cultural, religious, ethnic and social commitments of the affected community.

II To provide basis for preparedness and capacity development for all stake-holders who are involved in the management of dead bodies and disposal of the animal carcasses.

III To focus on education and training of the teams involved in retrieval and recovery of the dead bodies, their transportation, storage and preservation, identification and proper disposal.

IV To enhance better co-ordination between various agencies, information management including the media-related issues while respecting the relevant statutes and principles on the protection of personal, medical and genetic data.

1.5 Genesis of National Guidelines - Management of the Dead in the aftermath of Disasters

1.5.1 After the enactment of DM Act, 2005, the National Disaster Management Authority (NDMA) is inter alia mandated vide Section 6 to lay down National Guidelines to the Ministries/ Departments of the Government of India (GoI) and the States to evolve programmes and measures in their DM Plan for holistic and coordinated management of disasters.

1.5.2 In the year 2006, a core group was formed to draft National Guidelines on Medical Preparedness and Mass Casualty Management that appreciated the necessity to formulate separate guidelines on the Disposal of Dead Bodies and Animal Carcasses in the aftermath of disasters. In this direction, a National Workshop on Management of the Dead was convened by NDMA at its headquarters in New Delhi on 26th and 27th February, 2008, as part of the nine-step participatory and consultative process to evolve the National Disaster Management Guidelines - Management of the Dead in Disasters. Stake-holders from various Ministries/Departments of GoI, States, International Committee of the Red Cross, and a large number of experts/ professionals, Non-Governmental Organisations (NGOs), and stake-holders in the field of Management of the Dead in the aftermath of disasters, participated in the deliberations.

1.5.3 During this Workshop, the present status of management of the dead in disasters in the

country was discussed and important gaps were identified. The Workshop also identified the priority areas for preparedness, capacity building and response for management of the dead and provided an outline of comprehensive guidelines to be formulated as guidance for the preparation of action plans by Ministries/ Departments of GoI and the States.

1.5.4 A Core Group of Experts comprising major stake-holders as well as State representatives was constituted under the chairmanship of Lt. Gen. (Dr.) J. R. Bhardwaj, PVSM, AVSM, VSM, PHS (Retd.), Member, NDMA to assist in preparing the Guidelines. Several meetings of the Core Group were held to review the draft versions of the Guidelines in consultation with concerned ministries, regulatory bodies and other stake-holders to evolve a consensus on the various issues regarding the Guidelines. Then the draft document was sent to experts who are actively working in the field of the Management of Dead Bodies and Animal Carcasses across the country for feedback and comments. The comments obtained were discussed by the Core Group and necessary amendments were made.

1.5.5 These Guidelines will be utilized by the following responders and service providers:

i) All Disaster Management authorities and administrators at national, state and district levels.

ii) Those concerned with handling, identification and disposal of the dead bodies including forensic, medical and other professionals involved in management of the dead.

iii) All other stake-holders connected directly or indirectly with management of the dead including the First Responders like Police, Fire Services, Civil Defence (CD), National Disaster Response Force (NDRF) and other paramilitary forces.

iv) NGOs and community at large, including media.

2 Present Context and Salient Gaps

2.1 The Core Components

Care of the deceased has been given its due importance in the disaster planning in our country, impacting the well-being of surviving community and bereaved family members. Management of dead bodies involves a series of activities beginning with strategic planning for the process and the logistics which include inventory and availability of critical infrastructure, human resource and finance. This implies an early search for dead bodies, their proper identification at the earliest, transportation to the facility that serves as a mortuary, handing over of the body to family members and assistance from the State for final disposal of the body in accordance with the wishes of the family with the religious and cultural norms of the community. It requires the involvement of a diverse team of responders that encompasses rescue and recovery personnel, police, administrative authorities, forensic teams and the legal fraternity. The representatives from the International Organisations, NGOs (National and International), media and community volunteers, also play an important role in the management of dead bodies. Coordinating all these activities and information management of the dead are the core components of early disaster response for efficient management at local, regional and national levels.

2.2 Legislative and Regulatory Framework

2.2.1 Code of Criminal Procedure (Cr PC)

A Legal Inquiry or an Inquest is required to ascertain the cause of all sudden, suspicious or unnatural deaths as per Code of Criminal Procedure Sections 174 and 176. However, in disaster situations, legal obligations of carrying out of a post-mortem in each and every case can be waived off after Inquest by the competent legal/judicial authorities having jurisdiction over the area, which is usually a Class I Magistrate, appointed by the State government. In addition, the Commissioner, Deputy Commissioner or Commissioner of Police in metropolitan cities, having jurisdiction over the area is also invested with these powers.

2.2.2 Legal provisions in the Disaster Management (DM) Act, 2005

Legal provisions in the DM Act, 2005, which concern the subject of Disposal of the Dead, are as follows:

i) Section 34 (g) of the DM Act, 2005, states that, for the purpose of assisting, protecting or providing relief to the community, in response to any threatening disaster situation or disaster, the Disaster Authority may

make arrangements for disposal of the unclaimed dead bodies.

ii) Section 53 of the DM Act, 2005, which makes theft of the belongings of, or misappropriation of the relief material for, disaster victims, punishable with imprisonment and fine.

iii) Section 54 of the DM Act, 2005, states that, to curtail distress and anxiety caused by rumours in the community, penal provisions can be imposed to deal with such situations.

2.2.3 Protection of Personal and Genetic Data

A fair amount of personal data is gathered while dealing with management of the dead, especially during the process of identification where personal data is collected and biological samples including Deoxyribonucleic Acid (DNA) profile may be required for analysis, before final disposal. DNA profiling is a unique identification typing that provides the sensitive information about a person's family and intimate associations. Genetic data obtained through DNA analysis can also be used in various other fields in medicine, other than the person's identification. Therefore, genetic data obtained through DNA profiling is to be handled carefully and confidentially, thus ensuring the right to privacy as per the International principles. However, International law does not have any specific provisions on the protection of genetic data but it relates to general principles on confidentiality, privacy, non-discrimination and human dignity. Notwithstanding the same, at the National level, the proposed Human DNA Profiling Bill would address the various aspects relating to confidentiality of, and access to, DNA profiles, biological samples and records.

2.2.4 International Legal Principles

United Nations Educational, Scientific and Cultural Organization (UNESCO), in October 2003, finalized the text of the International Declaration on Human Genetic Data. As of year 2009, this Declaration and UNESCO's earlier Universal Declaration on the Human Genome and Human Rights (1997) were the only international declarations that addressed the issue of protecting genetic data. The 2003 Declaration emphasizes that any practice involving the collection, processing, use and storage of human genetic data should be consistent with both domestic legislation and international human rights law. The International Committee of the Red Cross (ICRC) has compiled a list of Legal Principles, relating to the protection of personal and genetic data, to be respected in all circumstances which have been developed, keeping international agreements and recommendations together with national legislations. The Principles relating to the Protection of all Personal Data are placed at Annexure-A and the Principles relating specifically to the Use of Biological Samples and the resulting DNA Profiles are placed at Annexure-B.

2.3 Institutional and Policy Framework

2.3.1 National Policy on Disaster Management

National Policy on Disaster Management (2009) at Para 5.2.9 stresses the need for creating adequate mortuary facilities in disaster-prone areas. The Policy also accords due weightage to proper and speedy disposal of dead bodies and animal carcasses. Therefore, it is essential to lay down Guidelines for

management of the dead, including animal carcasses in disaster situations.

2.3.2 Disaster Management Act, 2005

It has been enshrined in Section 34 (g) of the Disaster Management (DM) Act, 2005, i.e. Chapter IV, pertaining to District Disaster Management Authority (DDMA), which states that "For the purpose of assisting, protecting or providing relief to the community, in response to any threatening disaster situation or disaster, the Disaster Authority may make arrangements for the disposal of the unclaimed dead bodies". The NDMA has decided to issue guidelines which will culminate into proper planning for management of the dead at all levels.

2.3.3 Indian Red Cross Society (IRCS)

The Indian Red Cross Society, with a network of over 700 branches across the country, has been providing humanitarian relief in times of disasters/emergencies, including an important role in management of the dead in various disasters. In addition, the IRCS plays a significant role in helping to restore and maintain contact between the separated family members as well as in tracing the missing persons. The IRCS is also providing psycho-social support to the affected communities whose near and dear ones have disappeared or died during the disasters.

2.3.4 Role of International Organizations

2.3.4.1 International Committee of the Red Cross (ICRC)

The ICRC, an impartial, neutral and independent humanitarian organisation is playing an important role in the training of first responders involved in management of the dead bodies after disasters. A number of training courses have been conducted by them internationally and in our country for National Disaster Response Force (NDRF). Due to its expertise, exhibited around the world, the ICRC has been approached to render advice on procedures and guidelines related to disaster management issues.

2.3.4.2 Interpol

The International Criminal Police Organization (INTERPOL) first published in the year 1984, the Disaster Victim Identification (DVI) Guide, which was revised in the year 1997. Taking into account the experience that has been acquired since then and the development in the identification techniques, the third revised draft is under evaluation by all Interpol member countries. This Guide, designed to encourage the compatibility of procedures across international boundaries, gives sound practical advice on the major issue of victim identification, underlining the importance of planning and training.

2.4 Operational Framework

The responsibility of disposal of the unclaimed bodies during disaster lies with the District Magistrate or Collector or Deputy Commissioner. For proper disposal of the dead, participation of various stake-holders, such as Government agencies, forensic and legal experts, NGOs, in addition to the community, is imperative. Past experience during various disasters shows that some of the NGOs play

an important role in assisting the district authorities. However, it is essential that adequate infrastructure, proper coordination, and trained manpower are available for proper disposal of the dead.

2.5 Salient Gaps

Management of the dead requires adequate infrastructure, community involvement and training besides specialized scientific disciplines involving molecular, genetic and computer aided technologies. The 2004 Indian Ocean Tsunami has given us an insight into our capacities and preparedness regarding management of the dead and also the lack of support and compassionate care to the relatives of the dead. The technologies for managing the dead are available, at places within our country, but their application in disaster settings requires operational research, refinement, development of cost-effective technology, capacity building and use of standard protocols. Some of the important gaps which require improvement for better preparedness are:

2.5.1 Policy and Plans

Before the enactment of Disaster Management Act, 2005, policy, plans or guidelines for management of the dead in the aftermath of disasters were not available in our country. Based on the National Policy on Disaster Management and the Disaster Management Act, 2005, it is essential to prepare National Guidelines on Management of the Dead in the Aftermath of Disasters. On the basis of these National Guidelines, the Plans and Standard Operating Procedures (SOPs) will be prepared at various levels, on priority basis, for recovery, retrieval, identification and other components related to management of the dead.

2.5.2 Command, Control and Coordination

Under the control of District Authorities, there is a need to establish a coordination mechanism for management of the dead. The National Guidelines on Incident Response System directs the appointment of a nodal officer viz. Dead Body Management Group-in-charge in the Response Branch of Operations Section who will coordinate with all the stake-holders involved in streamlining proper management of dead bodies. The Dead Body Management Group-in-charge will liaise with Logistics Section for various requirements pertaining to management of the dead.

2.5.3 Capacity Development

Proper management of the dead requires multi-disciplinary trained human resource. Significant deficiencies noticed in the area are:

i) Shortage of trained teams for body recovery and retrieval, ante-mortem data collection teams, mortuary staff, body handlers and forensic experts or scientists, trained in DNA technologies.

ii) Non-availability of body bags for transportation of dead bodies.

iii) Inadequate facility to train Search and Rescue teams, District Authorities, Fire and Police personnel, social workers and NGOs for management of the dead. At present, all training institutions at the National and State level, lack the modules for conducting courses to train the First Responders in proper management of the dead.

iv) Forensic Medicine departments of medical colleges lack a professional approach towards Management of the Dead in the Mass Casualty Incidents.

These departments have an inadequate number of faculty members. Training modules are needed for proper training of doctors and paramedics related to the subject, for proper preservation techniques and collection of samples for laboratory testing, including those for DNA profiling.

v) Absence of awareness in the community at large about their role in helping the authorities for in proper management and disposal of dead bodies and animal carcasses.

vi) There is also a deficiency of trained embalmers in the country for which no educational and/or training programmes are being conducted.

vii) There is a lack of training to the Social and Community Workers for providing psycho-social support to the bereaved families in a Mass Casualty Incident.

2.5.4 Critical Infrastructure

Major deficiencies of various components of infrastructure required for proper management of dead bodies are:

i) Various tools and equipment needed by the First Responders for recovery and retrieval of dead bodies.

ii) Acute shortage of mortuaries in most of the hospitals in the country; this deficiency gets compounded in a Mass Casualty Incident, as there are no provisions for storage of large numbers of dead bodies in a disaster situation. The existing mortuaries are not even well-maintained in terms of storage, cleanliness and refrigeration. The mortuaries are required to have refrigerated caskets at the scale of four per hundred beds in a hospital.

iii) Complete absence of plans at all levels for setting up temporary mortuaries in increased demand situations during disasters.

iv) Insufficient facilities for preservation of dead bodies, availability of refrigerated caskets and assured power supply to the mortuaries.

v) Inadequate embalming facilities in various hospitals.

vi) Lack of adequate facilities for DNA profiling in most of the forensic laboratories.

vii) Acute deficiency of hearse vans and other modes of transportation which may be able to carry the dead bodies in a dignified manner to the storage facilities.

2.5.5 Psycho-social Support

A large number of affected communities, not only suffer from the aftermath of disasters, but are also affected psycho-socially and further grieved because of the disappearance or death of their near and dear ones. Therefore, psycho-social support to survivors is an essential element of the disaster response. However, there is a major lack of awareness as well as availability of professionals delivering this service. Most of the survivors, affected psychologically, need emergency psycho-social first aid. At present, there are inadequate numbers of psycho-social teams, both from the Governmental Organisations and Non-Governmental Organisations; even amongst those existing teams, there is a complete lack

of coordination amongst themselves for providing proper Psycho-social First Aid and Psycho-social Support.

2.5.6 Role of Media

The print and electronic media can play an important role in preventing the spread of rumours and help district authorities in dissemination of factual news and updates to the community. They can motivate the mobilization of community volunteers who would help in identification of the dead and their final disposal according to the local rites. In the present context, the media has not been performing the desired functions. This may be due to lack of training as well as poor coordination of media personnel with district officials, while dealing with disaster relief. It is felt that the media should play a vital and positive role in helping district authorities and in preventing panic that may arise after a major disaster.

3 Guidelines for the Management of Dead Bodies

3.1 Preparedness and Capacity Development

In times of disaster, a team of First Responders, skilled and non-skilled personnel from various backgrounds works together for management of the dead. It is essential to assess human resources, both for trained manpower and infrastructure, for optimisation of preparedness and capacity development. It will entail upgrading of education and training measures to increase the knowledge and capabilities of various functionaries. It is also essential to keep pace with the times and imbibe the evolving technologies which may help in positive identification of the bodies and their proper disposal. Hence, a multi-sectoral approach is required to be adopted, while involving various stake-holders including government bodies, NGOs, and private sector at all levels. There is a need to standardize and institutionalize various training modules for important components, related to management of the dead, along with developing and strengthening the community-based teams which will help further in times of disaster. Various measures for Preparedness and Capacity Development are discussed below:

3.1.1 Establishment of Command, Control and Coordination Functions

The District Magistrate or Collector or Deputy Commissioner, the command and control authority at the operational level, has been designated as the Responsible Officer (RO) in the Incident Response System (IRS). The Responsible Officer may, however, delegate responsibilities to the Incident Commander (IC), who in turn, shall manage the disaster through Incident Response Teams (IRTs), duly supported by Planning and Logistics Sections of the IRS and Emergency Support Functionaries (ESF). The Incident Commander will appoint a trained officer of his team as the nodal person, designated as Dead Body Management Group-in-charge in the Response Branch of Operations Section. This Group-in-charge will be responsible for recovery, retrieval, identification, storage, preservation and final disposal of unidentified and unclaimed bodies. Technical and specialist teams will be requisitioned as on required basis. Likewise, the Sub-Divisional Officer (SDO), Tehsildar, and Block Development Officer (BDO) will function as the IC at the Sub Division, Tehsil and Block level respectively.

3.1.2 Capacity Development

Capacity development encompasses all-round development of human resources and infrastructure for setting up various functional teams, focused on different components in management of the dead. It requires a diverse team of professionals (medical, forensic, legal and psychologists for psycho-social support of the survivors) and unskilled (workers and

volunteers from the community). Capacity development also entails establishment of a network of laboratories for identification, training of manpower and equipment logistics. Provisions exist to incur expenditure from Calamity Relief Fund (CRF), not exceeding more than 10% of the State's Annual allocation for the Training to Specialist multi-disciplinary groups/teams of the State personnel, drawn from different cadres/services/personnel and for procurement of Equipment for the management of disasters, to be judiciously exploited. The State Calamity Relief Fund will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010 as per the Recommendations of Thirteenth Finance Commission. The India Disaster Resource Network (IDRN) portal linked to all stake-holders will display information about locations of various forensic laboratories with availability of Forensic experts and those associated with DNA fingerprinting. The various components needed for developing the capacities are as under:

3.1.2.1 Human Resource Development

i) Shortfall of professional and skilled manpower for management of the dead will be fulfilled over a stipulated period of time. The immediate deficiency of these human resources will be met by conducting short term training courses for various teams for the recovery of dead bodies, retrieval, storage, preservation and identification by various forensic methods, including DNA profiling. These teams will help the local authorities for disposal of the dead and psycho-social support to the surviving relatives. Various teams will be constituted from the available pool of different departments, First Responders and the local community.

ii) A short standardized course will be developed for training the general duty medical officers for carrying out medico-legal post-mortem as there is an acute deficiency of forensic experts in our country. In areas where expertise in Forensic Medicine and Pathology is lacking, they will be pooled in from the nearest medical colleges and other professional institutions.

3.1.2.2 Education and Training

i) All professional and scientific institutions will impart education on the subject related to management of the dead, both at the undergraduate and the post-graduate levels. Educational curriculum for laboratory technicians and other skilled personnel will include knowledge related to management of the dead, in their respective fields. Refresher courses will also be carried out from time to time, for consolidating the knowledge and skills related to this subject.

ii) Some of the academic institutions defined as nodal centres for training Medical Officers will impart short-term modules for training.

iii) Education and knowledge, related to management of the dead, will be imparted to people undergoing courses on Disaster Management. For this, a standard curriculum will be included in the syllabi of the educational programme.

iv) Specialized training courses will be conducted for professional embalmers and other forensic laboratory staff who are usually engaged in carrying out various tasks, related to management of the dead. The embalmers will be further trained in facial reconstruction techniques. The laboratory staff will undergo refresher training on a regular basis.

v) It is important for District Authorities to know the legal and social requirements and the methods for proper disposal of the dead. Training institutions, including National Institute of Disaster Management (NIDM), State Administrative Training Institutes (ATIs) and other district institutions will train the trainers from district administration and other stake-holders for proper disposal of the dead, based on standardized training modules. For this, standardized workshops will be conducted by all concerned. These modules will also include all administrative aspects related to management of the dead.

vi) Short courses on the management of dead bodies will be organized at various levels for Medical First Responders, belonging to the Police, Fire Services, Civil Defence, NDRF and other paramilitary forces.

vii) Body handlers will be sensitized with the knowledge on the subject, related to ethnic, cultural and religious issues, prevailing in the community.

viii) Mock drills, conducted for various kinds of disasters, will also focus on all activities related to management of the dead.

ix) Specialized training modules for management of CBRN contaminated bodies need to be evolved and implemented.

3.1.2.3 Community Preparedness

Community, usually being the first responder, plays an important role during disasters, and therefore, it is important to organize training for an effective community-based disaster response. The community first responders will also be sensitized on issues related to customs, cultures, social and sensitive religious issues which need to be respected, while managing the dead.

i) Community teams, comprising of religious leaders, teachers, elderly people, elected representatives and local NGOs will be constituted for the following roles:

(a) To sensitize the community to various issues related to management of the dead;

(b) To help the district administration in identification of the dead and in final rituals, as per prevailing customs and religious sensitivities;

(c) To coordinate with and help district authorities to control the crowd and to prevent unauthorized persons from entering the prohibited area;

(d) To disseminate correct information, so as to prevent the spread of rumour and panic;

(e) To generate awareness of the fact that, generally, there is no public health threat from dead bodies, as they are not a source of disease or infection;

(f) To make provision of short and long term psycho-social support to the grieving relatives.

ii) Community teams will also be constituted by identification of task forces from Civil Defence (CD), Home Guards, National Cadet Corps (NCC), Nehru Yuva Kendra Sangathan (NYKS), Indian Red Cross Society (IRCS), NGOs and other voluntary organizations.

iii) Periodic courses will be run to train community teams on body handling, transportation, soft skills, identification of dead bodies, assistance in documentation and other prevailing best practices, related to storage and preservation of the dead. The Community first responders will thus prove a great help to the district administration. Nonetheless, the authorities shall remain the main responsible actor at all times.

iv) NDRF first responders, who have been trained in management of the dead, will help district administration and community teams in conducting such courses. Services of the Indian Red Cross Society, the ICRC and other organizations may be utilized for community preparedness.

v) Community teams will also be associated in all the mock drills, conducted by various disaster management authorities, at all levels.

vi) State/Union Territory Website portal will display the information about:

(a) The correct procedure of management of the dead.

(b) Information, related to the dead bodies.

3.2 Critical Infrastructure and Logistics

The existing infrastructure, required for management of the dead, is not only inadequate, but it also requires upgrading. Such specific areas relate to recovery and retrieval, storage and preservation facilities, application for various methodologies of identification and proper disposal of the dead. Requirements will vary, depending on the type of incident (air crash, chemical release, earthquake or floods), the location (desert, jungle, mountainous, village or urban), the weather (monsoon, snowing, summer, or winter), on the type of personnel likely to be used (Armed Forces, Civil Defence, Police, NDRF or volunteers) and on the equipment already available to such personnel in the normal course of their duties. However, SDMAs and DDMAs, based on their Disaster Management Plans, should acquire equipment which suits the perceived needs of their particular areas of operation. A generic list, which is not exhaustive, is appended at Annexure-C for guidance.

3.2.1 Recovery and Retrieval

After any disaster, it is very important to recover and retrieve the maximum number of dead bodies at the earliest, to facilitate prompt and correct identification, storage and final disposal. Delay in recovery may lead to decomposition of the bodies. It is also essential

to retrieve and store dead body part(s) when the whole body is not available. All these activities will be done under the overall supervision of the Dead Body Management Group-in-charge of the Incident Response System (IRS) appointed by District Authorities as follows:

i) The First Responders from Police, Civil Defence, Fire Services, NDRF and the community will be utilized for recovery of the dead bodies, after the safety clearance is issued by the Incident Commander. The first step to be undertaken by the First Responders is to look for signs of life. The Dead Body Management Group-in-charge will be responsible for ensuring that the first responders have been trained in this regard, and the ultimate responsibility for correct confirmation of death shall lie with him. All efforts will be made to recover the body as a whole and prevent mutilation during the recovery. The recovery team will use basic Personal Protective Kit and follow Universal Precautions (e.g. avoid wiping face or mouth with hands while handling the dead bodies). All these first responders will be protected against Tetanus and Hepatitis B Virus by immuno-prophylaxis. While approaching cramped and poorly ventilated spaces, as may happen in an earthquake scenario, the First Responders will be watchful to dangerous noxious gases, generated by protracted decomposition of dead bodies.

ii) Thermal sensors and trained dog squads will be used for quick recovery of the survivors/injured and notification of the location from where the dead bodies have to be collected, on priority basis, as soon as feasible.

iii) After retrieval and recovery of dead bodies from the disaster site, an Individual Identification Number will be allotted serially to every dead body. All body parts will also be treated as individual bodies, allocated Individual Identification Numbers and then put in separate plastic bags or cloth, to prevent contamination from leakage of fluid or blood. Personal belongings and other accompaniments on the body, including jewellery, shall not be separated from the body as they serve as important clues in identification of the deceased with the chain of custody duly ensured, till handed over to their rightful inheritors. All dead bodies will then be wrapped ideally in body bags, otherwise in plastic sheets, bed sheets or locally available material, before transportation. The labels will be waterproof to prevent any erasure during transportation and storage.

iv) All bodies will be digitally photographed with their Individual Identification Number labelled on the body. The minimum number of photographic shots of a dead body will include the frontal view of full body, whole face and distinguishing features like tattoo or deformity, if any. Photographs of badly mutilated or decomposed bodies may not prove useful in the identification. In such cases, combinations of criteria, followed by laboratory tests, are to be adopted.

v) Dead Body Identification Form as per Annexure-D will be filled, in duplicate, for every dead body or body part. The

matching Individual Identification Number will be recorded on both copies of this form. One copy of the Dead Body Identification Form will accompany the dead body if being transported for storage and preservation. The other copy will be kept safely as a record with the authorities.

vi) Recovered dead bodies will not be left uncovered or in the open to prevent environmental risks in the form of growth of flies, fleas and maggots or destruction of bodies by animals and vultures.

vii) All the clothes, equipment, vehicles used for transporting the dead will be decontaminated and disinfected.

viii) The help of a forensic expert may be requisitioned during recovery of the dead bodies in a terrorist attack scenario.

ix) In certain cases like air crashes, it may not be possible to retrieve the whole body, only a few body parts may be available. These body parts will be treated as individual bodies for identification purposes. Attempt will not be made to match the body parts to reconstruct the individual at the disaster site.

x) In a nuclear disaster, efforts will not be made to retrieve the dead bodies immediately. Their disposal is usually done by burial on-site by covering the bodies with thick layers of mud and earth, only after the affected area has been declared safe to enter, subject to environmental radioactivity levels.

xi) An Information Centre will be established at the site of the disaster where the bodies are being kept and the data on dead bodies is being compiled, in the Dead Body Inventory Record register, the format of which is placed at Annexure–E.

xii) The authorities will ensure that the recovery of bodies will not hinder the rescue work and other interventions required for helping the survivors.

xiii) At times, the body recovery procedures may last for more than a few days. In such situations, the first responders and the body handlers will be briefed and counselled to prevent emotional trauma to them.

3.2.2 Transportation of the Dead

It is important to retrieve the dead from the site of the disaster and transport them to the place of storage and their preservation, as quickly as possible. This will not only help in proper storage and preservation, identification and proper disposal but also mitigate psycho-social trauma to the surviving community. Following steps will be taken for proper transportation:

i) The Dead Body Management Group-in-charge will predetermine or select the site for storage of the bodies before transportation.

ii) Large trucks, with sufficient space and canopy to maintain privacy and dignity of the dead, will be used for transportation wherever an adequate number of hearse vans are not available.

iii) It is essential to cover the dead either with a body bag, plastic sheets, bed sheets or locally available material, before loading the body onto the

vehicle. The personal belongings, or any other evidence pertaining to the deceased, that may prove useful in its identification, will accompany the body.

iv) Stretchers, or make-shift stretchers, will be used, instead of manual lifting, for loading the bodies onto the transportation vehicles.

v) Different means of transport like bullock carts, tractor-trolleys and other animal-transport may be used, if necessary. Ideally, the bodies will not be put in layers, one above the other, but will be placed appropriately in an individual manner.

vi) Ambulances will not be used for transportation of dead bodies.

vii) Transportation of the injured will get priority over transportation of the dead.

viii) Chemical Agent contaminated dead bodies will be decontaminated, prior to being transported to the storage site.

ix) The vehicle, used for the transportation of dead bodies, will be thoroughly decontaminated and disinfected before it is put back into routine use.

3.2.3 Storage and Preservation

Creation of adequate space and infrastructure, required for storage and preservation, will be planned as a part of various disaster management plans at all levels. Mortuaries in the hospitals are usually not adequate to meet the enhanced requirement during disasters. It is therefore essential to create temporary or semi-permanent structures. Abandoned buildings, store-houses or temporary constructed structures can be used for the storage with proper modifications. Important factors like climatic conditions, temperature, availability of ventilation and cooling facilities will be considered before deciding the site of the temporary mortuary. Two types of mortuaries (morgues) will be used at the time of enhanced requirement, besides various other methods which are enumerated below:

3.2.3.1 Permanent Mortuaries (Morgues)

i) These mortuaries exist in various districts and tertiary care hospitals; however, their capacities are very limited and highly insufficient to cater for a disaster situation.

ii) The hospital authorities may define an earmarked built-up area, away from the wards, where such buildings may be converted into ad hoc mortuaries.

iii) The large hospitals in disaster prone areas will enhance their capacities by building bigger mortuaries on permanent basis. All the hospitals will have modern facilities of refrigerating the dead bodies by having the casket system. Wherever refrigeration is not possible, the provision of having dry ice or ice will be in place for preservation of the dead.

iv) The mortuary or temporary mortuary will be well secured, wherein all the bodies are appropriately covered, and unnecessary traffic to this area is prevented. Dead Body Identification Form will be initiated and requisite photographs taken here, if not taken at the disaster site, to aid identification. In addition, all the information brought along with the bodies, personal belongings and tailor labels/dhobi

marks etc. are cross-checked at the mortuary.

3.2.3.2 Temporary Mortuaries (Morgues)

During a Mass Casualty Incident, the permanent mortuaries are grossly inadequate.

i) District Authorities will identify the sites and buildings for making temporary shelters as mortuaries where the dead bodies can be stored for a limited period of time. The temporary mortuaries will have adequate infra-structure for providing individual space for each body and shall have sufficient provision for ventilation. Improvised cooling devices like make-shift coolers or ice slabs, may be used in extremely hot climatic conditions, to prevent decomposition.

ii) The temporary mortuary should, ideally, have at least three working areas - Holding area, Viewing area and Examination area, to cater for the following facilities:

(a) **Holding area** to facilitate identification of dead bodies, a provisional holding area, which is typically an open space, should be set up to receive the dead bodies, consequent to their removal from the disaster site.

(b) **Viewing area** should be designated where family members and others will view photographs of the bodies, objects pertaining to the deceased, and finally, the bodies themselves.

(c) **Examination area** will be needed if it is necessary to conduct a more detailed exterior assessment of the body, to provide a detailed description of the dead body or body parts.

3.2.3.3 Refrigeration

Refrigeration between 2°C and 4°C is the best method for prolonged storage and preservation of bodies in the mortuaries. However, the capacities of various mortuaries that are available in the hospitals are usually inadequate for a Mass Casualty Incident. Refrigerated transport containers, used by the commercial shipping companies, if available, can also be used to accommodate up to 50 bodies.

3.2.3.4 Dry Ice

i) Dry ice is carbon dioxide frozen at the temperature -78.5°C, which can be utilized for short term preservation. A low wall of dry ice which is 0.5 metres high is formed around groups of 20 bodies and covered with a plastic sheet, tarpaulin or tent. It has been computed that ten kilograms of dry ice, per body, per day is needed depending on outside environmental temperature.

ii) Direct contact of dry ice with the bodies and the handlers will be avoided to prevent damage due to cold burns.

iii) It is essential to provide good natural ventilation in the storage facility where the bodies are stored and preserved with dry ice to prevent harmful effects of carbon dioxide, liberated on melting of dry ice.

3.2.3.5 Ice

i) Use of ice is an easy method of preservation, even in remote areas as ice is freely available. Adequate quantity will be used to preserve the body.

ii) Buildings, where ice is used for storage and preservation, will have adequate drainage facilities for the water melted out of ice.

3.2.3.6 Temporary Burial

The principle of temporary burial is based on the fact that underground temperature is much lower than the atmospheric temperature, thus providing natural cooling, aiding in temporary preservation of dead bodies before final disposal. Depending upon the local conditions, modality of temporary burial for a short duration may only be adopted when there is complete absence of facilities for storage and proper preservation. However, temporary burial will not be used as a method of choice. These guidelines will be followed for temporary burial:

i) The site of temporary burial shall be carefully selected, secured for possible future exhumation and will be at least 250 metres away from the drinking water source.

ii) Bodies will be placed in parallel trenches and shall not be laid, one upon the other.

iii) Depth of burial will be at least 1.5 metres above the groundwater table, with at least 1 metre covering of soil and the distance between two bodies will be 0.5 metre.

iv) Each body must be buried in body bags or locally available material with its Individual Identification Number in a waterproof label. This number must be marked at the ground level and mapped for future reference in a register.

v) Mass burial in a single ditch will not be used for storage and preservation.

3.2.3.7 Chemical Methods

Chemical methods are used where bodies are to be preserved for longer periods. There is no need for refrigeration for dead bodies, preserved by chemical methods. Different chemical methods are given below:

i) Formalin

A mixture of 20% to 30% formalin, methylated spirit, phenol and water can be injected with a wide bore needle into a major artery (carotid or femoral). Major internal organs like liver, spleen and kidneys are also injected with the above solution by penetrating through chest and abdomen. This method is more suitable in a hospital mortuary where medical skills are available for locating major blood vessels, along with availability of the said chemicals. This procedure is better suited for bodies which are to be transported over long distances. However, this method makes the biological samples from the dead bodies, unfit for DNA analysis.

ii) Sanitising

This process is also known as topical or surface embalming. The method can be used where the blood vessels cannot be secured because of

mutilation of body parts. Bleaching powder mixed with Potassium permanganate (KMnO4), is applied over the surface of the body, along with the infiltration and injection of 20% formalin saline in the skin and underneath.

iii) Embalming

This is a process by which the bodies can be preserved for a longer period and can be transported to distant places. A mixture of formalin, methylated spirit, phenol and glycerol is generally used for embalming. It is a specialized process which can only be carried out in well equipped mortuaries by trained staff. Embalming facilities will be created in medical colleges and other major hospitals.

iv) Mummification

This ancient process of permanent preservation is a very specialized procedure. It involves the use of natron, a salt-like substance that removes body fluids and preserves the soft tissues and bone, which are then properly wrapped in linen.

v) Plastination

This is a newer specialized process for preservation of the body whereby certain plastic substances like silicone, epoxy and polyester-copolymer are used which replace water and fat of the body.

vi) Complucad

A newer chemical product known as "Complucad" is now being tried for application on the body for preservation of the dead. Its utility for long term preservation is yet to be established. Indications are now available that a minimally toxic chemical known as Complucad Tanas can be applied over the body to prevent the post-mortem rigidity and other resultant changes. In addition, anti-clotting/thrombolytic effects of Complucad Aeternum make it easy to inject the corpses and reach all parts of the body for better preservation. However, this method may not be very useful in death, caused by inhalation of toxic gases and poisoning.

3.2.4 Identification of Dead Bodies

Identification of the dead bodies is a compulsory exercise after their recovery and retrieval from the disaster site, before final disposal. Identification of dead bodies is mainly done by comparing and matching the information of the missing person (physical characteristics, personal belongings, place and circumstances of death, etc.) with corresponding information of the deceased mostly with the help of surviving relatives and the community. In case a body is unidentifiable, different techniques for identification are mandatory to be carried out for which adequate infrastructure is needed at all levels, along with availability of trained human resource. The guiding principles for identification and its processes, infrastructural requirements, along with specialized techniques, used singly or in combination, can be classified into primary and secondary methods. The primary methods are laboratory-based specialized techniques used for identification of the dead body, whereas the secondary methods include visual identification, personal description, photography, medical

findings and any other evidences found on the dead body.

3.2.4.1 Primary Methods of Identification

The primary methods for identification of a dead body are applied only in case the secondary methods of identification are found inadequate. The primary methods used for identification are:

i) Fingerprinting

(a) Fingerprint analysis is a reliable indicator of the identity of an individual as fingerprints are unique to each individual. Fingerprints are formed in the fourth month of gestation and remain unchanged even after death and minor injuries to the palms. This method may prove most useful when the records of fingerprints are stored in a library, as practised in many countries and for criminals in our country. These records may be used for comparison, as and when required.

(b) The Unique Identification Authority of India (UIDAI) under the aegis of the Government of India, has been mandated for implementing the envisioned multi-purpose National Identity Card or Unique Identification Card (UID Card) project which is known as AADHAAR, meaning 'support', with its logo being a yellow sun with a fingerprint embedded in its centre. It was established in February 2009 with the aim of providing, by the year 2014, a unique identification number to all Indians, but not smart cards, with database of associated identifying biometric data (10 fingerprints and photograph of the face and the iris). Accordingly for identification, the dead body's biometric data can be compared with the UID database, for which software can be developed for prompt identification, except when these biometric parameters are compromised due to severe burns.

ii) Forensic Odontology

Dental data (dental points) and dental morphological traits can be recorded from the dead body and compared to ante-mortem data, if available, in the medical history of a person. The forensic odontology serves as a useful identification method, even when the body is badly mutilated or decomposed, as the teeth remain preserved for a longer period.

iii) Forensic Radiology

Skiagram (X-ray) of various bones helps in bringing out important facts regarding the age and sex of a person and evidence of old injuries. This information may prove useful in combination with other techniques.

iv) Forensic Anthropology

This is the science which deals with techniques that can be used to assess sex, age, stature, ancestry and analyze trauma and disease. The experts in this

field frequently work in conjunction with forensic pathologists, odontologists and crime investigators (police) to identify a deceased, discover evidence of trauma and determine the post-mortem interval. Such evidence lacks the legal authority but the findings are taken into consideration by the medical examiner.

v) DNA Analysis

(a) When used with other investigations, DNA is a significant complementary tool for identification. A considerable portion of the genetic information contained in a cell is unique to a specific individual and thus differs, from one person to another, except in identical twins. DNA testing may also produce reliable results even in cases involving partial, severely decomposed remains or in matching body parts.

(b) The ready availability of DNA technology is capable of meeting many complexities presented by Mass Casualty Incidents, including the problems because of severe mutilation or fragmentation. DNA analysis in such scenarios requires special resources related to specimen tracking, data management, and interpretation of results. The testing laboratories will be expected to use specialized software to facilitate the interpretation of the large number of DNA profiles and the tracking, searching and identification process, involved in this methodology. DNA analysis will require valid reference samples to identify the dead bodies accurately. The important facts about the DNA and the Identification of Human Dead Body are placed at the Annexure-F and the details of Sample Collection for DNA Analysis are given at Annexure-G.

(c) Network of Laboratories

It is essential to create and upgrade the number of forensic and DNA identification laboratories in a phased manner across the country, so that the identification process can be carried out in the shortest possible time with complete accuracy. There are few DNA fingerprinting laboratories in India, and among which, the Centre for DNA Fingerprinting and Diagnostics (CDFD), Hyderabad, is a National Referral Laboratory for difficult and recalcitrant case samples in identification of the deceased in Mass Casualty Incidents. There are many laboratories, which have the capability of carrying out DNA analysis in scientific and academic institutions. Nevertheless, their capabilities will have to surge, in case they are required to help in identification of the dead in Mass Casualty Incidents. A current list of Laboratories carrying out DNA Fingerprinting Examination in India is placed at Annexure-H.

(d) Upgrading of Forensic laboratories

- All forensic laboratories will be upgraded for methodologies of fingerprints, forensic dentistry, forensic radiology, forensic anthropology and DNA analysis.
- These laboratories will have trained forensic experts who will assist in the recovery, analysis and identification of dead bodies, using biological characteristics of age, sex, stature and anomalies, if any.
- Such laboratories will be interlinked with CDFD, Hyderabad and Central Forensic Sciences Laboratory (CFSLs) located at Kolkata, Hyderabad, Chandigarh and New Delhi.
- These laboratories will also be used for testing and training at the regional level for collection of samples, referral samples, DNA testing, data management, specimen tracking and interpretation of results.
- CDFD, Hyderabad, various CFSLs, State Forensic Laboratories and Forensic Medicine departments of the medical colleges in various States will be encouraged to train the requisite staff from other laboratories. The State authorities will also earmark certain laboratories to train the skilled personnel, available with the District Laboratories/ Hospitals.

(e) DNA Identification Laboratories

- Existing laboratories for DNA fingerprinting will be upgraded to handle large numbers of DNA samples and report on them in the shortest period.
- DNA laboratories will also develop methodologies for collection of a large number of samples from the site of the disaster or from the site of storage and preservation of dead bodies, through the mobile laboratories, and thereafter, transporting them to the nearest DNA laboratory.
- CDFD, Hyderabad, CFSLs and All India Institute of Medical Sciences, New Delhi, with the capabilities of carrying out DNA fingerprinting, will also impart training to the professionals of State Forensic Laboratories. These trained professionals will further impart skills and knowledge to all district laboratories, thus enhancing their capabilities to collect appropriate samples.
- The Ministry of Defence, too, will create facilities at the Department of Forensic Medicine, Armed Forces Medical College, Pune for DNA fingerprinting. Similarly, Railways and Director General Employees

State Insurance Scheme will also earmark and create at least one such laboratory in their domain.

- Facilities will also be created in Central Medical institutions (Post Graduate Institute Chandigarh, Sanjay Gandhi Post Graduate Institute Lucknow, Jawahar Lal Nehru Institute of Post Graduate Medical Sciences Puducherry, etc.) and State Medical institutions.

3.2.4.2 Secondary Methods of Identification

The secondary methods of identification include visual identification, personal description, photographic findings, medical findings and any other evidence, including the clothing found on the dead bodies which are ordinarily adequate to identify most of the bodies with the help of relatives and the community. The secondary methods of identification are discussed below:

i) Visual identification

Visual identification by a witness may provide an indication of identity but it is not sufficient for positive identification of victims of a large-scale disaster. Victims are often so traumatized that visual comparison is impossible and relatives are frequently unable to cope with the psychological stress involved when confronted with deceased victims.

ii) Photography

Identification, based solely on photographs, is highly unreliable and will be avoided. Photographs can prove very useful, if taken within 12 to 24 hours of the death, before the decomposition of the body sets in.

iii) Personal Description/Medical Findings

Personal features of an individual, like age, gender, height, ethnic affiliation, tattoos, moles and burns are useful indicators of identity. Specific identification marks like scars and medical evidence of surgical removal of organs, may provide crucial information about a victim. Unique numbers found on prosthetic devices, breast implants, cardiac pace-makers and Automated Implantable Cardioverter Defibrillator (AICD) can also serve as reliable indicators.

iv) Evidence/Clothing

This category includes all effects, found on the bodies of victims, like jewellery, articles of clothing including tailor tags and dhobi marks, and personal identification documents. It is important to consider the items of evidence found on the body with caution, as they may not actually belong to the deceased and may have been borrowed or misplaced during the process of retrieval or transportation. Items of jewellery have a higher identification value, if they are firmly secured or engraved to the victim's body, like nose pins, earrings and wedding rings.

3.2.4.3 Procedure for Identification

A Mass Casualty Incident results in a large number of deaths. The dead body of such a victim may get mutilated because of disaster effects and/or it may be displaced to sites, away

from its habitation, thus posing problems in positive identification. A systematic approach is required to be adopted to confirm identification of a dead body, before its final disposal. In many cases, the help of forensic and laboratory techniques, may be required to reach the final conclusion. Some of the important key steps, involved in the process of identification, are deliberated as follows:

i) Collection of Data on Dead Bodies

(a) After retrieval and recovery of dead bodies from the disaster site, an Individual Identification Number will be allotted serially to each dead body or body part, and then recorded. Clothing, jewellery and documents, present on the body, will not be removed or damaged, as they may subsequently prove helpful in the positive identification.

(b) The dead body, body bags and personal belongings will be labelled with allotted Individual Identification Number and stored together in a safe manner. The labels should be ideally waterproof to prevent their erasure during transportation and storage.

(c) All bodies will be digitally photographed with their Individual Identification Number labelled on the body. The minimum number of photographic shots of a dead body will include a frontal view of the full body, whole face and distinguishing features like tattoo or deformity, if any. Photographs of badly mutilated or decomposed bodies may not prove useful in identification. In such cases, a combination of criteria followed by laboratory tests, are to be adopted.

(d) Dead Body Identification Form, as per Annexure-D, will be filled, in duplicate, for every dead body or body part. The matching Individual Identification Number will be recorded on both copies of this form. One copy of the Dead Body Identification Form will accompany the dead body, if being transported for storage and preservation. The other copy will be kept safely as a record with the authorities.

ii) Ante-mortem Personal Data Collection

(a) An Information Centre will be established at the site of the disaster where the bodies are being kept and the data on dead bodies is being compiled, in the format of the Dead Body Inventory Record register. The Information Centre will serve as a resource centre for receiving information on ante-mortem personal data from the relatives, friends and the community at large. Data so furnished, will be recorded in the suitably designed format of Missing Person Form, placed at

Annexure-I. Any documents or proofs, like Panchayat Register or photographs provided, will be retained at the Information Centre with this pro forma. Such personal ante-mortem data will be very useful in identification of the dead. In some cases, data on medical history, illnesses, blood groups, any genetic or ethnic information available about the individual, may further substantiate the process of identification.

(b) The data from the dead body and the Ante-mortem personal data will be matched and cross-checked at the time of visual identification of the dead. However, identification, based on visual recognition or photographs, may be faulty and it will have to be complemented with other methods of forensic identification, wherever necessary.

(c) When visual identification with the help of data, derived from the dead body and Ante-mortem personal data do not establish complete positive identification, laboratory-based methods like fingerprinting, forensic radiology, forensic odontology, forensic anthropology and DNA profiling will be conducted.

(d) The Information Centre will contact forensic experts for collection of samples from family members of the deceased, for DNA fingerprinting, where earlier methods have not proved adequate for identification.

(e) The family members or relatives, who come forward and help in visual identification, are undergoing severe psychological trauma and emotional stress, during the identification process. The sense of grief and loss, among the bereaved, will be respected by the authorities and they will be treated with utmost sensitivity and patience.

iii) Role of Post-mortem Examination

(a) Under Cr PC Section 174 and Cr PC Section 176, all unnatural or suspicious deaths have to be investigated by an Inquest. Post-mortem examination is essential in cases of unnatural deaths to establish the exact cause of death.

(b) Most of the major disasters may result in Mass Casualty Incidents leading to a large number of deaths and injuries to the survivors. Though deaths are unnatural, still the post-mortem examination is neither feasible nor mandatory, as the cause of death is attributed to the effects of the disaster. The authority of waiving the post-mortem examination in such circumstances lies with the District Magistrate or the Police

Commissioner, having the executive powers of a First Class Magistrate. However, sample post-mortems may be necessary in certain circumstances, especially, in the man-made disasters where the agent used may not be clearly identified and the exact cause of death may have to be defined for prospective reference. Decisions on such issues will be made by district authorities on the advice of technical and forensic experts.

3.2.5 Disposal of the Dead

Disposal of the dead is the final step in management of the dead. It is a highly sensitive and very important step because of cultural, ethnic and religious sensitivities, varying from community to community, in our country. Therefore, it is essential to associate prominent citizens of the community during this process, especially, for disposal of a large number of bodies. Disposal of the dead is a sequential process and involves important actions required to be taken before the final disposal. These include - process of identification, issue of death certificate, release of the dead body, transportation of the dead to their home and methods of final disposal.

Some of the important issues related to these actions and steps are discussed below:

3.2.5.1 Death Certificate

i) Death Certificate in a standardized format, already in vogue, will be issued by the authorized medical officer. This certification is essential for the purposes of final rituals, compensation, claims, special legal provisions wherever applicable, and for repatriation of the dead bodies of foreign nationals. Requisite documentation such as "Brought in Dead" and Death Reports, as stipulated by the State, will be initiated.

ii) The Death Certificate will clearly indicate the immediate cause of death in a disaster situation. The antecedent causes, which usually state the underlying conditions or diseases, may not be essential as it requires a post-mortem examination.

iii) Unidentified bodies will be subjected to necessary forensic tests for a final identification. Positive identification may not be possible in certain cases where representative biological samples from such bodies will have to be kept in forensic laboratories for a stipulated period, as defined by the law, for declaring a missing person as dead. However, disposal of such bodies will not be delayed beyond a certain point of time, lest the body putrefies.

3.2.5.2 Release of the Dead

Following steps will be undertaken for the release of the dead bodies:

i) All identified dead bodies will be handed over to the relatives. In the absence of relatives, the body can be handed over to the community representative, duly authorized by the Panchayat/Urban Local Body. A Death Certificate will be provided with the dead body.

ii) The authorities, responsible for handing over the dead body to

relatives or to the authorized person, will maintain a complete record about the dead, along with the allocated reference number and details of the relative(s) or authorized person collecting the dead body.

iii) Unidentified bodies or body parts will not be released unless identified and certified by forensic experts and district authorities.

iv) Dead body or body part, whose identity cannot be established, will be disposed of by the District Authorities, in the presence of the community representative(s) after collecting biological samples for the possibility of future identification.

v) Transportation of individual bodies to their home may not be possible; however, the relatives or the authorized person may collect the body, after identification, and transport it under their own arrangements.

vi) The bodies may require embalming or other preservation methods, in case the body has to be transported over long distances or abroad.

vii) Bodies, requiring transportation, will be either kept in coffins or are fully covered by sheets or body bags. These bodies are then transported in a covered vehicle or hearse vans, so as to prevent any psycho-social trauma to the relatives and the community.

viii) In case of the dead body of a foreigner, the Ministry of External Affairs, Government of India, in consultation with the Consular offices of the concerned countries and other actors such as the International Committee of the Red Cross, if necessary and possible, for appropriate identification, documentation and then the embalmed dead body will be handed over to the authorized person(s).

3.2.5.3 Final Rituals

Authorities may be required to organise final rituals in respect of the unidentified or unclaimed bodies or body parts in a disaster scenario. Authorities will associate the community representative(s) during the process of final rituals. As far as possible, the authorities will also observe local sensitivities while performing the final rituals. One of the following methods may be used for the purpose of the final rituals:

i) Cremation

(a) Many communities in our country adopt cremation for the final ritual. This method dispenses with the problem of space and is more eco-friendly.

(b) Usually the cremation sites are already defined in our rural or urban settings. However, in the absence of such a practice, the cremation site will be chosen at least 500 metres away from the inhabited area.

(c) Electronic devices like Cardiac pacemaker and Automated Implantable Cardioverter-Defibrillator (AICD) must be removed before the cremation, as they may pose a hazard to the people in vicinity, by exploding on exposure to heat.

(d) Mass funeral pyres will be avoided, as they may release harmful dioxins and excessive smoke pollution.

(e) Use of electric crematoriums will be encouraged, wherever available.

ii) Burial

Mode of burial for final disposal is the method of choice in certain communities in our country. However, this method has been used for final disposal for a large number of unidentified bodies in a major disaster situation. In such circumstances, it is the urgency that matters and not the method of choice. Some of the important guidelines for burial of dead bodies are as under:

(a) Single burial is the ideal method as it gives the advantage to the community to practise prevailing preferences for the burial site, preferential orientation of body in the grave as regards to its direction and permanent labelling of the grave for emotional reasons.

(b) Selection of the site for mass burial will be carried out in consultation with local community and it also depends on the type of soil, level of water table, availability of space and distance from water sources.

(c) The burial site will be located, away from the habitation and it will have adequate space around the site to plant deep-rooted trees for the purpose of demarcation and to prevent excavations. Some of the important steps given in Para 3.2.3.6 for temporary burial may be adhered to, before mass burial.

(d) Single row and single layered burial, along with adequate space between the rows and between the bodies will be ensured. This may also help the authorities for future exhumations, if required.

(e) The authorities will maintain adequate records of the mass burial.

iii) Other Methods

Certain communities like Parsis and Jews have their own methods of disposal of the dead. For final disposal of identified bodies of such communities, help from the community representative(s) will be sought for handing over the bodies for final disposal, as per their rites.

3.2.5.4 Final Disposal in Special Circumstances

The victims of Chemical, Biological, Radiological and Nuclear (CBRN) disasters may pose contamination or spread of the disease to the surrounding community. In such situations, the disposal of bodies will not be delayed and trained first responders will dispose of such bodies, after obtaining consent from the next-of-kin, as per the following guidelines:

i) In major nuclear disasters, there may be a large number of deaths due to acute radiation, blast, burns or trauma. No interventions will take place till the "radiation fall" is over. An aerial survey, then, shall be carried out to assess the level of radiation before the specialized first responders are asked to enter the area. In cases of radiological terrorism, such incidents may not result in

immediate deaths of the victims; but those who are exposed, may die due to Acute Radiation Sickness, necessitating deep burial of the dead body. The disposal of dead bodies, arising out of such a situation is not a priority action but after an analysis of the situation, the area may have to be covered with mud and earth.

ii) Dead bodies on account of chemical disasters, usually, require decontamination before final disposal. In such circumstances, deep burial will remain as the method of choice for disposal.

iii) Victims dying in bioterrorism and pandemics will be cremated by the specialized first responders, at the earliest, to prevent the spread of the disease. Therefore, it is important to make communities aware of the risks of contagion from practices, such as traditional washing of the dead and also to avoid large gatherings at these funerals.

3.2.6 Exhumation

This is a process of digging out the buried dead body, and it is conducted under the following special circumstances:

i) The body may be exhumed for medico-legal reasons by legal authorities to investigate a suspicious death.

ii) Exhumation may be permitted for unidentified dead bodies, later identified with the help of forensic tests, to carry out the final rituals by their relatives.

iii) Archaeological experts, sometimes, may seek permission to exhume bodies from archaeological sites and these bodies may be subjected to anthropological studies.

iv) Exhumation may be required only at times, in a disaster situation, when temporary burial is resorted to, for the purpose of storage and preservation, and such bodies may be exhumed for identification and final disposal.

3.3 Documentation and Audit

Proper knowledge, documentation of management of the dead and information, related to this facet of the disaster event, will be properly documented as follows:

3.3.1 SOPs for Management of the Dead will be prepared by the DDMAs, based on these National Guidelines, their past experience and best practices available.

3.3.2 The proper documentation will include compiling the Dead Body Inventory Record and Dead Body Identification Form which includes photographs of the deceased, giving age, sex, site at which the body was found, identification marks, clothes and other information which may prove useful for identification of a dead body.

3.3.3 Information Desks will be set up as a component of Incident Response Post, to provide information and to assist in identification of the bodies and completion of formalities, regarding release of identified bodies. The information, thus documented, will act as a robust tool to disseminate specific figures, be it the number of dead bodies

or the specific number which have been identified further. The documentation will also help in providing information about the location of dead bodies which are stored and preserved, across various mortuaries and storage sites. It will also include the role played by various agencies for the management of dead bodies.

3.3.4 The documented data will serve as a useful source for auditing the relief work and services, rendered by various teams in the management of dead bodies. This will help in future planning audits after realizing the level of standards delivered and thus the gaps which need to be bridged to achieve the ultimate level of perfection.

3.3.5 Proper and authentic documentation will help in disseminating correct information to the concerned authorities, print and/or electronic media, and the community at large, so as to prevent panic and spread of rumours.

3.4 Research and Development

Research and Development will focus on regular updating of various systems involved in management of the dead. Studies will be undertaken, initially, through pilot projects and upgraded facilities, developed through research and development, will be applied for the improvement of the methodologies as follows:

3.4.1 Utility of newer methods of preservation, like use of "Complucad" may be taken up for a study and its use be standardized for body bags for the purpose of preservation of dead bodies without refrigeration under field conditions.

3.4.2 Development of mobile DNA laboratories, for collection of large numbers of samples from the disaster site, will help in early identification, whenever necessary.

3.4.3 Development of laser based sensors for locating buried dead bodies in an earthquake scenario.

3.4.4 Development of software for matching ante-mortem data as per the Missing Person Form and post-mortem data as per Dead Body Identification Form, for the purpose of prompt identification.

3.4.5 3.4.5 Disaster Victim Identification Cells (DVICs) model of developed countries, established for disasters, can be taken up as a pilot study, and if found suitable, can be adopted by the SDMAs for establishing DVICs in every district of the country. To start with, CDFD Hyderabad, which is a national referral laboratory for Fingerprint analysis and DNA testing, having technical and scientific capabilities, shall establish a DVIC, with sufficient infrastructure and manpower, to train scientific staff/personnel from other Central/State Forensic laboratories in the area of DNA testing, for identification of dead persons in Mass Casualty Incidents.

3.5 Information Management

Information management is the most sensitive and a highly important step, involving a multi-disciplinary, multi-stage and time-consuming approach for effective coordination of all steps related to management of the dead. Each sub-stage of physical management of the

dead is intimately connected with the retrieval of various categories of information from relevant parties which can be utilized for involving the bereaved public for managing the dead. The collection, storage, analysis and dissemination of information will be undertaken under the supervision of a nodal officer or nominated agencies at district, state or central level through an effective communication network, while maintaining the chain of custody to avoid misplacement of information and the availability of evidence. This will help in proper and timely transfer of information to all the stake-holders along with reducing the stress experienced by affected communities, defusing rumours, and clarifying incorrect information. The standard practice of information management can be further subdivided into following essential steps:

3.5.1 Collection of Information

3.5.1.1 Information is collected from the bereaved families and relatives, from first responders, and evidence or information retrieved from the dead body.

3.5.1.2 A database will be built regarding number of identified or unidentified dead bodies and missing persons.

3.5.2 Storage of Information

All the gathered information, including valuable personal items and photographs, will be documented and computerized, so that the information is available in the public domain.

3.5.3 Analysis of Information

3.5.3.1 This is the most crucial step of information management, partaken at the level of Incident Command Post (ICP). This entails comparison of information, collected from relatives and data availed from the dead bodies by various identification methods, including forensic techniques.

3.5.3.2 Computer software will be developed for management of information and final identification based on ante-mortem information, obtained through various forensic methods and DNA profiling to be matched with Post-mortem data.

3.5.4 Dissemination of Information

3.5.4.1 The information will be necessity-based and provided by the nodal person to ensure prevention of panic or rumours in the community.

3.5.4.2 This highly sensitive step involves breaking of bad news to the bereaved families with utmost courtesies by a responsible official, along with releasing data of the missing and the dead to media, relief agencies and higher government authorities for statistics and future planning.

3.5.4.3 The responsibility of preparing an authentic report and releasing it will lie on the nodal person or authority. The information given to various agencies will be given on need-to-know basis and the right information to the right person.

3.5.4.4 It also involves information about various support services, arranged by government and humanitarian organisations, for concerned families and communities, along with arrangements for the death certification.

3.5.4.5 The District Authorities will have a Media Plan in which the Public Relations Officer (PRO) will liaise with the media and, collectively, shall issue information through print and electronic media, based on facts and figures.

3.5.4.6 Information will be provided through the local or regional centres utilizing a wide range

of media like internet, notice boards, newspapers, television, radio, etc. Efforts will be made to utilize the communication system which is being created for Disaster Management communication for the last mile connectivity, for retrieving information on management of the dead.

3.5.4.7 Media will not be allowed direct access to photographs and individual records, till such time the authorities have consolidated all the information for proper identification.

3.6 Role of Various Agencies

3.6.1 The Indian Red Cross Society (IRCS) and the International Committee of the Red Cross (ICRC) are some of the important agencies which play an important role in the management of dead bodies after disasters. Each district has the IRCS branch which plays a very crucial role in the response and rehabilitation activities, especially, in the health-related subjects. The ICRC is actively engaged in training of the first responders for management of the dead bodies. The IRCS, with the support of the ICRC, plays a significant role in helping to restore and maintain contact between family members, separated due to disasters, as well as in tracing persons who have disappeared.

3.6.2 There are a number of NGOs (National and International) and humanitarian organisations who play an important role in providing support to the Government authorities in management of the dead and psycho-social support to the bereaved families.

3.6.3 Local Authorities will identify such agencies in their planning process while preparing the District Disaster Management Plan.

3.7 Support to the Bereaved

3.7.1 A major disaster which results in a Mass Casualty Incident also causes many adverse effects onto the bereaved and the community at large. Loss of habitation, personal belongings and financial losses cause immediate to long term sufferings to the community. In addition, every person, who is bereaved or affected by the disasters, undergoes psycho-social trauma which, at times, overwhelms normal coping mechanisms and precipitates into mental disorders. Careful and ethical management of dead bodies, along with respect for religious and cultural sensitivities, are very important in dealing with the psychological impact of disasters. In this context, reference can be made to National Guidelines on Psycho-social Support and Mental Health Services in Disasters.

3.7.2 The important relief measures must focus on providing minimum requirements of food, water, sanitation, hygiene and medical cover, in addition to the clothing, shelter, financial relief and compensation with empathy and care. The Minimum Standards for such relief will be laid down by NDMA which may be modified by the State authorities, depending upon local conditions, but in no way less than the standards laid down by NDMA. In addition, financial support and compensation as a part of the relief will also be provided, based on the Minimum Standards.

3.7.3 It is also necessary to provide comprehensive relief to the affected community including psycho-social support as many of the people are likely to stay in the camps for at least a few days to a few weeks.

3.7.4 The local NGOs may play a vital role in providing and monitoring support to the bereaved families on long term basis, and hence, will be involved in the local Disaster Management Plans.

3.7.5 A representative from the affected community will be associated with the NGOs to provide support to the bereaved.

3.7.6 Gratuitous Relief, as per List of Items and Norms of Assistance from Calamity Relief Fund (CRF) and National Calamity Contingency Fund (NCCF) as notified by the Government of India will be disbursed as per its rules and regulations in vogue towards Ex-Gratia payment to the families of deceased persons. In addition, Compensation pertaining to disposal of dead bodies is on actual basis. Consequent to the acceptance of Recommendations of the Thirteenth Finance Commission, the directives on the aforesaid Funds are as follows:

i) The National Calamity Contingency Fund (NCCF) will be merged with the National Disaster Response Fund, constituted under Section 46 of the DM Act, 2005, with retrospective effect from 1st April 2010; and

ii) The Calamity Relief Fund (CRF) will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010.

3.8 Psycho-social Support to the Care Providers

The First Responders or Care Providers in the aftermath of disasters may be exposed to a miscellany of potentially disturbing experiences such as viewing and handling of dead bodies, complete or mutilated, coping with dying victims, and individuals with grotesque and serious injuries, as well as to deeply distressed individuals, families, and even communities. These personnel also may have to face risks (genuine and/or perceived) to their own safety, including exposure to toxic materials and diseases. Their health and welfare may be compromised through lack of sleep, fatigue, and work overload. Thus, they may not only become "secondary victims", but may also be "primary victims" due to personal loss of loved ones, friends, property, and possessions, particularly in the wake of extensive disasters, such as cyclones, floods or earthquakes. Continuous exposure to stressful conditions due to scenes of destructive effects of disasters culminate into psycho-social problems among the Care Providers which need to be addressed, professionally, failing which the tempo of the relief operations will soon wither. Team leaders of first responders and crisis groups shall monitor and keep a vigil on the emotional and physical stress of Care Providers, noting the physical and clinical signs of psycho-social trauma. Treatment entails debriefing, adequate rest and proper food and nourishment to prevent the Care Providers' collapse.

4 Guidelines for the Disposal of Animal Carcasses

4.1 Introduction

Disasters, both natural and man-made, have the potential to cause massive animal mortalities. Large scale livestock deaths caused by natural disasters, disease outbreak, or an act of bioterrorism, pose major challenges for carcass-disposal with the potential to impact public health and environment that, if not met quickly and effectively, will result in huge economic losses.

4.2 Carcass Disposal Strategy

4.2.1 Strategy for carcass disposal in the aftermath of disasters requires preparation, well in advance to get optimum results. For an effective disposal of animal carcasses, there are several options like burial, incineration, rendering or composting. The decision regarding adoption of any particular disposal option would be based on environmental and disease considerations, availability of resources, cost involved and socio-cultural preferences.

4.2.2 Special consideration should also be given to the proper disposal of wildlife as it constitutes the major reservoir of many zoonotic diseases. The disposal of dead wildlife should be done in situ by the Forest Department in consultation with Veterinary Officials in a manner that is appropriate to protect human health, public safety, and is environmentally responsible.

4.3 Legislative and Regulatory Framework

Animal Husbandry, being a State subject, enables the State government to legislate laws and regulations for prompt and effective disposal of animal carcasses during any disaster-like situation, making it a mandatory part of Public Health and Hygiene Regulations. The Regulations should vest with Veterinary Services having requisite authority and the power to carry out activities necessary for the efficient and effective disposal of dead animals, in conjunction with relevant government agencies.

4.4 Preparedness and Capacity Development

The safe and secure disposal of dead animal carcasses during any disaster depends on preparedness and capacity development. It requires a sound and sustainable management plan based on cooperation and collaboration. As part of "all hazard" disaster management, the carcass disposal will be made an integral part of all District Disaster Management Plans. Provisions exist to incur expenditure from Calamity Relief Fund (CRF), not exceeding more than 10% of the State's Annual allocation for the Training to Specialist multi-disciplinary groups/teams of the State personnel, drawn from different cadres/services/personnel and

for procurement of Equipment for the management of disasters, to be judiciously exploited. The State Calamity Relief Fund will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010 as per the Recommendations of Thirteenth Finance Commission.

4.4.1 Establishment of Command, Control and Coordination Functions

The Command and Control Authority at the operational level is District Magistrate or Collector or Deputy Commissioner who has been designated as the Responsible Officer (RO) in the Incident Response System (IRS). The Responsible Officer may delegate responsibilities to the Incident Commander (IC), who in turn shall manage the disaster through Incident Response Teams (IRTs), duly supported by Planning and Logistics Sections of the IRS and Emergency Support Functionaries (ESF). The Responsible Officer of the Incident Response System will nominate the District Animal Husbandry Officer as the nodal official with the designation of Animal Carcasses Management Group-in-charge in the Response Branch of Operations Section. The said Group-in-charge is responsible for recovery, retrieval, identification, and safe disposal of animal carcasses. Technical and specialist teams will be requisitioned as on required basis. Likewise, the Sub-Divisional Officer (SDO), Tehsildar, and Block Development Officer (BDO) will function as the IC at the Sub Division, Tehsil and Block level respectively.

4.4.2 Planning

4.4.2.1 Vulnerability Assessment

In making a Vulnerability Assessment, particular attention should be paid to local animal husbandry practices, prevalent diseases, natural and man-made hazards, geo-climatic considerations, socio-cultural background of the community, and infrastructure availability. This will enable the concerned authorities to build up surge capacity for any crisis and also helps in mitigating disaster consequences.

4.4.2.2 Communication

Authorities, handling large-scale animal mortality and carcass disposal, will communicate with clarity to ensure positive public perception. In the event of an epidemic/pandemic, affecting human health (zoonosis), there would be a need for appropriate public announcements as well as involvement of the law enforcement authorities for safe disposal of carcasses.

4.4.2.3 Financial Planning

The disposal of a large number of carcasses will require adequate funds, depending on the disposal technologies employed, as a part of the Contingency Plans.

4.4.3 Human Resource Development

4.4.3.1 The State Animal Husbandry Department will prepare a training module for the trainers so that they have adequate knowledge of the planning process, availability of resources, transportation and various methods of disposal. These trainers will then train a number of teams to play an effective role in a disaster situation.

4.4.3.2 An adequate number of First Responders will be trained for proper handling, transportation and disposal of the animal carcasses under the overall responsibility of District Animal Husbandry Officer.

4.4.3.3 Availability of an adequate number of teams of First Responders will be ensured by training volunteers from the Civil Defence, Home Guards and other Voluntary Organisations.

4.4.3.4 Efforts should be made to constitute and train Animal Carcass Retrieval Teams at the community level.

4.4.3.5 Resource inventory of such teams will be maintained at the District Headquarters.

4.4.3.6 The District Authorities should be educated on the various facets of proper disposal of animal carcasses including its administrative aspects.

4.4.4 Infrastructure

The "all hazard" District Disaster Management Plan should address the various resources which may be required for disposal of a large number of animal carcasses. These include:

4.4.4.1 Logistics

i) Selection of suitable site for disposal of a large number of animal carcasses.

ii) An inventory will be made regarding availability of requisite equipment with various organizations, both in government and private sector, to be acquired in a disaster scenario. Moreover, attention shall be paid to special equipment for lifting carcasses and digging trenches such as tractors, bulldozers, front-end loaders and excavators.

4.4.4.2 Transportation

Suitable transport from the site of retrieval to that of disposal will be ensured by the District Authorities either by pooling in the transport available with various departments or by hiring them.

4.5 Response Methodologies for Disposal of Animal Carcasses

4.5.1 Animal Carcass Retrieval

Animal carcasses will be lifted by the Animal Carcass Retrieval Teams and transported to the disposal site at the earliest, via a safe route, in order to prevent the spread of zoonotic diseases. Animal Carcass Retrieval Teams will be given requisite equipment, safety gear, clothing, and vehicles by the District Authorities.

4.5.2 Animal Carcass Identification

4.5.2.1 The Animal Carcass Retrieval Teams should keep a record of an animal carcass - where and when found, by whom, species, sex, any identification marks etc. However, due to awareness and governmental encouragement, farmers are now opting for insuring their livestock especially milch animals (cows and buffaloes). The insured livestock are identified by placing a metallic tag in their ear tip. Once injected, these tags cannot be tampered with and will be removed along with the piece of ear by a trained veterinary assistant and preserved with other records. The animal carcass could also be photographed for identification based on horn size and shape, colour, skin pattern etc. Besides, the chain or rope around the carcass's neck will also be preserved for identification. Some of the advanced methods of identification such as muzzle printometry and dentition can also be utilised.

4.5.2.2 During disaster situations, accurate animal identification systems are the basis for data collection and subsequent compensation to their owners. However, in the absence of an institutionalised mechanism of livestock identification, the State Authorities, in association with the Animal Husbandry Department, may formulate its own strategy/ criteria for animal identification.

4.5.3 Methods of Disposal

There are many methods of the final disposal of animal carcasses. The choice of method shall

depend upon the type of disaster and availability of facilities in the area of disaster. The various methods of disposal of animal carcasses are:

4.5.3.1 Burial

Burial is the most commonly used method for the disposal of animal carcasses and the method of choice in disasters. A good amount of bleaching powder or calcium hydroxide should be layered upon the dead animals' carcasses to keep out insects and vermin. Burial of dead livestock must be followed by a vector control programme since vectors can spread infections from burial ground to adjoining inhabited areas. Barriers should be erected to prevent the access of wild animals, birds and rodents to the burial ground. Thorny bushes or plants may be grown on the mass burial site. Burial can be conducted in the following ways:

i) Trench Burial

Trench burial is a relatively economical, convenient, logistically simple, and relatively quick method of disposal of animal carcass. It involves digging a trench, placing carcass in it, and covering it with the excavated earth. If performed on-site, it eliminates the need for transportation of potentially infectious carcasses. In our country, this is the most common disposal method practised, the details of which are placed at Annexure-J.

ii) Mass Burial

This entails the burial of large numbers of animal carcasses from multiple locations in a pre-defined and prepared disposal site when sufficient land area is not available at location of the disaster.

4.5.3.2 Incineration

In case of epidemics of highly infectious diseases that may have public health consequences, incineration may be preferred over other disposal options since it eliminates pathogens completely. The two broad categories of incineration techniques are:

i) Open-Air Burning

It implies the burning of carcasses on combustible heaps known as pyres. This disposal method is resource intensive and requires a large quantity of wood/timber, coal, and fuel. It affects the environment adversely and, particularly in windy areas, can pose a fire hazard. Site selection for open-air burning shall be carried out in consultation with the local community.

ii) Fixed-facility Incineration

Unlike open-air burning, fixed-facility incineration is wholly controlled, capable of thoroughly destroying infected carcasses, and highly bio-secure. It includes small on-farm incinerators, crematoria, and power plant incinerators. Small animal carcass incinerators are also established by some municipal corporations. A fixed-facility incinerator may require an initial investment for creating the facility, and is ideally suited for intensive livestock farming zones.

4.5.3.3 Specialised Methods of the Disposal of Animal Carcasses

The specialised methods of disposal are usually not used in mass disposal of animal carcasses. There are a number of specialised methods of carcass disposal discussed in the succeeding paragraphs; however, before applying any one of these procedures, the process of cleaning and decontamination are

undertaken so as to limit any potential spread of a disease, which are elucidated as under:-

i) Step I - Cleaning and Decontamination

(a) Cleaning

The aim of the cleaning process is to remove all dirt and debris that reduces the effectiveness of disinfectants.

(b) Decontamination

It is a combination of physical and chemical processes to remove or kill pathogenic micro-organisms. The decontamination involves identification of potential pathogens, assessment of the situation and selection of appropriate disinfectant. In our country, the most commonly used and readily available disinfectants are Bleaching Powder and Slaked lime (Chuna), which should be stocked as part of contingency supplies.

ii) Step II - Specialised Methods of Disposal

(a) Composting

Composting means the biological decomposition of animal carcasses and offal, under controlled conditions, the details of which are placed at Annexure-J. The temperatures, achieved during composting, kill or greatly reduce most pathogens, thereby reducing the chance of spread of the disease. Although not very popular in our country, composting of animal carcasses is one of the best methods for disposal of a smaller number of small animals like poultry, pigs, calves etc. Properly composted material is environmentally safe and enriches the soil.

(b) Alkaline Hydrolysis

Alkaline Hydrolysis process is carried out in an insulated steam-jacketed, stainless steel pressure vessel in which Sodium hydroxide (NaOH) or Potassium hydroxide (KOH) is used to catalyze the degradation of biological matter at a temperature of 150°C to accelerate it. The only solid by-products are the bones and teeth which are sterile and can easily be crushed into powder that is safe for disposal by land filling.

(c) Rendering

Rendering is an improved method of the disposal of animal carcasses with an objective of salvaging the economic value of carcasses. The process of rendering includes mechanical reduction of size, followed by thermal treatment and separation of fat, water, and protein by screening, pressing, centrifugation, solvent extraction, and drying. Resulting end-products may be used as animal feed ingredient or as a fertilizer. Animal fat can also be used to manufacture soaps.

(d) Lactic Acid Fermentation

Lactic acid fermentation is a process of converting animal carcasses into a pathogen-free and nutrient-rich end-product. The carcasses are ground into fine particles to homogenise the ingredients, mixed with a fermentable carbohydrate source and culture inoculants, and then placed in a

fermentation container. After decontamination, the final products may be used as feedstuff or fertiliser.

(e) Thermal Depolymerisation

Thermal depolymerisation is an advanced process of carcass disposal wherein high heat and pressure are applied for conversion of pre-processed carcasses into a type of fuel oil. Since the process of depolymerisation degrades materials at the molecular level, it may be an effective method for disposal of infected/diseased carcasses. This latest method is still being researched for its application as an effective disposal method.

4.6 Psycho-social Support

4.6.1 Livestock, being a valuable asset, its loss subjects its owners to psycho-social stress that should be mitigated through positive public communication. An accurate estimate of the loss and prompt payment of compensation helps most in psycho-social rehabilitation.

4.6.2 In the event of an epidemic or pandemic that may endanger human life, there will be an urgent need for lawful enforcement of mandatory culling and subsequent safe disposal of animal carcasses. However, due attention should be paid to the public sentiment and socio-religious sensitivity, before enforcing the same. The culling operation should mandatorily be preceded and followed by a well-prepared psycho-social rehabilitation programme.

4.7 Financial Relief

4.7.1 Financial Relief, as per List of Items and Norms of Assistance from Calamity Relief Fund (CRF) and National Calamity Contingency Fund (NCCF), as notified by the Government of India, will be disbursed as per the rules and regulations, in vogue, towards:

i) Assistance to small and marginal farmers/agricultural labourers for replacement of draught animals, milch animals, animals used for haulage or poultry (on account of the notified natural calamity).

ii) Compensation pertaining to disposal of animal carcasses, on actual basis.

4.7.2 Consequent to the acceptance of Recommendations of the Thirteenth Finance Commission, the directives on the aforesaid Funds are as follows:

i) The National Calamity Contingency Fund (NCCF) will be merged with the National Disaster Response Fund, constituted under Section 46 of the DM Act, 2005, with retrospective effect from 1st April 2010; and

ii) The Calamity Relief Fund (CRF) will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010.

5 Approach to Implementation of Guidelines

5.1 The Purpose

National Guidelines for Management of the Dead in the Aftermath of Disasters have been formulated for the purpose of capacity development, upgrading of infrastructure and to help the District Authorities for proper management of the dead bodies and animal carcasses, resultant of a major disaster. These Guidelines have been prepared, based on legal and regulatory framework along with cultural, ethnic and religious sensitivities.

5.2 Implementation of the Guidelines

The National Executive Committee (NEC), the executive committee of the NDMA, is mandated vide Section 10 (2) (h) of the DM Act, 2005, to monitor the implementation of the guidelines laid down by the National Authority for integrating of measures for prevention of disasters and mitigation by the Ministries or Departments in their development plans and projects. Likewise, the State Executive Committee (SEC), the executive committee of the SDMA, is mandated vide Section 22 (2) (e) of the DM Act, 2005. The primary responsibility of proper management of dead bodies and animal carcasses will continue to remain with the district and State authorities. Further, capacity development and reinforcement of the systems and the procedures will be the collective responsibility of all stake-holders, both in government and the private sector. SOPs will be prepared at the district level based on these Guidelines. The procedures for implementation of these Guidelines will be integrated through the Incident Response System (IRS) at the district level. The enabling phase will be utilized to develop necessary capacities and infrastructure, taking into consideration the existing arrangements, gaps and priorities of the procedures required for proper management of the dead. Networking amongst various specialized agencies like forensic experts and laboratories will be put in place as a part of the preparedness strategy.

5.3 Response Plan

For effective implementation, the DM Plan will be prepared, defining the arrangements required for dealing with dead bodies and animal carcasses, after a disaster. The district authorities will have adequate capacities and resources to fulfil this responsibility and its staff must have the required knowledge and skills to fulfil their role. Local Authorities must have plans in place for dealing with large numbers of the dead based on protocols, procedures and guidelines. When formulating the District Disaster Management Plan, existing resources and level of preparedness must be assessed in

terms of Vulnerability and Risk Assessment, regarding the disasters and their mass casualty potential. The Response Plan will address the following:

5.3.1 Identify the First Responders in managing the dead and promote their participation through Community-Based Disaster Preparedness (CBDP) programmes.

5.3.2 Selected volunteers at district and village level will be trained in essential skills on management of the dead in disaster situations.

5.3.3 Collaboration of all Government and Non-Governmental Organisations involved in managing the dead and regular update of management plans, according to prevailing disaster levels.

5.3.4 Have close liaison with the forensic and medico-legal experts in the State/district, local administration, police, NGOs and community members, so that their services can be requisitioned in a disaster situation.

5.3.5 The authorities will appoint a nodal person who is well versed with these Guidelines and who will coordinate with other agencies responsible for the various tasks pertaining to management of the dead.

5.3.6 Provision of appropriate, temporary storage facilities as mortuaries, for the disposal of a large number of bodies, may take a long time.

5.3.7 Ensure proper disposal of the dead which is scientifically and culturally correct, as described in the Guidelines.

5.3.8 Conducting mass awareness programmes to ensure community participation.

5.3.9 An Information Centre with sufficient staff must be established at the time of disaster to respond, round the clock, to the queries of family members and friends of the missing or the dead.

5.3.10 Associate the dedicated and experienced staff in providing psycho-social support to the survivors.

5.3.11 A Flow-chart, depicting the desired steps to be taken by the District Authorities, for proper management of the dead is placed at Annexures-K&L.

5.4 Preparation of Action Plan

The "all hazard" District Disaster Management Plan will also focus on and prepare for the proper management of dead bodies and animal carcasses in a Mass Casualty Incident. The Operational capabilities for a quick and efficient response can be achieved by proper implementation of these Guidelines, duly stressing on the following points:-

5.4.1 Appoint a nodal person, designated as the Dead Body Management Group-in-charge, who will have adequate knowledge of the issues related to management of the dead as per these Guidelines.

5.4.2 The District Authorities shall prepare an SOP for identification and disposal of dead bodies which will clearly define the steps in the procedures, involved in management of the dead.

5.4.3 The SOP will also earmark the designated person/persons defining their roles and responsibilities.

5.4.4 Identify and train an adequate number of First Responders, both from the government and the community, for comprehensive disposal of dead bodies and animal carcasses (retrieval, recovery, proper handling and transportation,

including helping the authorities and the community in the final disposal).

5.4.5 The First Responders will be equipped with Personal Protective Equipment and other gadgets like thermal sensors which help in locating the injured, trapped under the debris.

5.4.6 Availability of trained dog squads for recovery of the injured and the dead.

5.4.7 Specialized CBRN First Responder teams may be required for proper recovery of the injured and disposal of the dead bodies, as applicable in such special situations.

5.4.8 An adequate and suitable number of vehicles will be identified to transport the bodies. Provision will also be made for body bags, plastic sheets and stretchers for transportation.

5.4.9 Storage spaces and infrastructure required for storage and preservation will be planned as part of disaster preparedness. In addition to permanent mortuaries, it is essential to identify the sites and the buildings for making temporary mortuaries for storage of dead bodies for a limited period of time.

5.4.10 A number of dead bodies and other body parts may require preservation, pending the final disposal. Accordingly, it is essential to make provision for refrigeration in the mortuaries. In case of temporary mortuaries, dry ice or ice will be used for preservation. Specialized chemical methods of preservation may have to be used, in case the preservation is required for a longer period.

5.4.11 Adequate facilities for primary and secondary methods of the identification will be defined. District Authorities may have to network with the various forensic and DNA laboratories existing in their States and the country for the purpose of definite identification, wherever necessary.

5.4.12 Establish linkage with forensic and legal experts for disposal of the unidentified bodies.

5.4.13 Develop clear-cut procedures for issuing Death Certificates/Death Reports for the unidentified dead bodies and return of their personal effects. Adequate and proper record, to this effect, will be kept by the District Authorities.

5.4.14 Define and identify adequate facilities for photography of the unidentified bodies which may be displayed on the websites and prominent places.

5.4.15 Develop capabilities to provide specific psycho-social support to the bereaved families and community.

5.4.16 Cultural, ethnic and religious sensitivities will always be maintained throughout the process of disposal of the dead.

5.4.17 Lay down procedures for proper and safe disposal of animal carcasses as per the Guidelines.

5.4.18 Only the District Information Officer/ Public Relations Officer, appointed by the District Authorities, will interact with the media and transmit authentic information to prevent fear and panic in the community.

5.4.19 Disbursement of Financial Relief Packages, as per List of Items and Norms of Assistance from Calamity Relief Fund (CRF) and National Calamity Contingency Fund (NCCF), as

notified by the Government of India will be disbursed as per its rules and regulations in vogue, as under:

5.4.19.1 Gratuitous Relief towards Ex-Gratia payment to the families of deceased persons.

5.4.19.2 Financial Relief towards assistance to small and marginal farmers/agricultural labourers for replacement of draught animals, milch animals, animals used for haulage or poultry (on account of the notified natural calamity).

5.4.19.3 Compensation towards the disposal of dead bodies/ carcasses, on actual basis.

NOTE : Consequent to the acceptance of Recommendations of the Thirteenth Finance Commission, the directives on the aforesaid Funds are as follows:

i) The National Calamity Contingency Fund (NCCF) will be merged with the National Disaster Response Fund, constituted under Section 46 of the DM Act, 2005, with retrospective effect from 1st April 2010; and

ii) The Calamity Relief Fund (CRF) will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010.

6 Summary of Action Points

The present Chapter provides a summary of all the guidelines mentioned in Chapters 2 to 5 for Management of the Dead in the aftermath of Disasters. The important Action Points are discussed in the succeeding paragraphs in two parts, that is, Part-A pertaining to the Disposal of Dead Bodies and Part-B dealing with the Disposal of Animal Carcasses.

PART - A : DISPOSAL OF DEAD BODIES

1. Legislative and Regulatory Framework

(i) Legal Provisions

(a) Section 34 (g) of the DM Act, 2005, states that, for the purpose of assisting, protecting or providing relief to the community, in response to any threatening disaster situation or disaster, the District Authority may make arrangements for disposal of the unclaimed dead bodies.

(b) Section 53 of the DM Act, 2005, which makes theft of the belongings of, or misappropriation of the relief material for, disaster victims, punishable with imprisonment and fine.

(c) Section 54 of the DM Act, 2005, states that, to curtail distress and anxiety caused by rumours in the community, penal provisions can be imposed to deal with such situations.

(Para 2.2.2)

(d) In disaster situations, legal obligations under Code of Criminal Procedure Sections 174 and 176 of carrying out an Inquest and a Post-mortem in each and every case can be waived off by the competent legal/judicial authorities, having jurisdiction over the area, usually a Class I Magistrate appointed by the State Government or equivalent in metropolitan cities.

(Para 2.2.1)

(ii) Protection of Personal and Genetic Data

The Personal data and biological samples including Deoxyribonucleic Acid (DNA) of the deceased, that is collected and analysed during the process of identification before final disposal, will be handled carefully and confidentially, thus ensuring the right to privacy as per the International principles. The proposed National Human DNA Profiling Bill, being processed, would address the various aspects relating to confidentiality of, and access to, DNA profiles, biological samples and records.

(Para 2.2.3)

(iii) International Legal Principles

United Nations Educational, Scientific and Cultural Organization (UNESCO), in October

2003, released the International Declaration on Human Genetic Data. It emphasized that any practice involving the collection, processing, use and storage of human genetic data should be consistent with both domestic legislation and international human rights law. In this context, the International Committee of the Red Cross has compiled a list of Legal Principles relating to the Protection of all Personal Data and Use of Biological Samples and the resulting DNA Profiles which are appended as Annexure-A and Annexure-B respectively.

(Para 2.2.4)

2. Institutional Framework

(i) **National Policy on Disaster Management (2009)** at Para 5.2.9 stresses the need for creating adequate mortuary facilities in disaster prone areas and it also accords due weightage to proper and speedy disposal of dead bodies and animal carcasses.

(Para 2.3.1)

(ii) As per **Section 6 of the Disaster Management Act,** 2005, NDMA is inter alia mandated to issue guidelines for preparing Action Plans for holistic and coordinated management of all disasters. These Guidelines focusing on all aspects of the Management of Disposal of Dead Bodies and Animal Carcasses, resultant of disasters, are to be incorporated in the State and District Disaster Management Plans.

(Para 1.5.1)

(iii) The implementation of these Guidelines for integrating of measures for prevention of disasters and mitigation by the Ministries or Departments in their development plans and projects will be monitored by the National Executive Committee and State Executive Committee as mandated vide DM Act, 2005, Section 10 (2) (h) and Section 22 (2) (e) respectively.

(Para 5.2)

(iv) Under the Incident Response System, the Incident Commander will appoint a trained officer of his team as a nodal person, designated as Dead Body Management Group-in-charge in the Response Branch of Operations Section who will be responsible for recovery, retrieval, identification, storage and preservation and final disposal of unidentified and unclaimed bodies.

(Para 3.1.1)

3. Capacity Development

(i) Capacity development, focused on different components in management of the dead, entails comprehensive development of human resources for the successful deployment of various functional teams.

(ii) Provisions to incur expenditure from Calamity Relief Fund (CRF), not exceeding more than 10% of the State's Annual allocation for the purpose of Training specialist multi-disciplinary groups/teams of the State personnel, drawn from different cadres/services/personnel and for the procurement of Equipment for the management of disasters, will be judiciously exploited. The State Calamity Relief Fund will be merged

with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010 as per the Recommendations of Thirteenth Finance Commission.

(iii) All academic, professional and scientific institutions will impart education in management of the dead including specialised training courses for professional embalmers.

(iv) Specialised training modules for management of CBRN contaminated bodies need to be evolved and disseminated.

(v) For awareness, coordination with all stake-holders including NGOs, National and International, involved in Management of the Dead.

(vi) Community Disaster Preparedness Programme will also focus on all aspects of management of the dead including sensitising the community.

(vii) Community teams will also be constituted by identification of task forces from Civil Defence, Home Guards, National Cadet Corps, Nehru Yuva Kendra Sangathan, Indian Red Cross Society, NGOs and other voluntary organizations.

(Para 3.1.2)

4. Critical Infrastructure and Logistics

State Authorities and District Authorities, based on their DM Plans, should acquire or identify the sources that will supply at short notice, when required, the equipment relating to recovery and retrieval, storage and preservation facilities, identification and proper disposal of the dead.

(Para 3.2)

(i) Recovery and Retrieval

(a) Maximum number of dead bodies will be recovered and retrieved at the earliest, to facilitate proper identification, storage and final disposal. Dedicated First Responders will be adequately equipped for Search and Rescue with sensors and trained dogs.

(b) The dead bodies/body part(s) will be segregated and Individual Identification Number allocated to each one of them, digitally photographed including the site of retrieval and then Dead Body Identification Form as per Annexure-D will be filled-up. Dead Body Inventory Record will also be initiated before transportation to the mortuary in body bags. Personal belongings or any other evidence, pertaining to the deceased, useful in identification, will also be put in plastic bags to accompany the body, with the chain of custody ensured, till handed over to rightful custodians.

(Para 3.2.1)

(ii) Transportation of the Dead

A large number of dead bodies may have to be transported to the mortuary, permanent or temporary, for proper storage and preservation before the final disposal. It is essential to cover the dead bodies or put them in body bags. Stretchers, or make-shift stretchers, will be used for loading the bodies onto vehicles. Ideally, the bodies will not be put in layers, but placed individually.

(Para 3.2.2)

(iii) Storage and Preservation

(a) Hospital mortuaries are usually not adequate to meet the enhanced requirement during disasters. Accordingly, temporary mortuaries will be identified and used for storing the dead bodies, having three separate functional areas: the Holding area, the Examination area and the Viewing area. Dead Body Identification Form will be filled-up if not initiated earlier and Dead Body Inventory Record will also be maintained.

(b) Bodies, requiring storage, can be preserved by various methods like Refrigeration, Dry Ice and Ice. However, the method of temporary burial may be resorted to where no such preservation methodologies are available. The Chemical methods in vogue, for preservation for longer periods are Formalin, Sanitising, Embalming, Mummification, Plastination and Complucad. The dead bodies are ideally preserved by embalming when required to be transported over long distances.

(Para 3.2.3)

(iv) Identification of Dead Bodies

Positive Identification of the dead body is essential for legal and compensation purposes. Most of the bodies can be identified with the help of the Secondary methods of identification such as visual identification, personal description, photographic findings, medical findings and any other evidence including clothing found on the dead body. However, Primary methods like Fingerprinting, Forensic Odontology, Forensic Radiology, Forensic Anthropology, and DNA Analysis may be required for final identification when primary methods of identification are inconclusive. Of these DNA profiling, though time-consuming, is a fairly accurate method of identification, and therefore, DNA laboratories need to be upgraded and networked.

(Para 3.2.4.1)

(v) Procedure for Identification

(a) A systematic approach is required to be adopted for establishing positive identification of all the deceased before their final disposal. Analysis of the post-mortem data collected after recovery and retrieval along with the endorsements in the Dead Body Identification Form will be matched with ante-mortem data, if available from the Missing Person's Form placed at Annexure-I. Most of the time, the identification can be confirmed through the secondary methods of identification, failing which primary methods of identification will have to be applied. However, post-mortem examination may be required in special circumstances.

(b) Sample post-mortems may be necessary in certain circumstances, especially in man-made disasters, where the agent used may not be clearly identified and exact cause of death may have to be defined for prospective reference. Decisions on such issues will be made by District Authorities on the advice of technical and forensic experts.

(Para 3.2.4.3)

(vi) Final Disposal of the Dead

(a) Disposal of the dead is a highly sensitive and very important step because of cultural, ethnic and religious sensitivities in our country. Consequently, community representative(s) will be associated with disposal of dead bodies, resultant of a disaster. Disposal of the dead is a sequential process and it involves important actions required to be taken before the final disposal which includes identification, issue of death certificate, release of the dead body, and transportation of the dead to their home and methods of final disposal.

(Para 3.2.5)

(b) It is essential to provide Death Certificate or Death Report, duly signed by the competent authority (Medical Officer/Police Officer).

(c) All identified dead bodies along with the Death Certificate will be handed over to the next-of-kin or the authorized community representative, and a record to this effect maintained.

(d) The bodies may require embalming or other preservation methods, in case the body has to be transported over long distances or abroad.

(e) In case of the dead body of a foreigner, the Ministry of External Affairs, Government of India, in consultation with the Consular offices of the concerned countries and other actors such as the International Committee of the Red Cross, if necessary and possible, for appropriate identification, documentation and then the embalmed dead body will be handed over to the authorized person(s).

(f) Dead body or body part, whose identity cannot be established, will be disposed of by the District Authorities, in the presence of the community representative(s) after collecting biological samples for the possibility of future identification.

(Para 3.2.5.1 & 3.2.5.2)

(vii) Final Rituals

Authorities will organise final rituals in respect of unidentified or unclaimed bodies in a disaster scenario for which a community representative will be associated to take care of local, cultural and religious sensitivities. Various methods like cremation or burial can be used. However, some of the communities like Parsis or Jews adopt their own specialised method of final ritual.

(Para 3.2.5.3)

(viii) Final Disposal in Special Circumstances

The victims of Chemical, Biological, Radiological and Nuclear (CBRN) disasters will require the help of specialised First Responders. Death, on account of acute radiation exposure, necessitates deep burial. However, in a major nuclear disaster, no retrieval of the dead bodies will take place till "radiation fall" is over. A Dead body, resultant of a Chemical disaster, at the outset, requires decontamination. Victims, dying in bioterrorism or a pandemic, will be cremated at the earliest, to prevent spread of the disease.

(Para 3.2.5.4)

(ix) Exhumation

Exhumation may be required only at times, in a disaster situation, when temporary burial is resorted to, for the purpose of storage and preservation and such bodies may be exhumed for identification and final disposal.

(Para 3.2.6)

5. Documentation and Audit

(i) SOPs for Management of the Dead will be prepared by the DDMAs, based on these National Guidelines, their past experience and best practices available.

(ii) Documentation will include compiling the Dead Body Inventory Record and Dead Body Identification Form which includes photographs of the deceased, giving age, sex, site at which the body was found, identification marks, clothes and other information which may prove useful for identification of a dead body.

(iii) Information Desks will be set up as a component of Incident Command Post, to provide information and to assist in identification of the bodies and completion of formalities, regarding release of identified bodies. The information, thus documented, will serve as a useful source for auditing the relief work and services, rendered by various teams.

(Para 3.3)

6. Research and Development

Research and Development will focus on regular updating of various systems involved in management of the dead like newer methods of preservation, development of mobile DNA laboratories, and development of software for matching Ante-mortem data and Post-mortem data.

(Para 3.4)

7. Information Management

(i) Information management is a multi-disciplinary and multi-stage approach for the collection, storage, analysis and dissemination of information or authentic data, undertaken under the supervision of a nodal officer or nominated agencies at district, state or central level as per the Media Plan, to the press, other functionaries and relatives.

(ii) Information is collected from :

(a) The next-of-kin to initiate the Missing Person Form.

(b) First Responders and the evidence or information retrieved from the dead body, to initiate the Dead Body Identification Form.

(iii) Database will be generated regarding number of identified or unidentified dead bodies and missing persons.

(iv) Computer software will be developed for management of information and final identification based on Ante-mortem information, obtained through various forensic methods and DNA profiling to be matched with Post-mortem data.

(Para 3.5)

8. Support to the Bereaved

(i) Members of the bereaved family require financial, psychological and moral support for the purpose of rehabilitation and recovery. It is essential to provide psycho-social support which the community representatives, NGOs and District Mental Health Programme will jointly provide.

(ii) Gratuitous Relief as per List of Items and Norms of Assistance from Calamity Relief Fund (CRF) and National Calamity Contingency Fund (NCCF) as notified by the Government of India will be disbursed as per rules and regulations, in vogue, towards:

(a) Ex-Gratia payment to the families of deceased persons with empathy and care.

(b) Compensation pertaining to disposal of dead bodies, on actual basis.

NOTE :

Consequent to the acceptance of Recommendations of the Thirteenth Finance Commission, the directives on the aforesaid Funds are as follows:

(a) The National Calamity Contingency Fund (NCCF) will be merged with the National Disaster Response Fund, constituted under Section 46 of the DM Act, 2005, with retrospective effect from 1st April 2010; and

(b) The Calamity Relief Fund (CRF) will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010.

(Para 3.7)

9. Psycho-social Support to the Care Providers

Continuous exposure to stressful conditions, to scenes of destructive effects of disasters, survivors and their difficulties and gory scenes of death culminates into psycho-social problems in the Care Providers which need to be addressed professionally, failing which the tempo of the relief operations will soon wither. Team leaders of first responders and crisis groups shall monitor and keep a vigil on their emotional and physical stress, noting the physical and clinical signs of psycho-social trauma. Treatment entails debriefing, adequate rest, proper food and nourishment to prevent the Care Providers' collapse.

(Para 3.8)

PART - B : DISPOSAL OF ANIMAL CARCASSES

10. Legislative and Regulatory Framework

Responsibility for prompt and effective disposal of animal carcasses in the aftermath of disaster is that of Animal Husbandry department, as per the rules and regulations laid down by the State Government.

(Para 4.3)

11. Preparedness and Capacity Development

(i) Animal Carcass disposal will be made an integral part of "all hazard" State Disaster Management Plans to be incorporated with suitable adaptations in the District Disaster Management Plans.

(ii) Provisions exist to incur expenditure from Calamity Relief Fund (CRF), not exceeding more than 10% of the State's Annual allocation for the Training to Specialist multi-disciplinary groups/teams of the State personnel, drawn from different cadres/services/ personnel and for procurement of Equipment for the management of disasters, to be judiciously exploited. The State Calamity Relief Fund will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010 as per the Recommendations of Thirteenth Finance Commission.

(Para 4.4)

(iii) Establishment of Command, Control and Coordination Functions

The Responsible Officer of the Incident Response System will nominate the District Animal Husbandry Officer as the nodal official with the designation of Animal Carcasses Management Group-in-charge in the Response Branch of Operations Section vested with the responsibility for recovery, retrieval, identification, and safe disposal of animal carcasses.

(Para 4.4.1)

(iv) Planning

Planning by the District Authorities commences with comprehensive vulnerability assessment. Thereupon, Financial Planning encompasses various direct and indirect expenses involved in disposal, transportation facilities and equipment for the disposal of animal carcasses need to be identified and catered for in the District Disaster Management Plan.

(Para 4.4.2)

(v) Human Resources Development

(a) The State Animal Husbandry Department will prepare a training module for the trainers so that they have adequate knowledge on all the facets of disposal of animal carcasses.

(b) Availability of an adequate number of teams of the First Responders will be ensured by pooling personnel from Civil Defence, Home Guards, NGOs and volunteers from the community.

(c) The designated First Responders will be trained for proper handling, transportation and disposal of the animal carcasses under the overall responsibility of District Animal Husbandry Officer and a Resource Inventory to this effect

will be maintained at the District Headquarters.

(Para 4.4.3)

(vi) Infrastructure

(a) Logistics

The District Authorities will select ideal sites for disposal of large number of animal carcasses. Requirement of requisite equipment for lifting carcasses and digging trenches for disposal of animal carcasses will be reckoned, procured or sources identified for provisioning when needed.

(Para 4.4.4.1)

(b) Transportation

Suitable transport from the site of retrieval to that of disposal will be ensured by the District Authorities either by pooling in the transport available with various departments or by hiring them.

(Para 4.4.4.2)

12. Response Methodologies for Disposal of Animal Carcasses

(i) Animal Carcass Retrieval

Animal carcasses will be lifted by the Animal Carcass Retrieval Teams and transported to the disposal site at the earliest. These teams will be given adequate training and requisite equipment, safety gear, clothing, and vehicles by the District Authorities.

(Para 4.5.1)

(ii) Animal Carcass Identification

The Animal Carcass Retrieval Teams will initiate all requisite documentation, pertaining to the animal carcasses. Chain or rope around the neck will also be preserved for identification, photography, identification tag inserted for insurance claims. Some advanced methods of identification such as muzzle printometry and dentition can also be used wherever these records are maintained. In the absence of an institutionalized mechanism of livestock identification, the State Authorities in association with the Animal Husbandry department will formulate their own strategy/ criteria for animal identification.

(Para 4.5.2)

13. Methods of Disposal

(i) Burial

Burial is the most commonly used method for the disposal of animal carcasses and it is also the method of choice in a disaster. Burial can be done either by Trench Burial for single carcass as elucidated in Annexure-J or Mass Burial at a predefined and prepared disposal site with all hazard precautions. Burial of dead livestock must be followed by a vector control programme to prevent the zoonotic spread of infections.

(Para 4.5.3.1)

(ii) Incineration

Incineration is an important method for disposal of the infected animal carcasses since

it eliminates pathogens completely. The two broad categories of incineration techniques are Open Air Burning which is resource intensive, requiring large quantity of fuel and Fixed-facility Incineration at small on-farm incinerators, crematoria, and power plant incinerators.

(Para 4.5.3.2)

(iii) Specialised Methods of Disposal

Specialised methods of disposal are not suitable for mass disposal of animal carcasses. However, before applying any one of these procedures, the process of Cleaning and Decontamination is undertaken so as to limit any potential disease spread. The specialised methods of disposal of animal carcasses are Composting (small animals like poultry, pigs, calves), Alkaline Hydrolysis whereby the residue is totally harmless, Rendering to salvage the residual economic value of the carcass, Lactic Acid Fermentation for the end-product to be used as feedstuff or fertiliser and Thermal Depolymerisation being researched for its application as an effective method for the disposal of infected/diseased carcasses.

(Para 4.5.3.3)

14. Financial Relief

Financial Relief, as per List of Items and Norms of Assistance from Calamity Relief Fund (CRF) and National Calamity Contingency Fund (NCCF), as notified by the Government of India, will be disbursed as per the rules and regulations, in vogue, towards:

(i) Assistance to small and marginal farmers/agricultural labourers for replacement of draught animals, milch animals, animals used for haulage or poultry (on account of the notified natural calamity).

(ii) Compensation pertaining to disposal of animal carcasses, on actual basis.

NOTE :
Consequent to the acceptance of Recommendations of the Thirteenth Finance Commission, the directives on the aforesaid Funds are as follows:

(a) The National Calamity Contingency Fund (NCCF) will be merged with the National Disaster Response Fund, constituted under Section 46 of the DM Act, 2005, with retrospective effect from 1st April 2010; and

(b) The Calamity Relief Fund (CRF) will be merged with the State Disaster Response Fund, constituted under Section 48 (a) of the DM Act, 2005, with retrospective effect from 1st April 2010.

(Para 4.7)

Annexures

Annexure-A

(Refers to Page 6)

PRINCIPLES RELATING TO THE PROTECTION OF ALL PERSONAL DATA

1. "Personal data" means any information relating to an identified or identifiable individual.
2. Personal data shall be collected and processed fairly and lawfully.
3. The consent of the individual is required for the collection and use of personal data except if required by a substantial public interest or for the protection of the vital interests of the person concerned.
4. The collection and processing of personal data shall be limited to that which is necessary for the purpose identified at the time of collection, or beforehand.
5. Sensitive data should only be collected and processed with appropriate safeguards.
6. Personal data should be accurate, complete and updated, as is necessary for the purpose for which they are used.
7. Security safeguards, appropriate to the sensitivity of the information, should protect personal data.
8. Personal data may not be used, disclosed or transferred for purposes other than those for which they were collected without the consent of the person concerned, except if required by a substantial public interest or for the protection of the vital interests of the person concerned.
9. Personal data may be transferred only to third parties who respect the principles of personal data protection.
10. Personal data should be deleted as soon as the purpose of their collection has been fulfilled, or when no longer necessary. They may, however, be retained for a definite period if required for the benefit of the individual to whom they relate or if essential for the performance of the humanitarian tasks of the organization which collected the data.
11. Access to personal data should be granted to the individual to whom the data relate. Allowances should also be made for the right to challenge the accuracy and completeness of the data and to have them amended as appropriate.

Reference : International Committee of the Red Cross, *Missing People, DNA Analysis and Identification of Human Remains*, Second Edition 2009, p. 41

Annexure-B

(Refers to Page 6)

PRINCIPLES RELATING SPECIFICALLY TO THE USE OF BIOLOGICAL SAMPLES AND THE RESULTING DNA PROFILES

1. The collection, use and disclosure of DNA profiles are subject to the rules relative to the protection of personal data.
2. DNA samples may be collected and analysed for a clearly identified and specific purpose.
3. Identification of human remains through DNA typing should be undertaken when other investigative techniques of identification are not adequate.
4. DNA samples may be taken and analysed only with the informed consent of the individual, except where an overriding public interest dictates otherwise which should be limited to the positive identification of the dead body.
5. Only appropriately trained persons shall take DNA samples.
6. DNA information that is collected may be used and disclosed only for the purpose identified at the time of collection, or beforehand.
7. DNA samples and profiles should be destroyed or deleted after they have served the purpose for which they were collected, unless required for related purposes.
8. Only laboratories with appropriate technical capacity and quality assurance/ control measures should perform DNA analysis.
9. DNA samples, profiles and records should be adequately protected from unauthorized access and use.
10. DNA profiles or samples should be disclosed, transferred or compared in the context of international cooperation for the purpose identified at the time of collection, or beforehand, and only with the consent of the persons concerned, except in determined cases defined by law.

Reference : International Committee of the Red Cross, *Missing People, DNA Analysis and Identification of Human Remains*, Second Edition 2009, p. 42.

Annexure-C

(Refers to Page 14)

OPERATIONAL SUPPLIES AND EQUIPMENT

This list is to be regarded as a sample guideline which is recommended to be adapted to meet the needs of each specific situation by the District Disaster Management Plan/Incident Response Commander.

Body bags
Body labels
Body storage facilities
Body/Property stakes
Computer
Dictation machines (to record spontaneous information)
Digital reflex cameras
Digital viewer cameras
Disposable towels
Draughtsman's materials
Duty bags with name tag
Examination tables
Furniture - Folding chairs and tables (of different sizes)
Ground-clearing equipment
Hand cleaning agents (soap, liquid)
Hand, surface and instrument disinfectants
Heating/cooling appliances
Identification badges/clothing
Insect repellent
Lighting equipment including Generator Sets
Maps / aerial photographs
Material transport boxes (Dimensions to approx. 55x55x110cm suitable for air freight)
Metal measuring tapes
Mobile Hand-washing facilities
Mobile telefax machines
Mobile telephones
Office supplies (Paper, Notebooks, Files, Writing implements, Binders, etc.)
Personal Protective Clothing (trousers, jackets, aprons, protective gloves, rubber boots, oral masks, hairnets)
Photocopiers
Printed Forms - Dead Body Identification Form, Dead Body Inventory Record
Property bags
Property labels
Search and detection equipment
Site demarcation tape or barriers
Specimen storage containers
Stretchers
Torches with spare batteries

Annexure-D

(Refers to Page 15)

DEAD BODY IDENTIFICATION FORM

1. Body/Body Part (B/BP) Code:- (Use Individual Identification Numbering which will also be endorsed on associated files, photographs or stored objects)
2. Possible identity of body:-
3. Person Reporting:-
(a) Name:
(b) Official Status/Organisation:
(c) Place & Date:
(d) Signature:
4. Recovery details (include place, date, time, by whom, and circumstances of finding. Also indicate if other bodies were recovered in the same area, including names and possible relationships, if identified):-

B/BP Code: _____

A. PHYSICAL DESCRIPTION

A-1	General condition (Mark one) :-					
	(a)	Complete Body	Incomplete Body (describe):		Body Part (describe):	
	(b)	Well-preserved	Decomposed	Partially Skeletonized	Skeletonized	
A-2	Apparent Sex (Mark one and describe evidence):-					
	(a)	Male	Female	Probably Male	Probably Female	Undetermined
	(b)	Describe evidence (genitals, beard, etc):				
A-3	Age Group (Mark one):-					
	Infant	Child	Adolescent	Adult	Elderly	
A-4	Physical Description (Measure or Mark one):-					
	(a)	Height (crown to heel): _____ cms		Short	Average	Tall
	(b)	Weight: _____ Kgs		Slim	Average	Fat
A-5	(a)	Head Hair:-	Colour:	Length:	Shape:	Baldness:	Other:
	(b)	Facial Hair:-	None	Moustache	Beard	Colour:	Length:
	(c)	Body Hair:-	Describe:				
A-6	Distinguishing Features:- (Continue on additional sheets if required. If possible, include a sketch of the main findings)						
	(a)	Physical:-					
		i	Shape of Ears				
		ii	Shape of Eyebrows				
		iii	Shape of Nose				
		iv	Shape of Chin				

B/BP Code: _____

		v	Hands		
		vi	Feet		
		vii	Nails		
		viii	Deformities		
		ix	Missing Limbs/ Amputations		
	(b)	Surgical Implants or Prosthesis (Artificial Limbs):-			
	(c)	Skin Marks:-			
		i	Scars		
		ii	Tattoos		
		iii	Piercings		
		iv	Birthmarks		
		v	Moles		
	(d)	Apparent Injuries (Include location, side):-			
	(e)	Dental condition (describe any obvious features):-			
		i	Crowns		
		ii	Gold Teeth		
		iii	Adornments		
		iv	False Teeth		
		v	Gums		

B/BP Code: _____

B. ASSOCIATED EVIDENCE

B-1	**Clothing** (Describe in as much detail as possible):-		
	(a)	Details of Clothes including Undergarments	
	(b)	Colour of Clothes including Undergarments	
	(c)	Fabrics	
	(d)	Repairs/Patches	
	(e)	Dhobi Marks	
	(e)	Tailor's Labels / Brand Names	
B-2	**Footwear** (Describe in as much detail as possible):-		
	(a)	Type (Boots/Shoes/Sandals/Chappals)	
	(b)	Colour	
	(c)	Size	
	(d)	Brand	
B-3	**Eyewear** (Describe in as much detail as possible):-		
	(a)	Colour/Shape	
	(b)	Contact Lenses	
B-4	**Personal Items** (Describe in as much detail as possible):-		
	(a)	Wrist Watch	
	(b)	Jewellery	
	(c)	Wallet	
	(d)	Keys	
	(e)	Photographs	
	(f)	Mobile Phone (including number)	
	(g)	Medication	
	(h)	Cigarettes/Bidis	
	(i)	Any other	

B/BP Code: _____

B-5	Identity documents (Take Photocopy if possible & Describe the information contained):-		
	(a)	Identity Card	
	(b)	Driving Licence	
	(c)	Voter Identity Card	
	(d)	Credit/Debit Card	
	(e)	PAN Card	
	(f)	Any other	

C. RECORDED INFORMATION

C-1	Identity documents (Take Photocopy if possible & Describe the information contained):-					
	(a)	Fingerprints	Yes	By Whom?	Stored where?	No
	(b)	Photographs of Body	Yes	By Whom?	Stored where?	No

D. IDENTITY

D-1	Hypothesis of Identity	Explain reasons for attributing a possible identity

E. STATUS OF BODY

E-1	Stored (Describe location):-		
	(a)	Morgue	
	(b)	Refrigerated Container	
	(c)	Temporary Burial	

B/BP Code: _____

E-2	Released:-		
	(a)	To Whom and Date	
	(b)	Particulars of the person who accepted the body:- i) Complete address ii) Mobile Number iii) Telephone Number iv) Photocopy of Identity card	
	(c)	Authorised by	
	(d)	Final Destination	

Adapted from *Guidelines for First Responders on Management of the Dead in Major Disasters in India*, published by International Committee of the Red Cross Indian Delegation, New Delhi, pp. 48-51.

Annexure-E

(Refers to Page 16)

DEAD BODY INVENTORY RECORD

Place: _____

BODY / BODY PART INDIVIDUAL IDENTIFICATION NUMBER	RECOVERY		STORAGE		INFORMATION RECORDED		CHARACTERISTICS (APPARENT)			REMARKS
	DATE	PLACE	DATE	LOCATION	DEAD BODY IDENTIFICATION FORM	PHOTOGRAPHS	SEX	AGE	PRESUMED IDENTITY	
					Y=YES N=NO	Y=YES N=NO	MALE FEMALE UNKNOWN	I=INFANT C=CHILD A1=ADOLESCENT A2=ADULT E=ELDERLY		

Adapted from *Guidelines for First Responders on Management of the Dead in Major Disasters in India*, published by International Committee of the Red Cross Indian Delegation, New Delhi, p. 58.

Annexure-F

(Refers to Page 22)

DNA AND THE IDENTIFICATION OF HUMAN DEAD BODY

1. DNA is very useful in identifying human dead body and in criminal investigations. This is in view of the various following factors:

   1.1 Distinctive nature of the DNA for an individual which remains unchanged for life.

   1.2 Mendelian laws of inheritance are followed by DNA.

   1.3 DNA analysis, comparison and matching are scientifically dependable.

   1.4 Small biological samples like bloodstains, hair, etc. is good enough for DNA analysis.

   1.5 Slow degradation of DNA is beneficial in recovering it from old biological samples like skeletal remains.

2. The whole process of analyzing the DNA for identifying human remains involves five key steps which are given as below:

   2.1 Collection, storage and extraction of DNA from the human remains.

   2.2 Collection of DNA for comparison from either the acknowledged relatives of the missing person or from sources such as hair, saliva stains or other biological samples known to be from the missing person which are already existing prior to the individual's death.

   2.3 Analysis of the DNA from both sources.

   2.4 Comparison of the results of analyzed DNA.

   2.5 Decision is then taken on the basis of the degree of matching which matches well with declared relationship between the mortal remains of the individual and the acknowledged family member, in the light of other evidences.

3. A small number of samples can be matched on an individual basis i.e. directly viewing and comparing the results of analysis of the sample with the reference sample. However, large numbers of samples may require specialized computer software for matching and analysis.

4. DNA analysis must not be considered as the only method available for making a positive identification, because:

4.1 Traditional methods may prove more practical and less costly;

4.2 Traditional methods are needed anyway to confirm an identification arrived at by matching DNA profiles;

4.3 DNA analysis is not always feasible from an operational perspective;

4.4 It may put relatives under duress to provide samples.

5. Fundamental Problems with DNA for Large-scale Identifications

5.1 The decision should not be based solely on requests for DNA analysis generated by individuals, families, communities, organizations or governments. Therefore, laws must not be enacted that make DNA analysis for the purpose of identification mandatory.

5.2 Requests by governments, organizations or individuals for the re-exhumation of remains previously identified using traditional means for the purpose of DNA analysis should be decided on a case-by-case basis.

5.3 In the pre-investigation phase, the social, religious and cultural characteristics of the community concerned, must be taken into consideration. The families and the community will accept the outcome more readily if they have confidence in the investigation.

5.4 Forensic specialists have a duty to ensure that the donors of reference samples are informed about the rules, governing the protection of personal and genetic information.

6. Preconditions for DNA-profiling based identification of deceased persons:

The decision to use DNA analysis to identify human remains in the wake of a natural disaster or conflict should not be made unless a number of prerequisites are met.

6.1 The additional cost and complexity of a strategy using DNA analysis must be outweighed by the anticipated additional benefit to the programme.

6.2 The DNA must be recoverable from the remains.

6.3 Adequate reference samples must be obtainable either from samples taken from the missing person prior to his or her disappearance or from close relatives.

6.4 The programme must have access to an accredited laboratory.

6.5 The DNA techniques employed must be feasible and practicable in the context.

6.6 The DNA techniques must be reliable and scientifically valid. (This is not the same as the validation of a technique by a given laboratory. Validation is a process by

which a procedure is evaluated to determine its efficacy and reliability for forensic casework. It includes strict testing of the technique against known variables and determining the conditions and limitations of the technique for use on forensic samples).

6.7 The hardware and software used to analyze and match DNA samples must be reliable and valid.

6.8 The financial costs must be considered; these vary depending on the number of analyses required and the cost of each analysis.

6.9 Wishes of the missing person's family should be considered. Under certain circumstances they may prefer that unidentified remains be buried with others in a common grave. In such cases, the costs of analyzing DNA may be too high and the process too time-consuming for any additional benefit.

6.10 In relation to resources and logistics:

6.10.1 There is an important distinction between samples taken for DNA analysis to be performed within the country and those taken for analysis abroad;

6.10.2 The logistical implications of handling samples (including collection, storage, transport and a chain of custody) should be agreed to by all concerned;

6.10.3 An overall co-ordinating body should be in charge of collecting, labelling, transporting and analyzing the samples. In the absence of such a co-ordinating body, how those steps are taken and by whom, should be stipulated in advance, according to competencies and in a written contract.

6.11 Strategies should be established for dealing with errors of identification and with partial, commingled or unidentified human remains.

6.12 All parties must agree on a protocol for communication, information and counselling strategies for the individuals and communities concerned. The information must be realistic but should not discourage participation. The protocol should mention the following points with regard to DNA analysis:

6.12.1 DNA analysis is not always required for identification;

6.12.2 It is not always possible to extract DNA from remains;

6.12.3 Positive results will not always be achieved;

6.12.4 The process will entail entering individual DNA analyses in a database for the sole purpose of identification.

6.13 Appropriate mechanisms which take into account confidentiality, follow-up and services must be established for informing the families about the process.

6.14 There should be an "exit strategy" by which the process can be brought to a close when the cost and complexity outweigh the social benefit.

6.15 Prior consideration must be given to the unintended impact on pre-existing legal and forensic services. For example, implementing such a programme may drain existing forensic expertise from an under-resourced local service that is barely able to deal with everyday criminal matters.

7. Other Operational considerations for DNA Analysis

7.1 DNA analysis must not be considered as the only method available for making a positive identification, because:

7.1.1 Traditional methods may prove more practical and less costly;

7.1.2 Traditional methods are needed anyway to confirm an identification arrived at by matching DNA profiles;

7.1.3 DNA analysis is not always feasible from an operational perspective;

7.1.4 It may put relatives under duress to provide samples.

7.2 The decision to use DNA analysis to identify human remains in the wake of a conflict should be made on sound scientific grounds. In any given context, an expert evaluation can help ensure the right decision is made by incorporating the science into practical aspects of the whole identification process. This will, to some extent, determine the resources required. The decision should not be based solely on requests for DNA analysis generated by individuals, families, communities, organizations or governments. Therefore, laws must not be enacted that make DNA analysis for the purpose of identification mandatory.

7.3 Requests by governments, organizations or individuals for the re-exhumation of remains previously identified using traditional means for the purpose of DNA analysis should be decided on a case-by-case basis.

7.4 In the pre-investigation phase, the social, religious and cultural characteristics of the community concerned must be taken into consideration. The families and the community will accept the outcome more readily if they have confidence in the investigation.

7.5 Forensic specialists have a duty to ensure that the donors of reference samples are informed about the rules governing the protection of personal and genetic information.

7.6 When DNA analysis is deemed necessary for identification then:

7.6.1 It must be done in laboratories that:

i) Are accredited, which includes use of validated methods;

ii) Handle remains, samples and data in accordance with the rules governing the protection of personal data and human remains, which include the protection of ante-mortem data and DNA samples and results.

7.6.2 The laboratory doing the analysis must not operate on the basis of maximum profit; commercial considerations should be minimized and the accounts must be externally audited;

7.6.3 Any contract with a laboratory must include a reference to the rules governing the protection of personal data and human remains;

7.6.4 Incidental information such as non-paternity - in individual cases and as a community statistics - should be subject to rules governing the protection of genetic information;

7.6.5 With the input of lawyers, population geneticists, ethicists and laboratory researchers, consideration may be given to the use of anonymous data for the purposes of research, for example to establish allele frequencies;

7.6.6 It is the responsibility of the head of the forensic team to ensure the laboratory respects these rules;

7.6.7 Even if the laboratory is of the highest standard, it may not have the technical or personnel capacity to undertake an increased workload at short notice.

Annexure-G

(Refers to Page 22)

SAMPLE COLLECTION FOR DNA ANALYSIS

1. Principle

1.1 DNA analysis is a comparison science requiring one or more valid reference samples to identify human remains accurately. Three types of biological samples are collected to conduct DNA analysis:

1.1.1 Human remains.

1.1.2 Appropriate family references.

1.1.3 Direct references (e.g. biological specimens and personal effects).

1.2 Collect samples in a manner that prevents loss, contamination, or deleterious change and a proper chain of custody. Ensure that sample preparation includes provision for specimen inventory, appropriate transport and storage of large numbers of samples, and accompanying documentation.

2. Procedure

Consider these following steps when collecting the following reference samples:

2.1 Human Remains

2.1.1 Collection

i) Collect, place, and store samples appropriately in separately labelled containers of suitable size.

ii) Store samples without preservatives (formalin, formaldehyde).

iii) When possible, collect samples from human remains for DNA analysis in conjunction with other forensic specialists at the designated morgue facility.

2.1.2 Documentation

i) Ensure that all remains submitted for DNA analysis have been photographed and documented at the designated morgue facility.

ii) Use a numbering system that is integrated or derived from the Incident Response System (IRS) to uniquely identify each specimen. This can reduce transcription

errors, minimise confusion, and reduce the possibility of mis-attribution that can arise from the use of alternative or redundant numbering systems. Avoid creating a new numbering system whenever possible.

2.1.3 Staff

i) Designate qualified staff members responsible for collecting samples for DNA analysis. This collection process may involve teams of two or more individuals:

(a) The staff member who takes the sample (e.g. the medical examiner/coroner or anthropologist) is expected to be able to assess its suitability for DNA analysis and identify the species and anatomical origin of the specimen.

(b) The staff member who records the sample verifies the sample description, assigns or maintains a unique identifier, maintains the chain of custody, and ensures proper storage (e.g., freezing the sample in a secure location).

(c) Request that the staff involved in collecting samples, provide a DNA reference sample to be used for elimination purposes.

2.1.4 Samples for Analysis

Take specimens for analysis from:

i) Positively identified remains. Take samples for DNA analysis even if the remains have already been identified because the DNA results can be used for re-association of fragmented remains, the identification of kindred victims, or elimination purposes.

ii) Fragmented remains. The medical examiner/coroner is expected to determine the goal of the identification effort and establish criteria for sample collection:

(a) Will all fragments be tested?

(b) Will only fragments meeting a certain size requirement be tested?

(c) Will only anatomically recognisable fragments be tested?

2.1.5 Preferred samples

Human remains sources include:

i) Blood.

ii) Soft tissue - Deep red skeletal muscle, Organ tissue and Skin.

iii) Hard tissue - Bones and Teeth.

2.1.6 Sample handling

i) Inform staff members responsible for collecting DNA samples for analysis to take proper precautions to minimise the risk of contamination.

ii) Handle samples in a manner that prevents loss or deleterious change:

(a) Use sterile and disposable supplies for sample collection whenever possible.

(b) Discard or autoclave gloves and cutting instruments after taking each sample.

(c) Clean instruments, work surfaces, gloves, or other items with commercial bleach (one part bleach to nine parts of water).

2.2 Family References

2.2.1 Collection

i) Initiate the collection of reference samples from members of the victims' immediate families at the Family Assistance Centre or other designated sites.

ii) Develop and implement a plan to initiate the remote collection of reference samples from family members. Use other agencies to assist as necessary.

iii) Place and appropriately store individual reference samples in separately labelled containers.

2.2.2 Documentation

i) Obtain and document informed consent using consent forms that have undergone legal review:

(a) Include the purpose for requesting the sample.

(b) Describe the intended use of the sample, restrictions on its use, and the confidentiality of the DNA results.

(c) Identify the donor:

- Confirm the donor's credentials.
- Clearly establish the donor's biological relationship to the victim.
- Obtain the donor's contact information.
- Use an appropriate form.

ii) Originate and maintain a chain of custody for donor reference samples.

iii) Initiate a logical numbering system for all reference samples that is compatible with the Incident Response System (e.g., consider allocating a predetermined block of numbers to assist in identifying the source of the sample).

2.2.3 Staff

i) Identify and utilise appropriate individuals or agencies for the collection of family reference samples.

ii) Train individuals to:

(a) Interact with victims' relatives with sensitivity.

(b) Use proper collection methods (e.g., buccal swabs, fingerstick devices.

(c) Record accurate and reliable kinship information.

2.2.4 Preferred Samples

i) Blood sample collected using venipuncture or a fingerstick device.

ii) Two properly collected buccal swabs.

2.2.5 Preferred Donors

Collect the following types of samples from the preferred donors:

i) Short tandem repeat or other autosomal markers. Preferably, collect samples from the following:

(a) Either or both biological parents of the victim.

(b) The victim's mate and their biological children.

(c) Biological siblings who share the same parents as the victim.

ii) Mitochondrial DNA. Use maternally related family members as references.

iii) Y-chromosomal markers. Use paternally related family members as references.

Note : The suitability of the donor depends on the type of DNA analysis used. Consult the testing laboratories for clarification.

2.3 Direct Reference Samples

2.3.1 Collection

i) Immediately establish a point of contact responsible for receiving and managing the collection of direct reference samples.

ii) Ensure that the Family Assistance Centre and other family services widely publicise the name or location of the point of contact and a list of items suitable for direct DNA referencing.

iii) Notify family members that they can submit direct reference samples at the same site where they provide family reference samples.

iv) Place and appropriately store individual reference samples in separately labelled containers.

2.3.2 Documentation

i) Obtain appropriate documentation to allow for the correlation of direct reference samples to a particular victim.

ii) Initiate and maintain the record of chain of custody of documents pertaining to the victim's samples.

iii) Initiate a logical numbering system for all reference samples that is compatible with the Incident Response System (e.g., consider allocating a predetermined block of numbers to assist in identifying the source of the sample).

2.3.3 Samples for Analysis

i) Take care in choosing appropriate direct reference samples for analysis.

ii) Ensure that more than one item is submitted.

iii) Ensure that items are:

(a) Directly attributable to the victim.

(b) Submitted as soon as possible.

2.3.4 Preferred Samples

i) Biological samples suitable for testing include:

(a) Bloodstain cards (e.g., Guthrie cards or cards obtained from other repositories).

(b) Buccal swabs (e.g., home DNA identification Kits).

(c) Blood stored for elective surgery.

(d) Pathology samples (e.g, biopsy samples, PAP smears).

(e) Extracted teeth (e.g., baby or wisdom teeth).

(f) Hair samples.

(ii) Personal items include used toothbrushes, used shavers/razors, unwashed undergarments and other suitable clothing items, used personal hygiene items (e.g., feminine sanitary napkins), other personally handled or used items (consult the testing laboratory for specific criteria).

Note: Personal items may need to be returned to the donors.

2.4 Summary:

The proper selection, documentation, and handling of samples and corresponding reference submissions for DNA analysis can provide maximum assistance for identifying the deceased. In this context, Post-mortem Sample Collection is dependant upon the condition of the body dictates that sample collection as under:

	CONDITION OF BODY	SAMPLE TO BE COLLECTED
i)	Not decomposed, whole body	Blood (on FTA card or swab) and buccal (mouth) swabs
ii)	Not decomposed, fragmented	If available, blood & Deep red muscle tissue (~ 1.0 gram)
iii)	Decomposed, whole bodies and fragmented remains	Long compact bone samples (cut 4 to 6 cm, using window cut without separating the shaft) &/Or Healthy teeth without fillings (molars preferable) &/Or Any available bone (~ 10 gram, if possible, dense cortical bone preferable)
iv)	Severely burnt bodies	Any of the samples Or Swab from inside the Urinary Bladder

Sources :

(i) National Institute of Justice, *Mass Fatality Incidents: A Guide for Human Forensic Identification*, 2005.
Available at : http://www.ojp.usdoj.gov/nij/pubs-sum/199758.htm"

(ii) Prinz M, Carracedo A, Mayr WR, Morling N, Parsons TJ, Sajantila A, Scheithauer H, Schmitter H, Schneider PM, *DNA Commission of the International Society of Forensic Genetics (IFSG) : Recommendations regarding the role of forensic genetics for disaster victim identification (DVI)*, Forensic Science International : Genetics (2007) 3-12

Annexure-H

(Refers to Page 22)

LABORATORIES CARRYING OUT DNA FINGERPRINTING EXAMINATION IN INDIA

1. Centre for DNA Fingerprinting and Diagnostics

Department of Biotechnology,
(Ministry of Science and Technology,
Govt. of India)
Bldg. 7, Gruhakalpa, 5-4-399 / B, Nampally,
Hyderabad - 500 001.
(Andhra Pradesh)
Tel: 040 - 24749321 / 24749322 / 24749323
Fax: 040 - 24749448
Email: dfp@cdfd.org.in, director@cdfd.org.in

2. Central Forensic Science Laboratory

Directorate of Forensic Science
30, Gorachand Road,
Kolkata - 700 014.
(West Bengal)
Tel: 033 - 22841638
Fax: 033 - 22849442
Email: dircfsl_kol@dfs.gov.in

3. Central Forensic Science Laboratory

Central Bureau of Investigation (CBI)
Block No.4, 4th Floor, CGO Complex,
Lodhi Road,
New Delhi - 110 003
Tel: 011 - 24361396
Fax: 011 - 24360742
Email: dcfsl@cbi.gov.in

4. Central Forensic Science Laboratory

Ramanthapur, Amberpet Post
Hyderabad - 500 013 (Andhra Pradesh)
Tel: 040 - 27038429
Fax: 040 - 27039281
Email: dircfsl_hyd@dfs.gov.in

5. Central Forensic Science Laboratory

Directorate of Forensic Science
Sector 36-A, Plot-2, Dakshin Marg,
Chandigarh - 160 036
Tel: 0172 - 2615068
Fax: 0172 - 2605923
Email: dircfsl_chd@dfs.gov.in

6. Department of Forensic Medicine & Toxicology

All India Institute of Medical Sciences
New Delhi - 110 029
Tel: 011 - 26593329 / 26589160
Fax: 011 - 26588663 / 26588641
Email: director@aiims.ac.in

7. Forensic Science Laboratory

Govt. of NCT of Delhi
Sector 14, Madhuban Chowk, Rohini,
New Delhi - 110 085
Tel: 011 - 27555890
Fax: 011 - 27555890
Email: fsldelhi@indiatimes.com

8. AP State Forensic Science Laboratory

Red Hills, Opp. Niloufer Hospital
Hyderabad - 500 004
(Andhra Pradesh)
Tel: 040 - 23390398
Fax: 040 - 23394449
Email: directorapfsl@yahoo.co.in

9. Forensic Science Department

"Forensic House"
30-A, Kamarajar Salai,
Mylapore,
Chennai - 600 004
(Tamil Nadu)
Telefax: 044 - 28447767
E-mail: forensic@tn.nic.in

10. State Forensic Science Laboratory

Hans Bhugra Marg
Santacruz (E),
Vidyanagari
Mumbai - 400 098
(Maharashtra)
Tel: 022 - 26670760
Fax: 022 - 26670844
Cell: 09820320101
Email: dfsl.mah@gmail.com

11. State Forensic Science Laboratory

Behind Police Bhawan,
Sector 18 A,
Gandhinagar - 382 305
(Gujarat)
Tel: 079 - 23256250
Fax: 079 - 23256251
Email: dir-fsl-gnr@gujarat.gov.in

12. Forensic Science Laboratory

5, Civil Lines,
Sagar - 470 001
(Madhya Pradesh)
Tel: 07582 - 267707 /
07582 - 267791
Fax: 07582 - 267707
Email: fslmp@vsnl.com

13. Rajiv Gandhi Centre for Biotechnology

Thycaud PO, Poojappura
Thiruvananthapuram - 695 014.
(Kerala)
Tel: 0471 - 2341716 / 2347975 /
2348104 / 2348753
Fax: 0471 - 2348096
Email: rgcb@sancharnet.in,
disc@rgcb.res.in

Annexure-I

(Refers to Page 26)

MISSING PERSON FORM

	Missing Person Number (MP No.)/ Missing Person Code (MP Code): (Use Individual Identification Numbering & endorse it on associated Files, Photographs, or Stored Objects)
	Interviewer's Personal Particulars:- Personal No.: Rank: Name: Address: Telephone No.: Mobile No.: E-mail ID:
	Interviewee(s) Name (s):
	Interviewee's Relationship with Missing Person:
	Interviewee's Contact Details:- Address: Telephone No.: Mobile No.: E-mail ID:
	Contact person for Missing Person, if different from above:- (who to contact in case of news: Name & Contact details)

MP No. / MP Code: _____

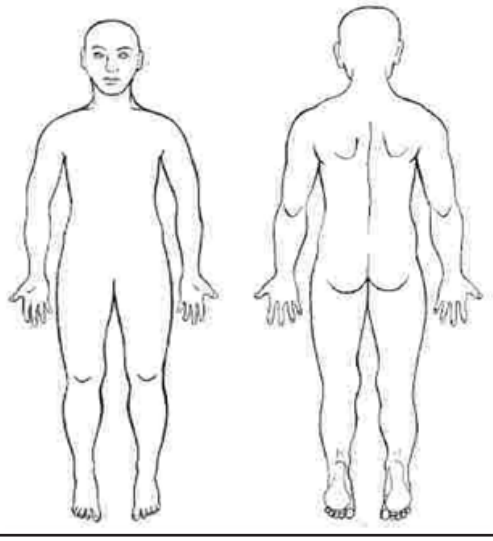
A.	PERSONAL DETAILS:-				
A-1	Missing Person's Name				
A-2	Address:-				
	(a) Current				
	(b) Permanent				
A-3	Sex (Tick mark as applicable) :-				
	Male:		Female:		
A-4	Date of Birth				
A-5	Age				
A-6	Marital Status (Tick mark as applicable) :-				
	Single:	Married:	Divorced:	Widowed:	
A-7	If Female :-				
	(a)	Maiden Name			
	(b)	Pregnant	Yes:	No:	
	(c)	Children	Yes:	How Many?	No:
A-8	Place of Birth				
A-9	Mother Tongue				
A-10	Religion				
A-11	Occupation				
A-12	Nationality				
A-13	Identity documents:- (Take Photocopy if possible & Describe the information contained):-				
	(a)	Identity Card			
	(b)	Driving Licence			
	(c)	Voter Identity Card			
	(d)	Credit/Debit Card			
	(e)	PAN Card			
	(f)	Any other			

MP No. / MP Code: _____

B.	EVENT :-				
B-1	Circumstances leading to disappearance:- (Use additional sheet if necessary)				
	(a)	Place			
	(b)	Date			
	(c)	Time			
	(d)	Events leading to disappearance			
	(e)	Other Victims & Witnesses who last saw Missing Person alive:- (Including Name & Address)			
			Name	Address	
		i			
		ii			
		iii			
		iv			
		v			
	(f)	Has this case been registered / denounced elsewhere?			
		Yes	No	With whom/where	
B-2	Are other family members missing, and if so, have they been registered/ identified:-				
		Name	Relationship	Status	Address
	(a)				
	(b)				
	(c)				
	(d)				
	(e)				

MP No. / MP Code: _____

C.	PHYSICAL DESCRIPTION :-					
C-1	General Description:- (Indicate exact measurement or approximate & Tick Mark the corresponding group)					
	(a)	Height _____ cms	Short	Average		Tall
	(b)	Weight _____ kgs	Slim	Average		Fat
C-2	Ethnic group					
C-3	Skin colour					
C-4	Eye colour					
C-5	(a) Head Hair	Colour:	Length:	Shape:	Baldness:	Other:
	(b) Facial Hair	None:	Moustache:	Beard:	Colour:	Length:
	(c) Body Hair	Describe:				
C-6	Distinguishing features:- (Continue on additional sheets if needed. Use drawings and/or mark the main findings on the body)					
	(a)	Physical:-				
		i	Shape of Ears			
		ii	Eyebrows			
		iii	Nose			
		iv	Chin			
		v	Hands			
		vi	Feet			
		vii	Nails			
		viii	Deformities			
	(b)	Skin Marks:-				
		i	Scars			
		ii	Tattoos			
		iii	Piercings			
		iv	Birthmarks			
		v	Moles			
		vi	Circumcision			
		vii	Any Other			

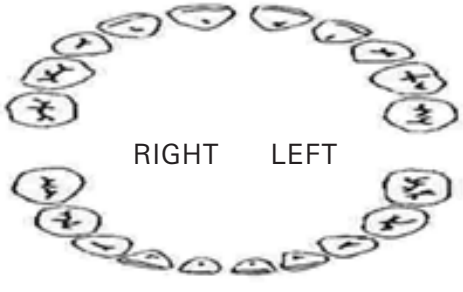
C-6				
	(c)	Past Injuries/Amputations:- (Location, side, fractured bone, joint & if the person limped)		
	(d)	Other Major Medical Conditions:-		
		i	Operations	
		ii	Diseases	
		iii	Any Other	
	(e)	Implants:-		
		i	Pacemaker	
		ii	Artificial Hip	
		iii	IUD	
		iv	Prosthesis	
		v	Metal plates or screws from operation	
		vi	Any Other	
	(f)	Types of Medication used at the time of disappearance		

MP No. / MP Code: _____

C-7	Dental status:-		
	(a)	Dental condition:-	
		Please describe the general characteristic especially taking into account the following :-	
		i	Missing Teeth
		ii	Broken Teeth
		iii	Decayed Teeth
		iv	Discolorations (Disease, smoking, Pan, Tobacco, or Betel Nut
		v	Gaps between teeth
		vi	Crowded or crooked (overlapping teeth)
		vii	Jaw Inflammation
		viii	Adornments (inlays, filed teeth, etc)
		ix	Any other special feature
	(b)	Dental treatment:-	
		i	Crowns such as gold-capped teeth
		ii	Colour : gold, silver, white
		iii	Fillings including colour, if known
		iv	False teeth (Dentures) : Upper / Lower
		v	Bridge or other special dental treatment
		vi	Extraction
	(c)	Indicate the described features in the Chart below :-	

BABY/PRIMARY TEETH

TOP



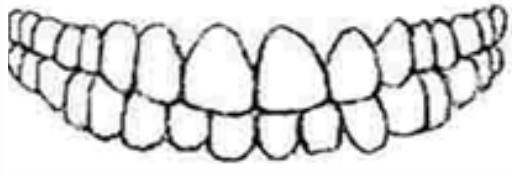
RIGHT LEFT

BOTTOM

ADULT/PERMANENT TEETH

TOP

RIGHT LEFT



BOTTOM

MP No. / MP Code: _____

D.	PERSONAL EFFECTS :-					
D-1	**Clothing** (Worn when last seen/at time of disaster : describe in as much detail as possible):-					
	(a)	Type of Clothes				
	(b)	Colours				
	(c)	Fabrics				
	(d)	Repairs/Patches				
	(e)	Brand Names/Tailor's Labels				
D-2	**Footwear** (Worn when last seen/at time of disaster : describe in as much detail as possible):-					
	(a)	Type	Boot	Shoes	Sandals	Chappals
	(b)	Colour				
	(c)	Size				
	(d)	Brand				
D-3	**Eyewear** (Worn when last seen/at time of disaster : describe in as much detail as possible):-					
	(a)	Glasses				
		i	Colour			
		ii	Shape			
	(b)	Contact lenses				
D-4	**Personal Items** (Describe in as much detail as possible):-					
	(a)	Wrist Watch				
	(b)	Jewellery				
	(c)	Wallet				
	(d)	Keys				
	(e)	Photographs				
	(f)	Mobile Phones (including number)				
	(g)	Medication				
	(h)	Cigarettes/Cigars/Pipe/Bidies				
	(i)	Tobacco Pouch/Betel Nut				
	(j)	Any other				
D-5	**Habits** (Please describe including quantity):-					
	(a)	Smoker :-				
		Cigarettes	Cigars	Pipes	Bidies	
	(b)	Chewing :-				
		Tobacco	Betel Nut :-			
	(c)	Alcohol				
	(d)	Any other				

MP No. / MP Code: _____

D.	PERSONAL EFFECTS :-	
D-6	**Identity Documents** (which the person was/might have been carrying when last seen/at time of disaster; Take photocopy if possible - describe the information contained):-	
	(a) Identity Card	
	(b) Driving Licence	
	(c) Voter Identity Card	
	(d) Credit/Debit Card	
	(e) PAN Card	
	(f) Any Other	
D-7	Past Medical History:-	
	(a) Details of Doctor, dentist, optometrist, or other	
	(b) Medical Records	
	(c) Dental Records	
	(d) X-rays	
D-8	**Photographs of Missing person** (If available, enclose photographs or copies of photographs as recent and clear as possible, ideally smiling with teeth visible & also photographs of clothing worn when disappeared):-	

Note : 1. The information collected in this form will be used for the search and identification of the missing person.
2. Its content is confidential and any use outside of the intended context will need explicit consent by the interviewee.
3. If requested, a copy of this Form with contact details of Interviewer will be made available to the Interviewee.

Place & Date of interview _____

Interviewer's Signature _____ Interviewee's Signature _____

Adapted from *Guidelines for First Responders on Management of the Dead in Major Disasters in India*, published by International Committee of the Red Cross Indian Delegation, New Delhi, pp. 53-57.

Annexure-J

(Refers to Page 38 & 39)

GUIDELINES FOR DISPOSAL OF ANIMAL CARCASSES

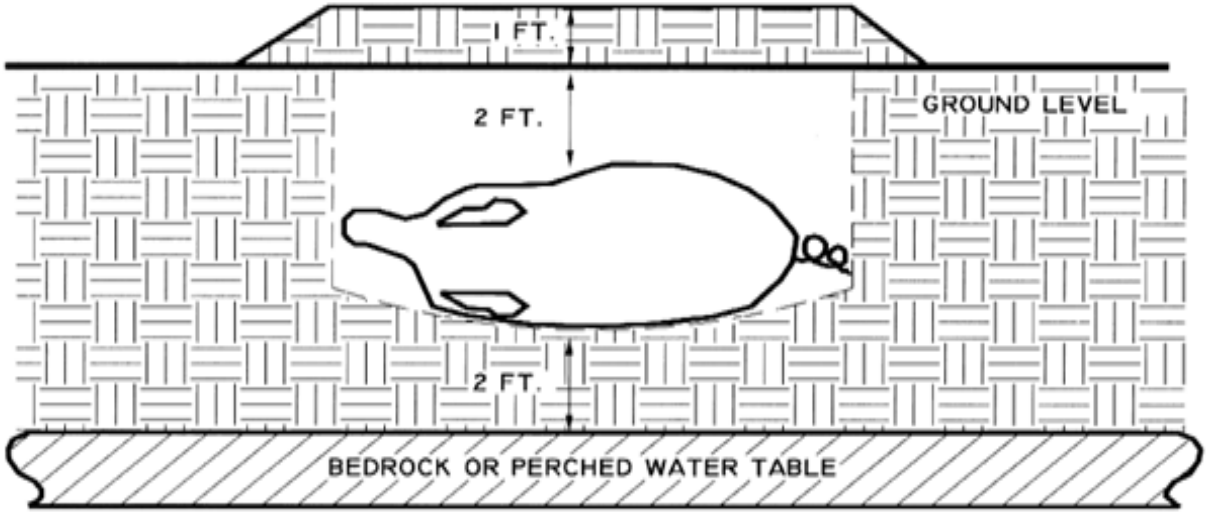
1. Guidelines for Burial

1.1 Burial shall be performed in the most remote area possible.

1.2 Burial areas shall be located a minimum of 300 feet down gradient from wells, springs and other water sources.

1.3 Burial shall not be made within 300 feet of streams or ponds, or in soils identified in the country soil survey as being frequently flooded.

1.4 The bottom of the pit or trench should be minimum 4 to 6 feet above the water table.



1.5 Pits or trenches shall approximately be 4 to 6 feet deep. They should have stable slopes not steeper than 1 foot vertical to 1 foot horizontal.

1.6 Animal Carcasses shall be uniformly placed in the pit or trench so that they do not exceed a maximum thickness of 2 feet. The cover over and surrounding shall be a minimum of 3 feet. The cover shall be shaped so as to drain the runoff away from the pit or trench.

1.7 The bottom of trenches left open shall be sloped to drain and shall have an outlet. All surface runoff shall be diverted from entering the trench.

1.8 Burial areas shall be inspected regularly and any subsidence or cavities filled.

2. Guidelines for Composting

2.1 Select site that is well drained, at least 300 feet from water sources, sinkholes, seasonal seeps or other landscape features that indicate hydrological sensitivity in the area.

2.2 Lay 24-inch bed of bulky, absorbent organic material containing sizeable pieces 4 to 6 inches long. Wood chips or hay straw work well. Ensure the base is large enough to allow for 2-foot clearance around the carcass.

2.3 Lay animal in the centre of the bed. Lance the rumen to avoid bloating and possible explosion. Explosive release of gases can result in odour problems and it will blow the cover material off the composting carcass.

2.4 When disposing large amounts of blood or body fluid, make sure there is plenty of material to absorb the liquid. Make a depression so blood can be absorbed and then cover, if a blood spill occurs, scrape it up and put back in pile.

2.5 Cover carcass with dry, high-carbon material, old silage, sawdust or dry stall bedding (some semi-solid manure will expedite the process). Make sure all residuals are well covered to keep odours down, generate heat or keep vermin or other unwanted animals out of the windrow.

2.6 Let it sit for 4 to 6 months, then check to see if carcass is fully degraded.

2.7 Reuse the composted material for carcass compost pile, or remove large bones and land apply.

2.8 Site cleanliness is the most important aspect of composting; it deters scavengers, and helps control odours and keeps good neighbourly relations.

Note: Animals that show signs of a neurological disease, animals that die under quarantine and those with anthrax should not be composted.

Reference: USDA Natural Resource Conservation Service, Arkansas Livestock and Poultry Commission, University of Arkansas

Annexure-K

(Refers to Page 42)

FLOW CHART FOR DISPOSAL OF DEAD BODIES AT DISTRICT LEVEL

1. Activate the DM Plan.
2. Nodal Officer in the Incident Response System will activate all other stake-holders associated with Disposal of the Dead.
3. Establish an Information Centre at the site of Disaster/District HQ.
4. Inform all other Stake-holders, both in government and Non-Governmental sector, including the elected, Panchayati Raj functionaries and the community
5. Activate Search and Rescue teams of Fire & Emergency Services, Police, SDRF, Civil Defence, NDRF and NGOs for the retrieval of the injured and the dead.
6. The injured will get the priority for First Aid and evacuation to hospital.
7. Prepare a record of details of the bodies retrieved in the Dead Body Inventory Record Register, allocated Individual Identification Number, photographed, and then Dead Body Identification Form initiated.
8. Associate relatives and community members for the identification of the bodies.
9. Hand over the identified bodies to the relatives or the community, and if necessary after cross-matching Dead Body Identification Form with that of the Missing Person Form, for the last rites as per local, cultural and religious denomination.
10. Unidentified or unclaimed dead bodies/body parts shall be transported to the mortuaries for proper preservation and storage at the designated sites.
11. Consult relatives, legal and forensic experts for positive identification.
12. Final disposal of unidentified bodies/body parts shall be done by District authorities after applying all the possible means of identification as per the legal provisions.
13. The bodies of foreign nationals shall be properly preserved either by embalming or chemical methods and then placed in body bags or in coffins with proper labelling. Handing over and transportation of such bodies shall take place through the Ministry of External Affairs, in consultation with the Consular offices of the concerned countries and other actors such as the International Committee of the Red Cross, if necessary and possible.

Annexure-L

(Refers to Page 42)

FLOW CHART FOR DISPOSAL OF ANIMAL CARCASSES AT DISTRICT LEVEL

1. Activate the DM Plan.
2. Nodal Officer in the Incident Response System will activate all other stakeholders associated with the Disposal of Animal Carcasses.
3. Establish an Information Centre at the site of Disaster/District HQ.
4. Inform all other Stake-holders, both in government and Non-Governmental sector, including the elected, Panchayati Raj functionaries and the community
5. Activate Animal Carcass Retrieval teams for the recovery and retrieval of the injured livestock and the animal carcasses.
6. Injured livestock will get the priority for First Aid and evacuation to hospital.
7. Prepare a record of details of the animal carcasses retrieved.
8. Associate owners of the livestock, or their relatives and community members for the identification of the animal carcasses.
9. Hand over the identified animal carcasses to the owners for disposal at the selected site.
10. All unidentified animal carcasses will be photographed preferably before transportation for disposal.
11. Unidentified or unclaimed animal carcasses shall be transported to the designated site for disposal by District authorities as per the Disaster Plan.

Annexure-M

BIBLIOGRAPHY

1. Alexander David A, Klien Susan, *First Responders after Disasters : A Review of Stress Reactions, At-Risk, Vulnerability, and Resilience Factors*, Prehospital and Disaster Medicine, March-April 2009, pp 87-94
2. International Committee of the Red Cross New Delhi, *Guidelines for First Responders on Management of dead in major disasters in India,* (2007)
3. International Committee of the Red Cross, *Missing People, DNA Analysis and Identification of Human Remains : A guide to best practice in armed conflicts and other situations of armed violence*, Second Edition (2009). Available from: http://www.icrc.org
4. International Committee of the Red Cross, *Operational Best Practices Regarding the Management of Human Remains and Information on the Dead by Non-Specialists*, (2004). Available from: http://www.icrc.org
5. International Criminal Police Organization (INTERPOL): *Disaster Victim Identification Guide*, (1997). Available from: http://www.interpol.int
6. International Criminal Police Organization (INTERPOL): *Draft of new Disaster Victim Identification Document*, (2008). http://www.interpol.int/Public/DisasterVictim/Guide.asp?HM=1
7. Modi, J. P., *Modi's Medical Jurisprudence and Toxicology*, (23rd Edition), LexisNexis India
8. National Disaster Management Authority India; *National Disaster Management Guidelines: Medical Preparedness and Mass Casualty Management*, October 2007.
9. National Institute of Justice, *Mass Fatality Incidents: A Guide for Human Forensic Identification*, (2005).
10. Pan American Health Organisation, *Management of Dead Bodies in Disaster Situations, Disaster Manuals and Guidelines Series No. 5*, (2004).
11. Pan American Health Organisation, *Management of Dead Bodies after Disasters : A Field Manual for First Responders*, (2006).
12. Prinz M, Carracedo A, Mayr WR, Morling N, Parsons TJ, Sajantila A, Scheithauer H, Schmitter H, Schneider PM, *DNA Commission of the International Society of Forensic Genetics (IFSG) : Recommendations regarding the role of forensic genetics for disaster victim identification (DVI)*, Forensic Science International : Genetics (2007) 3-12
13. World Health Organisation - India, *Health Sector Resources in Disaster Management*, (2005).
14. USDA Natural Resource Conservation Service, Arkansas Livestock and Poultry Commission, University of Arkansas

Annexure-N

IMPORTANT WEBSITES

MINISTRY/INSTITUTE/AGENCY	WEBSITE
Department of Animal Husbandry	http://dahd.nic.in/
Indian Red Cross Society	www.indianredcross.org
Institute of Human Behaviour & Allied Sciences	www.ihbas.delhigovt.nic.in
International Committee of the Red Cross	www.icrc.org/
International Criminal Police Organisation	www.interpol.int/
Ministry of Defence	http://mod.nic.in/
Ministry of Health and Family Welfare	http://mohfw.nic.in/
Ministry of Home Affairs	http://mha.nic.in/
Ministry of Women and Child Welfare	www.wcd.nic.in
National Disaster Management Authority	www.ndma.gov.in
National Institute of Disaster Management	http://nidm.gov.in/
National Institute of Mental Health and Neuro Sciences	www.nimhans.kar.nic.in
Ranchi Institute of Neuro Psychiatry and Allied Science	www.rinpas.nic.in
Tata Institute of Social Sciences	www.tiss.edu
United Nations Children's Fund	www.unicef.org
United Nations Development Programme	www.undp.org.in
United Nations Educational, Scientific & Cultural Organisation	www.unesco.org
World Health Organization	www.who.int

Core Group on Management of the Dead in the aftermath of Disasters

1.	Lt. Gen. (Dr.) Janak Raj Bhardwaj PVSM AVSM VSM PHS (Retd.) MD DCP PhD FICP FAMS FRC Path. (London)	Member, NDMA New Delhi	Chairman
2.	Dr. D. N. Lanjewar	Professor of Pathology, Govt. Medical College Miraj	Co-ordinator
3.	Dr. Shailesh C. Mohite	Professor & Head Forensic Medicine, Topiwala National Medical College & BYL Nair Hospital, Mumbai	Member
4.	Dr. K. Ravindran	Dean, Chettinad Hospital & Research Institute, Kelambakkam (TN)	Member
5.	Dr. N. Madhusudan Reddy	Staff Scientist, Centre for DNA Fingerprinting and Diagnostics, Hyderabad	Member
6.	Dr. A. K. Sinha	Veterinary Officer, DG Sashastra Seema Bal, New Delhi	Member
7.	Mr. Nicholas Bachmann	Tracing Coordinator, International Committee of the Red Cross, New Delhi	Member
8.	Mr. Dusan Vujasanin	International Committee of the Red Cross	Member
9.	Dr. Muzaffar Ahmed	Director, Health Services Kashmir, Srinagar	Member
10.	Dr. T. S. Sachdeva Senior Consultant (Medical Preparedness & Mass Casualty Management + Biological Disasters)	National Disaster Management Authority, New Delhi	Member Secretary

Significant Contributors

Agarwal, Dr. S. P., Secretary General, Indian Red Cross Society, National Head Quarters, 1 Red Cross Road, New Delhi - 110 001

Aggarwal, Dr. Anil K., Deputy Medical Commissioner, Employees State Insurance Corporation, Panchdeep Bhawan, ESI Headquarters, New Delhi - 110 002

Aggarwal, Dr. Vinay, Honorary Secretary General, Indian Medical Association, Indian Medical Association House, Indraprastha Marg, New Delhi - 110 002

Alam, Syed Mohd. Aftab, DG, European Commission for Humanitarian Aid & Civil Protection (ECHO), New Delhi

Amar, Praveen Kumar, Parwana Vihar Apartments, Rohini, New Delhi

Bansal, Major General (Dr.) J. K., VSM, NDMA, New Delhi

Barbey, Sophie, International Committee of the Red Cross, New Delhi

Bhalwar, Colonel (Dr.) R., Professor & Head Community Medicine, Armed Forces Medical College, Pune

Bhardwaj, Major (Dr.) H., Head Forensic Medicine, Army College of Medical Sciences, Ring Road, New Delhi - 110 010

Bhattacharyya, Dr. Devashish, CMO, (Disaster Management), Directorate of Health Services, Govt. of N.C.T of Delhi, F-17 Karkardooma, Shahdra, Delhi

Bhowmick, Dr. Mihir Ranjan, CMO, Nirman Bhawan, Central Government Health Scheme, New Delhi

Bopanna, Lt. General (Retd.) B. K., PVSM, AVSM, VSM, Director General, Amity University, Sector - 125, Express Highway, Noida - 201 303

Brahmam, Dr. G.N.V., Scientist 'F', National Institute of Nutrition, Jamai Osmania, Hyderabad

Chawla, Dr. Raman, Scientist 'C', Institute of Nuclear Medicine & Allied Sciences, Defence Research & Development Organisation, Timarpur, Delhi - 110054

Chhabra, Dr. Vivek, Senior Consultant, Department of Emergency Medicine, Max Devki Devi Institute, Saket, New Delhi

Daanabalan, Dr. Kennedy, Evangelical Fellowship of India Commission on Relief (EFICOR), New Delhi

Das, Professor (Dr.) J. K., Head Medicare & Hospital Administration, National Institute of Health & Family Welfare, Munirka, New Delhi - 110 067

Das, Moushumi, Catholic Relief Services, Guwahati

Das, Shyamal K., Inter Agency Group Coordinator, Orissa

Dash, Subrat, Inter Agency Group Orissa, Bhubaneswar

Datta, Dr. Vineet, Consultant Emergency Medicine, Artemis Health Institute, Gurgaon

Dave, Shyam Narayan, WES Specialist, UNICEF Field Office for West Bengal, Kolkata

Desai, Dr. Nimesh G., Professor and Head, Department of Psychiatry, Institute of Human Behaviour and Allied Sciences, Shahdara, Delhi - 110 095

Dhara, Dr. P. C., Department of Human Physiology with Community Health, Vidyasagar University, Paschim Medinapur - 721 102

Dubey, Brigadier (Dr.) A. K., VSM, Commandant, Base Hospital, Delhi Cantonment

Dwivedi, Santosh Kumar, Water Aid, Uttar Pradesh

Gandhi, Kavita, Oxfam India, Uttar Pradesh

Gandhi, Dr. M. Brij, CEO, Neo BioMed Services, 100, Vasant Enclave, New Delhi

Gandhi, Dr. S. J., Deputy Director (Epidemic), Health Services Government of Gujarat, Gandhinagar – 382 011 (Gujarat)

Garbiyal, Dr. Amit Ranjan, SMO, Central Government Health Scheme, New Delhi

Garg, Dr. Suneela, Professor of Community Health, Maulana Azad Medical College, New Delhi

Ghate, Lt. Col. Tushar, Instructor FNBCP, College of Military Engineering, Pune.

Girdhar, Dr. Mukta, Faculty PG Diploma DP&R, Disaster Management Centre, Indian Red Cross Society, National HQ, 1 Red Cross Road, New Delhi

Gnanamuthu, Dr. Antony, German Red Cross, Orissa

Gohain, Mrinal, Action Aid, Guwahati

Gulati, Dr. Deepti, Senior Nutritionist, United Nations World Food Programme, New Delhi

Gupta, Dr. Amit, Assistant Professor of Surgery, JPN Apex Trauma Centre, All India Institute of Medical Sciences, New Delhi, New Delhi- 110029

Gupta, Brigadier (Retd.) Dr. R. K., Senior Consultant Paediatrics, 278 Vasant Enclave, Munirka, New Delhi

Gupta, Dr. Shakti, Medical Superintendent, Dr. Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi

Gupta, Professor Y. K., Head, Department of Pharmacology, All India Institute of Medical Sciences, New Delhi - 110 029

Habayeb, Dr. S. J., World Health Organisation Representative to INDIA, World Health Organisation India Country Office, Nirman Bhawan, New Delhi

Hans, Professor Asha, Shanta Memorial Rehablitation Centre, Bhubaneswar

Hojai, Dr. Dhruba, Director, Health Services Government of Assam, Guhawati

Jadav, Jignesh, Sector Manager, Gujarat State Disaster Management Society, Block No. 11, 5th Floor, Udyog Bhavan, Gandhinagar – 382 011

Jain, Dr. R. K., Director, Health and Family Welfare, Ministry of Railways, Rail Bhawan, New Delhi - 110 001

Jayakumar, Dr. C., Senior Consultant (Psycho-Social & Mental Health Services), National Disaster Management Authority, New Delhi - 110 029

Jayalakshmi, Professor (Dr.) T. S., Health Adviser IRCS, Indian Red Cross Society, National Headquarters, 1 Red Cross Road, New Delhi - 110 001

Jose, Fr. Gibi N., Poorvanchal Gramin Seva Sasthan, Gorakhpur

Kahmei, Solomon, World Vision, Sadar Hills ADP, Imphal (Manipur)

Kaur, Dr. Amarjit, Director, Centre for Disaster Management Studies, Guru Gobind Singh Indraprastha University, Kashmere Gate, Delhi

Khanna, Brigadier (Retd.) Dr. B. K., VSM, Senior Consultant (Training & Capacity Development), National Disaster Management Authority, New Delhi

Khare, Dr. Shashi, Head of Microbiology, National Institute of Communicable Diseases, Ministry of Health & Family Welfare, Delhi - 110 054

Khetarpal, Brigadier (Dr.) Anil, SM, DDG IDS (Medical), HQ Integrated Defence Staff, Room No. 263C South Block, New Delhi - 110 011

Khetarpal, Dr. R. K., Head, Plant Quarantine Division, NBPGR, ICAR, Ministry of Agriculture, New Delhi - 110 011

Krishnan, Dr Sampath K., National Professional Officer Coordinator, Communicable Diseases Surveillance, WHO India Country Office, 536 "A" Wing Nirman Bhawan, Maulana Azad Road, New Delhi - 110 011

Kumar, Dr. Anil, Director, Laser Science & Technology Centre, Metcalfe House Complex, Delhi

Kumar, Dr. Manoj, Joint Secretary, Indian Red Cross Society, National Head Quarters, 1 Red Cross Road, New Delhi - 110 001

Kumar, Murali, NDM II, Ministry of Home Affairs, North Block, New Delhi - 110 001

Kumar, Naresh, Additional Commissioner, Municipal Corporation of Delhi, Town Hall, Chandni Chowk, Delhi

Kumar, Dr. Promod, CMO (SG), DG NDRF, Sector 1, East Block VII, Level 7, R. K. Puram, New Delhi - 110 066

Kumar, Raman, Focal Point, Training and Capacity Building Programme, Sphere India, New Delhi

Kumar, Dr. S., Principal and Dean, MS Ramaiah Medical College, MSRT Post, MSR Nagar, Bengaluru - 560 054

Lahri, Dr. S. S., Scientist 'F', Institute of Nuclear Medicine and Allied Sciences, Brigadier S. K. Mazumdar Marg, Delhi - 110 054

Lalwani, Dr. Sanjeev, Assistant Professor Forensic Medicine, All India Institute of Medical Sciences, Ansari Nagar, New Delhi - 110 029

Mahajan, Vikrant, Chief Operating Officer Sphere India, East of Kailash, New Delhi

Malik, Dr. Sanjiv, National President, Indian Medical Association, Indian Medical Association House, Indraprastha Marg, New Delhi - 110 002

Mall, Dr. Bhanu, Secretary, Poorvanchal Gramin Vikas Sansthan, Gorakhpur

Manchanda, Professor (Dr.) M. L., Faculty PG Diploma DP&R, Disaster Management Centre, Indian Red Cross Society, National Headquarters, 1 Red Cross Road, New Delhi - 110 001

Mandal, Dr. Manas K., Director, Defence Institute of Psychological Research, Lucknow Road, Timarpur, Delhi - 110 054

Masefield, Abi, Humanitarian Food Assistance Coordinator European Commission for Humanitarian Aid & Civil Protection (ECHO) Asia

Mathur, Lt. Colonel (Dr.) A. G., Professor & Head Pharmacology, Army College of Medical Sciences, Ring Road, New Delhi - 110 010

Mehta, Major General (Dr.) S. R., VSM, Senior Consultant (Medicine), Office of Directorate General of Armed Forces Medical Services, Ministry of Defence, New Delhi - 110 001

Misra, Professor (Dr.) M. C., Professor of Surgery & Head JPN Apex Trauma Centre, All India Institute of Medical Sciences, New Delhi - 110 029

Mitrabasu, Dr., Institute of Nuclear Medicine and Allied Sciences, Brig. S.K. Mazumdar Marg, Delhi - 110 054

Mohanty, Dr. M. P., Honorary Secretary, Indian Red Cross Society, Orissa Branch, Bhubaneswar

Mourya, Dr. D. T., Deputy Director, Microbial Containment Complex, National Institute of Virology, Pune - 411 021

Mudgal, Dr. S., Occupational & Environmental Health Services (Regd.), Greater Noida - 201 308

Mukherjee, Shyamal Baran, Honorary Secretary, Indian Red Cross Society, West Bengal State Branch, Kolkata

Muthu, Kali, Technical Advisor Plan International (Water and Sanitation) Chairman: WESNET (Water and Environmental Sanitation Network), New Delhi

Nath, Professor Surinder, Head, Department of Anthropology, University of Delhi, Delhi

Pandey, Anil, Ministry of Panchayti Raj, Government of India, New Delhi

Pandey, Dr. Neelima, PLAN International, New Delhi

Phadnis, Ajit, RedR India, A-14, Nivedita Apartments, 70-Rambagh Colony, Paud Road, Kothrud, Pune

Pradhan, Dr. Mamata, Programme Officer- Public Health Promotion & Humanitarian Response, OXFAM India, Kolkata (West Bengal)

Prasad, Lt. General (Retd.) Shankar, PVSM, VSM, A-8/12, Vasant Vihar, New Delhi - 110 057

Prusty, N. M., Chairperson, Sphere India, New Delhi

Pryor, Wesley, Handicap International, New Delhi

Radhakrishnan, Dr. J., Assistant Country Director & Head Disaster Management Unit, UNDP Country Office for India, United Nations Development Programme (UNDP), 55 Lodhi Road Estate, New Delhi - 110 003

Raghunath, Lt. General (Retd.) Dr. D., PVSM, AVSM, Principal Executive, Sir Dorabji Tata Centre for Research & in Tropical Diseases, Bengaluru

Raina, Dr. Anupuma, Incharge, DNA Fingerprinting Laboratory, All India Institute of Medical Sciences, Ansari Nagar, New Delhi - 110 029

Ramachandran, Dr. Prema, Director, Nutrition Foundation of India, C-13, Qutab Institutional Area, New Delhi - 110 016

Ramesh, Dr. Aruna, MS Ramaiah Medical College, MSR Nagar, Bengaluru - 560 054

Rao, Colonel S. K. M., Director Hospital Projects, Directorate General Medical Services (Army), AG's Branch, Army Headquarters, New Delhi

Ravindran, Dr. P., Director Emergency Medical Relief, Ministry of Health & Family Welfare, New Delhi - 110 011

Ray Chaudhury, Parnasri, World Health Organisation India Country Office, New Delhi

Reddy, Dr. Sunita, Centre of Social Medicine and Community Health, Jawaharlal Nehru University, New Delhi

Routray, Parimita, Focal Point, Information and Knowledge Management, Sphere India, New Delhi

Roy, Alex K., Manager, Disaster Management & Mitigation Unit, Emmanuel Hospital Association, New Delhi

Sachdeva, Gurkirrat, Lady Irwin College, Sikandra Road, New Delhi.

Sachdeva, Colonel (Dr.) T. S., Director, Additional Directorate General of Perspective Planning (NBC Warfare), Army Headquarters, New Delhi.

Sahdeo, Arun, Consultant, National Institute of Disaster Management, New Delhi

Sahni, Colonel (Dr.) A. K., Microbiologist, Base Hospital, Delhi Cantonment

Sahoo, Dr. M., Joint Director, Institute of Nuclear Medicine & Allied Sciences, Defence Research & Development Organisation, Timarpur, Delhi - 110 054

Sahota, Sarbjit Singh, Director, RedR India, A-14, Nivedita Apartments, 70-Rambagh Colony, Paud Road, Kothrud, Pune

Saikia, Rajen, Indo-German Social Service Scheme, Gogamuk, Dhemaji (Assam)

Santiago, Fr., North East Diocesan Social Forum, Guwahati

Santosh, (Dr.) P. S., "Prasanna", TC-24/1746, Thylaud, Thiruvananthapuram

Sarkar, Suparna, Handicap International, New Delhi

Saroj, Malathi, Executive Secretary, Voluntary Health Association of Karnataka, Bengaluru

Satapathy, Dr. Sujata, National Institute of Disaster Management, IIPA Campus, New Delhi - 110 002

Sebastian, T. V., Concern Worldwide, Bhubaneswar (Orissa)

Sengupta, Dr A. K., National Professional Officer, Sustainable Development and Healthy Environment, WHO India Country Office, 537 A Wing Nirman Bhawan, Maulana Azad Road, New Delhi - 110 011

Sharma, Dr. A. K., Deputy Director (Biology), Central Forensic Science Laboratory, Directorate of Forensic Science, Ministry of Home Affairs, Kolkata

Sharma, Dr. G. K., Scientist 'F', Defence Food Research Laboratory, Defence Research & Development Organisation, Mysore

Sharma, Dr. Kapil, Senior Medical Officer, Border Roads Organisation, Ministry of Surface Transport & Highways, Naraina, New Delhi

Sharma, Wing Commander (Dr.) Mudit, Commanding Officer, Air Force Institute of NBC Protection, Arjangarh, New Delhi

Sharma, Dr. R. K., Scientist 'F', Institute of Nuclear Medicine & Allied Sciences, Defence Research & Development Organisation, Timarpur, Delhi - 110054

Shekhar, Anand, Water Aid, Lucknow (Uttar Pradesh)

Singh, Dr. A. K., Director, Health Services, Directorate of Health and Family Welfare, Nepal House, Daranda, Ranchi - 834 002 (Jharkhand)

Singh, Brigadier (Dr.) K. J., DDG (Operations & Planning), Directorate General Medical Services (Army), Army Headquarters, New Delhi

Singh, Jagtar, Procurement Officer, WHO India Country Office, 536 "A" Wing Nirman Bhawan, Maulana Azad Road, New Delhi – 110 011

Singh, J. N., General Secretary, Aware World, C-181 Pandav Nagar, New Delhi

Singh, Colonel (Dr.) P. K., Director MS (Health), Directorate General Medical Services (Army), Army Headquarters, New Delhi

Singh, Surgeon Rear Admiral (Retd.) Dr. V. K., VSM, B-5 (1st Floor), Suncity, Gurgaon - 122 003

Singh, Lt. General (Dr.) Yogendra, PVSM, VSM, PHS, Director General Armed Forces Medical Services, Ministry of Defence, New Delhi - 110 001

Sodagar, Bhavesh, Branch Development Officer, International Federation of Red Cross India Office, 1 Red Cross Road, New Delhi - 110 001

Somnath, Dr., Scientist 'E', Defence Institute of Physiology & Allied Sciences, Defence Research & Development Organisation, Timarpur, Delhi

Sreekantaiah, Dr. Pruthvish, Professor of Community Medicine, MS Ramaiah Medical College, MSRT Post, MSR Nagar, Bengaluru - 560 054

Srivastava, Dr. B. C., Shohratgarh Environmental Society & Sahyog Network, Siddharth Nagar (Uttar Pradesh)

Srivastava, Ratnesh, Sphere Coordinator, Uttar Pradesh

Thakral, Major General (Dr.) S. S., Additional DG RVS, Directorate General of Remount & Veterinary Services, Army Headquarters, New Delhi - 110 066

Varghese, Dr. Cherian, World Health Organisation India Country Office, Nirman Bhawan, New Delhi

Virmani, Brigadier (Dr.) S. K., Commandant, Armed Forces Clinic, New Delhi

Yadav, Dr. Sangeeta, Professor of Pediatrics, Maulana Azad Medical College, New Delhi

Contact Us

*For more information on these Guidelines on **Management of the Dead in the Aftermath of Disasters***

Please contact:

Lt. Gen. (Dr.) J. R. Bhardwaj

PVSM, AVSM, VSM, PHS (Retd.)

MD DCP PhD FICP FAMS FRC Path. (London)

Member

National Disaster Management Authority

NDMA Bhawan, A-1 Safdarjung Enclave,

New Delhi - 110 029

Telephone : (011) 26701778

Fax : (011) 26701804

E-mail ID : jrbhardwaj@ndma.gov.in; jrb2600@gmail.com

Website : www.ndma.gov.in

India Offset Press (An ISO 9001:2000 Certified Unit)
A-1, Mayapuri Industrial Area, Phase-1, New Delhi
+91-11-28116494, 9811526314
www.indiaoffsetpress.com