



सत्यमेव जयते

GOVERNMENT OF INDIA

DISASTER MANAGEMENT PLAN

**Department of Animal Husbandry, Dairying and Fisheries
Ministry of Agriculture and Farmers Welfare
Government of India**

DISASTER MANAGEMENT PLAN



**Department of Animal Husbandry, Dairying and Fisheries
Ministry of Agriculture and Farmers Welfare
Government of India**

Content

S.No	Index	Page No.
1.	Introduction	1
2.	Purpose & Scope of DMP	1
3.	Overview of Department 3.1 Organizations Structure	2-3
4.	Authorities, Codes , Policies	3
5.	Institutional Arrangement for Disaster Management	4
6.	Management of DMP	4
7.	Hazard Risk Vulnerability Assessment (HRVA)	4
8.	Disaster Prevention and Mitigation 8.1 Resources available with the Department 8.2 Mapping of Department Resources 8.3 Measures for Disaster Prevention and Mitigation	5-6
9.	Disaster Preparedness 9.1 Early Warning Plan 9.2 Identification of Vulnerabilities amongst animals, livestock and aquaculture farms 9.3 Cattle Camps 9.4 Pre Flood Vaccination 9.5 Feed and Fodder Supply 9.6 Availability of Drinking Water 9.7 Supply of Milk and Milk Product 9.8 Fisheries & Aquaculture 9.9 Poultry Management 9.10 Disposal of Carcasses 9.11 Capacity building for animal disaster management 9.12 Community participation and Mass mobilization 9.13 Animal Population profile	7-11

S.No	Index	Page No.
10.	Disaster Response 10.1 Prompt and Effective Response 10.2 Rescue of animals 10.3 Arrangement for drinking water 10.4 Treatment of injured /sick animal 10.5 Feed and fodder supply 10.6 Maintenance of Sanitation	11-14
11.	Post Disaster Plan 11.1 Disposal of carcasses 11.2 Disease surveillance 11.3 Animal Waste Disposal 11.4 Restoration of Fisheries and Aquaculture Infrastructure 11.5 Restocking/repopulation of livestock 11.6 Extension of artificial insemination 11.7 Estrus synchronization 11.8 Assistance for Renovation and maintenance of milk processing plants	15-16
12.	Abbreviations Annexure	17 18-24

राधा मोहन सिंह
RADHA MOHAN SINGH



कृषि मंत्री
भारत सरकार
MINISTER OF AGRICULTURE
GOVERNMENT OF INDIA

26 FEB 2016

FOREWORD

It gives me immense pleasure to know that the Department of Animal Husbandry, Dairying & Fisheries (DAHD&F) has prepared its Disaster Management Plan for protecting animals and preventing and mitigating loss of livestock resources during disasters. It constitutes an important part of the mandate of Ministry of Agriculture & Farmers Welfare, Government of India. The Disaster Management plan of DAHD&F assumes greater importance when viewed against the backdrop that nearly 67% of our population depends on animals for their livelihood. The purpose of this plan is to delineate the actions and roles necessary to prepare for and respond to any disaster situation in a coordinated manner. Disaster Management Plan (DMP) of DAHD&F is intended to provide guidance to all related agencies within general frame-work of potential emergency assignments before, during and after the emergency situations.

The Disaster Management Plan emphasizes various preventive measures to protect animals along with a detailed consideration of all other elements of the disaster management cycle. The plan has been developed after a series of wide ranging consultations and elaborate discussions with stakeholders including experts and officials from knowledge institutions namely NDMA, NIDM, NDRF, PPF, WAP, AWBI and State Governments of Uttarakhand, Maharashtra, Gujarat, Assam, Andhra Pradesh, Bihar, Rajasthan etc.

I express my deep appreciation for the meticulous work done under the guidance of Shri A.K. Angurana, Secretary, DAHD&F, who has not only made his valuable contribution but also ably coordinated the entire process of formulating the plan. I also commend the sincere efforts of the Working Group of Experts and various units of DAHD&F for their significant contribution and hard work.

I am sure that the implementation of the plan by all the stakeholders at various levels will go a long way in protecting animals and preventing and mitigating loss of livestock resources during various types of disasters.

Radha Mohan Singh
(Radha Mohan Singh)



Ashok K. Angurana

सत्यमेव जयते

सचिव

भारत सरकार

Secretary
Government of India



भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय
पशुपालन, डेयरी व मत्स्यपालन विभाग
कृषि भवन, नई दिल्ली-110001

Government of India

Ministry of Agriculture & Farmers Welfare
Department of Animal Husbandry, Dairying & Fisheries
Krishi Bhawan, New Delhi-110001

ACKNOWLEDGEMENTS

At the outset, I must express my sincere thanks to all the partners particularly the members of the Working Group for their invaluable contribution and whole-hearted cooperation for preparing the Disaster Management Plan of the Department of Animal Husbandry Dairying and Fisheries. DM Plan would not have come out so well without the useful technical inputs from NDMA, NIDM, NDRF, AWBI, Policy Perspective Foundation and World Animal Protection.

I must also place on record my sincere gratitude and appreciation for the valuable guidance and constructive suggestions made by Shri K.M. Singh, Former Member NDMA & Vice President, PPF, Prof. Santosh Kumar, Executive Director, NIDM, Shri Gajender Sharma, Country Director, World Animal Protection, Dr. A.K. Sinha, SRO NDMA and Shri S.S. Guleria, NDRF towards improving the content as well as plugging the gaps in the plan. The invaluable contributions by the Animal Husbandry & Fisheries Departments of the States of Uttarakhand, Maharashtra, Gujarat, Assam, Andhra Pradesh, Bihar and Rajasthan deserve a special mention here.

The efforts made by Shri RS Rana, ex-Joint Secretary, DAHDF and Shri Sagar Mehra, Director, DAHDF in collating the material and preparing the basic draft are duly acknowledged. I must also acknowledge my gratitude to the other staff members of DAHDF for their valuable support and feedback for preparing this document. I also thankfully acknowledge the support and cooperation extended by Shri. R.K. Jain Secretary, NDMA along with his team for their valuable contribution in preparing this document.

Finally, I would like to express my gratitude to Hon'ble Minister of Agriculture & Farmers Welfare, Shri Radha Mohan Singh and both the Ministers of State for their critical support and cooperation that has enabled us to complete the task at hand smoothly.

I am hopeful that this plan will prove useful for all the stakeholders at various levels to protect our livestock resources.

New Delhi
26th February 2016


(A.K. Angurana)

DISASTER MANAGEMENT PLAN

1. Introduction:

India is endowed with vast resources of livestock including poultry and fisheries. Livestock sector plays an important role in national economy and socio-economic development of the country. However, different parts of the country are vulnerable to a large number of natural disasters, out of which flood, draught and cyclone are very frequent. In the context of vulnerability to disasters, small, marginal farmers and economically weaker sections are affected more intensely. Most of cattle owners keep livestock for subsistence income as an insurance against disasters like drought, flood, etc. when agriculture crop failure occurs. Therefore, management of livestock during disaster is very important to protect animal owners especially small and marginal farmers from economic losses and spread of disease. Natural and man-made disasters and hazards also have direct adverse impact on fisheries and aquaculture related activities affecting fisherman and farmers.

Agriculture and its allied subjects namely animal husbandry, dairying and fisheries are State subjects, DADF has been supplementing the efforts of the State Governments in these sectors through various schemes of the Department. All the States/UTs have to set up Disaster Management Authorities and have definite DM plans to meet their specific requirements in view of their susceptibility to different types of disaster.

Disaster Management Plan

Disaster may be slow moving such as drought and fast moving such as floods, cyclone, earthquake, Tsunami etc. Disaster Management strategies differ as per nature of disasters. While drought may enable disaster management efforts over a period of time which also leave the scope for advisory and planning where as fast moving disaster may require immediate steps and mobilisation of resources leaving no time for their planning.

As per section 2(d) of the Disaster Management Act, 2005, "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, and 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.

2. Purpose and scope of DMP:

The purpose of this plan is to delineate the actions and roles necessary to prepare for and respond to any disaster situation in a coordinated manner. Disaster Management Plan (DMP) of DAHDF is intended to provide guidance to all related agencies within a general concept of potential emergency assignments before, during, and following emergency situations. The purpose of DMP broadly is:

- a) To supplement the efforts of States/UTs in mitigating and preventing the loss of livestock resources and economic losses to livestock owners.
- b) To mitigate the effects of the natural calamities / disasters by ensuring availability of the services and supplies such as veterinary services, fodder, water and other critical inputs /supplies.
- c) Capacity building of concerned officers and staff of the State Governments in association with the organisations and agencies involved in Disaster management.

DM Plan of DADF aims to supplement the efforts of States/UTs in managing disasters. DMP lays down the broad guidelines which would apply to emergency situations like drought, floods, cyclones, earthquakes and other man-made disasters etc. in the States/UTs. However, State specific Disaster Management Plans will have to be prepared by the respective State Governments.

Earthquake, flood, wind & cyclone and landslide hazard maps of the country provided by Building Materials & Technology Promotion Council, Ministry of Housing & Urban Poverty Alleviation, Government of India are annexed. However, these are regional maps and detailed maps have to be prepared by the respective States/UTs. These maps can only be broad guidelines to know the vulnerability on a regional scale. As drought is an important issue in case of livestock sector, States/UTs need to prepare maps on drought, drought prone areas, ground water resources in the States/UTs for efficient disaster management during drought.

This DMP would be applicable to the entire territory of India encompassing all the States and Union Territories.

3. Overview of the Department:

DADF is responsible for matters relating to livestock production, preservation, protection and improvement of livestock, dairy development and also for matters relating to the Delhi Milk Scheme and the National Dairy Development Board. It also looks after all matters pertaining to fishing and fisheries Development Board. The Department advises the State Governments/ Union Territories in the formulation of policies and programmes in the field of animal husbandry, dairy development and fisheries. The main focus of the activities is on:

- Development of requisite infrastructure in States/UTs for improving animal productivity.
- Preservation and protection of livestock through provision of health care.
- Strengthening of central livestock farms (Cattle, Sheep and poultry) for development of superior germ plasm for distribution to States.
- Expansion of aquaculture in fresh, brackish water, development of marine fisheries infrastructure and welfare of fisher folk, etc,

3.1 Organization Structure:

The Department of Animal Husbandry, Dairying and Fisheries is one of the Departments under the Ministry of Agriculture & Farmers Welfare. It came into existence on February 1, 1991 by merger of two Divisions of the Department of Agriculture and Cooperation viz. Animal Husbandry and Dairy Development into a Separate Department. The Fisheries Division of the Department of Agriculture and Cooperation and a part of the Ministry of Food Processing Industries was later transferred to this Department on October 10, 1997. The Department is under the overall charge of Hon'ble Minister of Agriculture & Farmers Welfare. He is assisted by the Ministers of State for Agriculture. The administrative head of the Department is the Secretary (Animal Husbandry, Dairying and Fisheries). Secretary of the Department is assisted by Animal Husbandry Commissioner, Joint Secretaries and Adviser (Statistics), in discharging the responsibilities assigned to this Department.

4. Authorities, Codes, and Policies:

This DMP draws its legal and statutory power from various acts, rules and policies of Government of India. Some of these are as under:

- a) **The Disaster Management Act 2005:** section 37 seeks to make it mandatory for every ministry or department of the Government of India to prepare a disaster management plan. It specifies certain aspects for which the particulars are to be included in the plan. It also provides for annual review and updating of the plan. It enjoins upon the Ministries or Departments concerned to make provision for financing of the activities specified in the plan and to furnish a status report regarding the implementation of the plan to the National Authority as and when required by it.
- b) **The National Disaster Management Policy (2009):** "Animals both domestic and wild are exposed to the effects of natural and man-made disasters. It is necessary to devise appropriate measures to protect animals and find means to shelter and feed them during disasters and their aftermath, through a community effort, to the extent possible. It is pertinent to note that many communities have shown compassion to animal during disasters, and these efforts need to be formalized in the preparedness plans. The Departments/Ministries of the GOI, such as the Department of Animal Husbandry, Dairying and Fisheries, Social Justice and Empowerment and the States concerned should devise such measures at all levels.
- c) **The National Livestock Policy (2013):** under para 13.9 mentions "Contingency plans will be prepared to maintain the productivity and welfare of livestock and poultry sector during various types of natural calamities and drought conditions. Such plans would primarily aim at improving veterinary care and making available feed and fodder through greater emphasis on fodder productivity and storage through silage of fodder blocks."
- d) **The NDMA Guidelines on Biological Disaster Management (2008 Chapter (6) on**

livestock disaster management illustrates a suggestive framework for livestock disaster management. It also prescribes a set of mitigation measures and activities mandated to be executed through respective nodal ministries.

The DMP would be updated periodically and the respective States and UTs should prepare their Disaster Management Plans in line with the DMP. The operational guidelines will be issued to all the respective States/UTs from time to time for effective implementation of the Disaster Management Plans at various administrative levels.

5. Institutional Arrangements for Disaster Management:

The DAHDF will constitute an Animal Disaster Management Advisory Committee at national level that may include representatives from relevant Ministries, Departments, knowledge institutions etc. The Advisory Committee to periodically monitor the progress on DMP, undertake technical review and may suggest appropriate measures to the Secretary, DAHDF for requisite actions. The Animal Husbandry Departments in the States/UTs may also constitute Advisory Committee on similar lines.

The Animal Husbandry Department in the States/UTs may nominate a nodal officer at the appropriate level to interact/coordinate from time to time, particularly during an emergency situation with the designated Joint Secretary/Nodal Officer in the DADF.

6. Management of DMP (Development, Approval, Implementation, Review and Revision):

The DMP will be managed by the dedicated DM cell in the DAHDF with representatives from all the line Divisions in the Department. This DM cell will take the responsibility for developing, maintaining, revising, reviewing, approving and updating the DMP, annexes etc. on annual basis. Once planning documents are developed a system of monitoring and regular maintenance will be established to ensure that they are current with the help of the Lead Executive.

7. Hazard, Risk and Vulnerability Assessment (HRVA):

India is vulnerable, in varying degrees, to a large number of disasters. More than 58.6 percent of the landmass is prone to earthquakes of moderate to very high intensity; over 40 percent million hectares (12%) of its land is prone to floods and river erosion; close to 5,700 Kms, out of 7,516 Kms long coastline is prone to cyclones and tsunamis; 68% of its cultivable area is vulnerable to drought; and, its hilly areas are at risk from landslide and avalanches. Moreover, India is also vulnerable to Chemical, Biological, Radiological and Nuclear (CBRN) emergencies and other man-made disasters. On an average, direct natural disasters losses amount to up to 2% of India's GDP and up to 12% of central government revenues. Similarly, 94,830 cattles are lost per year on an average due to floods alone in India as per the National Disaster Management Authority's (NDMA) Flood Guidelines. The losses and impact of other disasters on animals are equally significant, but are not reported or highlighted by media.

As far as livestock disaster management is concerned, the mindset of the concerned agencies in India is still response and relief centric. Considering the importance of livestock in the economy of the nation and also lives of rural population, there is a need for paradigm shift in this mindset with various mitigation and risk reduction measures given due priority. It is a well acknowledged fact that money spent on risk reduction and mitigation measures are far more cost effective than the higher combined costs of the damage and emergency relief measures. This is underlined by the United Nations International Strategy for Disaster Reduction (ISDR) estimate that every \$ 1 spent on risk reduction roughly equals to \$ 4-7 spent on emergency relief. The humanitarian and economic imperative for a risk reduction programme that aims to protect animals lies in the dependency of families, communities, poverty reduction and food security. Therefore, protection of livestock from disasters need to be given due importance.

Major Losses in India due to Disasters (2001-2013)

Year	Lives Lost	Cattle Lost	Houses damaged	Cropped area affected (in lakh)
2001-02	834	21,269	3,46,878	18.72
2002-03	898	3,729	4,62,700	21.00
2003-04	1,992	25,393	6,82,209	31.98
2004-05	1,995	12,389	16,03,300	32.53
2005-06	2,698	1,10,997	21,20,012	35.52
2006-07	2,402	4,55,619	19,34,680	70.87
2007-08	3,764	1,19,218	35,27,041	85.13
2008-09	3,405	53,833	16,46,905	35.56
2009-10	1,677	1,28,452	13,59,726	47.13
2010-11	2,310	48,778	13,38,619	46.25
2011-12	1,600	9,126	8,76,168	18.87
2012-13	984	24,360	6,71,761	15.34
2013-14	5,677	1,02,998	12,10,227	63.74

Source: MHA Annual Report 2014

8. Disaster Prevention and Mitigation:

8.1 Resources Available with the Department (Human, Infrastructure, Budget, etc.)

The Department is headquartered at Krishi Bhawan, New Delhi and having sanctioned staff strength of total 325 officers and staff which includes 150 and 42 posts in Group "A" and "B" gazetted officers. Further, there are 79 and 96 Group "B" non-gazetted and Group "C" posts respectively.

Sector-wise details of Plan allocation in the last three years and current year are given below:

Sector-wise 12th Plan Outlay and Annual Plan Allocations

(Rs. in crore)

Sector	12 th Plan Outlay	2012-13	2013-14	2014-15	2015-16
		BE	BE	BE	BE
Animal Husbandry	7829.00	1063.10	1051.49	1118.57	501.58
Dairy Development	3781.00	392.00	580.01	566.47	506.00
Fisheries	2483.00	340.70	371.50	480.96	476.95
Secretariat & Economic Services	35.00	7.00	7.00	8.00	6.61
Special Package	51.00	35.00	15.00	0.00	0.00
Grand Total	14179.00	1910.00	2025.00	2174.00	1491.14

8.2 Mapping of Department's Resources

Assistance for various activities under Disaster Management Plan can be provided under different components of the ongoing schemes of the Department. As the budgetary provision of the Department for 2015-16 has been reduced drastically and existing allocation is not adequate to meet the normal activities/commitments, no separate budget can be earmarked for disaster management. However, with in the allocated resources, assistance can be provided to disaster affected States on priority basis as per the existing norms of the ongoing schemes of DADF.

Flexi Funds: - The Ministry of Finance has given detailed guidelines by their circular dated 6th January 2014, earmarking 10% of funds of centrally sponsored release as 'Flexi Fund', part of which may be utilized for disaster mitigation or for restoration works activities according to the State specific need subject to procedural compliance codal formalities approval of the competent authority. Such mainstreaming plan provision would address the issue appropriately to supplement the efforts of the affected State at some degree.

8.3 Measures for Disaster Prevention and Mitigation

The DADF will select preventive action strategies based on the nature and intensity of the disaster's impact on the animal population. Indicative steps for preventive action selection are as follow

- Analyze the hazard
- Determine prevention/protection action

- Determine public warning
- Determine prevention/protective action implementation plan

9. Pre-disaster preparedness

9.1 Early warning plan

Based on forecast by Ministry of Earth Sciences, Indian Meteorological Department, Department of Space, Indian Space Research Organisation, Central Water Commission and other agencies for various types of disasters, States/UTs will take preparatory steps to ensure availability of feed, fodder, drinking water, medicine and vaccination for livestock and for required preparedness in the areas of fisheries and aquaculture activities. DADF will also alert the States/UTs for taking appropriate measure as per the Disaster Management Plan.

9.2 Identification of Vulnerability amongst livestock and Aquaculture Farms

- a) State Animal Husbandry and Fisheries Departments have to assess and review the impact of different disasters on livestock and develop surveillance and control strategies using epidemiological information and tools, geographic information systems (GIS) and risk assessment and risk mapping methodology.
- b) For identification of resources for rescue and treatment of animals during disasters, States/UTs will take the following measures:
 - i) Assess available manpower i.e. Veterinary doctors, Para veterinarian staff, and ancillary staff.
 - ii) Review disaster management preparedness of Veterinary medical facilities such as veterinary hospitals, mobile veterinary units etc.
 - iii) Provision of adequate storage of Medicine, Vaccines, Surgical and Veterinary Appliances, Diagnostics, Personal Protective Equipments (PPEs), life saving equipments etc.
 - iv) Ensure the logistical requirements such as fuels, lighting equipment, tents, sheds, bedding, trolleys, and material for sanitation, storage of feed and fodder and water.
 - v) Arrangements for Ambulance and outreach facility for sick and injured animals.
 - vi) Identification of disease diagnostic and control measures for fish diseases.
 - vii) Assessment of existing animal handling search and rescue capacity, equipment, infrastructure facilities and related resources available at State and District levels.

9.3 Cattle camps

- a) Identification of sites for cattle camps and sheds with basic facilities like feed, fodder, water and medicines etc.
- b) Promotional herd health care such as nutrition, pregnant animal care, care of new-born and young animal etc.
- c) Arrangements for rehabilitation of animals to recover from any trauma or fear.
- d) Provision of dry bedding for all the animals including new borns.
- e) The identified locations should be safe and easy to access by all species of animals.

9.4 Pre-flood Vaccination in flood prone areas

- a) Mass vaccination and de-worming of animals for economically important animal diseases prior to monsoon and as per schedule of vaccination against specific diseases.
- b) The animals should be identified/marked by proper documentation to avoid duplication after vaccination programme.

9.5 Feed and Fodder Supply

- a) DADF will issue detailed advisory to all the States/ UTs for taking necessary measures for increasing the availability of fodder based on latest knowledge and technical knowhow in the field of fodder.
- b) List of forage grasses, legumes, shrubs and trees for grassland / grazing land improvement on agro-ecological basis which can be grown in different agro- climatic zones of the country prepared by DADF to be shared with States.
- c) Regional Fodder Stations located in different agro-climatic zones of the country to provide seeds produced by them to States for growing fodder crops.
- d) States to prepare Contingency Plan for adequate supply of fodder and fodder seeds in the affected areas and to monitor fodder prices so that appropriate interventions at the ground level can be made to ensure availability of fodder for livestock.
- e) States/ UTs should take appropriate measures for safe stocking of the feed and fodder for emergency supply.

8.6 Availability of Drinking Water

Ensuring adequate drinking water supply for animals.

8.7 Supply of Milk and milk products in disaster prone areas

- a) State Milk Federations to be advised to hold minimum 10 days inventory in the form of milk powder and white butter to meet out any emergency demand/shortage.
- b) New and alternative milk procurement & supply routes to be developed by States to provide access for milk and milk products movement during disaster situation.

8.8 Fisheries & Aquaculture

- a) Protection of inlet and outlet of aquaculture farms and ponds
- b) Distress harvesting to mitigate economic losses
- c) Preparedness for protection of electrical and mechanical installations in hatcheries and farms
- d) Securing brood stock
- e) To conserve aquaculture particularly during drought, the following water conservation strategies to be adopted:
 - i) Recycling of the effluent water
 - ii) Reducing Evapo-transpiration
 - iii) Reducing seepage
 - iv) Water quality management
 - v) Reducing water exchange
- f) DADF will assist States/UTs in imparting training to fishers and fish farmers in disaster mitigation measures in collaboration with NDMA, NIDM and other agencies.
- g) DADF will provide financial assistance to State Governments for conservation and raising awareness about conservation of fisheries resources.

9.9 Poultry Management

States/UTs to update information on vulnerable spots/ risks related to disasters/ calamities and prepare contingency plan for adequate availability of poultry feed and ingredients.

The following precautions are recommended for the poultry management during disasters:-

- a) Ensuring adequate water supply for birds. Adding chlorine to water will prohibit the growth of bacteria. This chlorinated water should be stored in large containers, away from sunlight.

- b) Farms should be equipped with overhead sprinkler systems, which minimise smoke inhalation, cool the air and reduce the chances of burn injuries.
- c) Farms should have enough carriers to evacuate all birds during emergencies.
- d) Birds should not be left exposed to smoke and fumes, as they are very sensitive to smoke and fumes and succumb much more quickly than most other animals.
- e) Birds should be checked for injury and chemical exposure, and a veterinarian should be consulted if necessary. Any bird showing signs of lethargy, loss of appetite, depression or injury should be examined by a veterinarian.
- f) In case birds are moved to a new surrounding, they should not be removed from their cages immediately, as they may be frightened and may fly away. Keeping the birds warm can reduce stress, so if electricity is available, heating should be provided, if not, blankets placed over the cages will have a similar effect.

DAHDF has a dedicated Action Plan for rapid response for prevention, control and containment including surveillance of Avian Influenza (AI) in the country.

9.10 Disposal of Carcass

Identification of equipments, logistics, manpower and possible sites for safe disposal of carcass by following zoo sanitary measures.

9.11 Capacity Building for disaster management

- a) Designating State Departments as nodal agency for each specific activity during disasters by the State Governments.
- b) Training requirement analysis and Development of training modules for veterinary professionals in collaboration with NDMA and NIDM, NDRF, Veterinary Colleges & NGOs by the State Governemnts.
- c) Training of veterinary personnel, paravets, attendants, SDRF and Civil defence personnel etc. in livestock disaster management.
- d) Animal owners to be trained by District Administration, NDRF. SDRF regarding handling of animals during such disasters.
- e) Animal Health awareness for animal owners, social workers, volunteers.
- f) Conduct of mock exercises on regular basis as per State specific needs based on their DM plan by State Governments.
- g) Establishing emergency communication channels, alternate channels like Ham radios.

- h) Inclusion of training module on disaster management under the training and capacity building component of the on-going schemes of the DADF for training of officers, trainers, farmers and cattle owners on mitigation of risk of disaster on livestock and fodder.
- i) A module or section on Disaster Management may be incorporated in the relevant trainings of trainers at Central Poultry Development Organization & Training Institute (CPDO&TI), Hessarghatta and also at other CPDOs for basic disaster-time handling by small and marginal farmers as per disaster profile of the region.

9.12 Efforts for community participation and mass mobilisation of resources in DM:

- a) 29th October of each year is observed as the disaster mitigation day in fisheries sector. On this particular day, public awareness programme to be organized with participation villagers along with Panchayati Raj Institution (PRI) members to spread awareness about management of fisheries resources during disasters through poster, leaflets, pamphlets etc..
- b) States to ensure ensuring better and close coordination between various Departments involved in DM and Programme Implementation Agency for different Central and State livestock development schemes in disaster prone areas.
- c) Participation of local people and PRI in assessment, design and implementation of State DM Plan.
- d) Participation of Veterinary Colleges, N.G.Os, media, Goshalas, animal welfare organisations and SHGs in disaster management.
- e) In case of drought-prone areas the plan for drought preparedness and response should form part of ongoing livestock development schemes with the assumption that periodic droughts will occur during the project cycle.
- f) Streamlining/simplification of the procedure for release of assistance in case of emergency.

9.13 Animal population profile:

State-wise Animal population profile and distribution should be prepared and integrate vulnerability map with livestock profile for better disaster management.

10 Disaster Response

10.1 Effective and prompt Response

- a) The Animal Husbandry Departments at State/UTs will take requisite measure to constitute, train and equip veterinary emergency response units at state and district levels for prompt response to any emergency situation along with SDRF and NDRF. These Veterinary

Emergency Response Units may be trained by NDRF and resource persons from state level veterinary colleges.

- b) Community being the first responder, the state level veterinary emergency response unit along with SDRF and NDRF will conduct community capacity building and awareness generation programme in the vulnerable areas.
- c) Assistance of Civil Defence, NGOs, Veterinary College, SDRF, NDRF, Veterinary wing of CPMFs (Central Para Military Forces) and Remount & Veterinary Corps (RVC) in rescue of livestock.
- d) State/UTs will organise cattle shed/shelter for livestock to save them from adverse climatic conditions depending on the nature of disaster like earthquake, cyclone and Tsunami etc.
- e) Fluid therapy and treatment of sick/injured animals along with availability of adequate vaccine against prevailing animal diseases and due to impacts of earthquake, flood, tsunami, and drought etc.

10.2 Rescue of Animals:

- a) SDRF, NDRF, Veterinary wing of CPMFs, RVC and other specialised agencies organizations/institutes shall assist State AHDs in livestock rescue and management during different disasters.
- b) State AHD will constitute Animal Rescue Teams and provide requisite training to team members.
- c) Training of animal owners for rescue of livestock during disaster should be imparted by District Authorities by involving NDRF, SDRF, NGOs and specialised agencies organisations in rescue and handling of animals.
- d) Arrangements for provision of life saving equipments and rescue of animals, transportation of feed, fodder, medicine and vaccine.
- e) Animals to be carefully shifted to suitable safer locations. Poultry birds are shifted with the help of bamboo cages to temporary pen. The dead birds should be segregated from the live ones.
- f) As far as possible the animal camps should be organized near human relief camps so that owners can take care of their animals and manage them better.

10.3 Arrangement for drinking water for animals:

- a) Ensuring availability of safe and clean drinking water for animals and poultry.
- b) Adequate water supply will be ensured by efficient use of available water resources, rehabilitation of existing water resources and transporting of water from outside,

required. Fish farmers to be allowed to draw intake water from the irrigation channel during drought situation.

10.4 Treatment of injured/sick animals:

- a) Arrangement for treatment injured/sick animals and including adlib fluid therapy, preventive vaccination in healthy animals against prevailing disease preventive vaccinations.
- b) Shifting of animals from flooded and devastated areas to safer places to save them from diseases.
- c) Post disaster, animals like cattle, buffalo, sheep, goat, pig dog and poultry need to be de-wormed with suitable broad spectrum anthelmintic to enable animals to regain proper health.

10.5 Livestock/Poultry Feed and Fodder supply:

- a) During drought, cyclone, flood and hailstorm, State Govts may avail assistance under Feed and Fodder Development, Sub-Mission of National Livestock Mission to augment feed and fodder supply.
- b) Eight Regional Fodder Stations located in different agro-climatic zones of the country are producing foundation seeds. Fodder seeds and technical knowhow on fodder will be made available to States by these Stations.
- c) Department supports fodder cultivation and post harvest technologies under the RKVY programme. For mitigation of natural calamities like drought etc Assisted Fodder Development programme has been launched under RKVY, under which financial assistance is provided for growing fodder.
- d) To deal with the short term shortage of fodder during Cyclones, sudden floods, hailstorm and drought, low cost transport arrangements will be coordinated for transportation of fodder from surplus States/ Regions to deficit States/ Regions.
- e) Department of Animal Husbandry, Dairying and Fisheries will identify fodder surplus States and facilitate agreement between such States and fodder deficit States for purchase of fodder. Railway Authorities will be roped in for transportation of fodder from surplus to deficit areas.
- f) Milk Federations/milk union to be advised to enhance production of cattle feed and fodder blocks to meet the demand of feed and fodder in drought affected areas.
- g) Enrichment of straws using urea- molasses treatment to meet protein and energy requirements of animals.
- h) States should regulate industrial use of straws so that large quantities of straws are

available for feeding animals in draught affected areas. States to establish fodder banks in drought and flood affected areas to meet the demand of farmers in case of emergency.

- i) Newer technologies and improved scientific practices for feed and feed fodder preservation for emergency supplies to be adopted. **(Refer Annexure-A)**

10.6 Maintenance of Sanitation:

- a) Disinfection of premises of temporary sheds with bleaching powder, phenol, carbolic acid etc.
- b) Carcass/ cadaver should not come in contact with healthy animals.
- c) Disinfection and treatment of intake waters and effluent water in aquaculture farms.

10.7 Measures against epidemics and diseases during Disaster

- a) The most common diseases during drought and flood periods are Foot and Mouth disease, Hemorrhagic septicaemia, Black Quarter, Anthrax, Enterotoxaemia, Colibacillosis, Surra, Trypanosomiasis, Babesiosis, Anaplasmosis, Pox disease, Mastitis, Brucellosis, Ringworm, Ascariasis, Fascioliasis, Microfilariasis, Tick infestation and mange etc. To control and prevent these diseases, following measures are to be adopted:
 - i) **Vaccination:** In disaster conditions animals become more susceptible to diseases due to stress and thus all vaccination schedules should be followed.
 - ii) **Deworming:** To check the parasitic infestation regular deworming to be followed.
 - iii) **Disinfection of animal sheds by insecticidal spray:** disinfection of animal sheds to be done with the compounds like lime powder, alum, formalin, sodium bicarbonate, Bleaching powder, Copper sulphate, phenol gases like HCl, formaldehyde etc. For control of ticks, flies, mosquitoes, lice etc. various insecticides like methrin, melathion, Fenvalarate, Amitraz, etc. may be used.
- b) All infectious aquatic diseases listed in the Prevention and Control of Infectious and Contagious Diseases in Animals Act, 2009 will be actively monitored under National Surveillance Programme for Aquatic Animals Diseases (NSPAAD) and general preventive measures such as liming of ponds, treatment of intake water including chlorination would be adopted.
- c) To minimise the losses in aquaculture, the feeding and production strategies would be revised to suit the available conditions.

10.8 Supply of Milk and milk products in disaster affected areas:

DADF will coordinate the efforts of States to ensure supply of milk powder, baby food, extra shelf life milk etc. to the affected areas through State Milk Federations and semi-government organisations.

11 Post Disaster Plan

11.1 Disease Surveillance:

- a) Visit of Disease Surveillance Teams to disaster affected areas to make active surveillance about any disease occurrence in livestock and aquatic animals.
- b) Collection, testing and confirmation of samples and taking necessary steps for preventing spread of infection.
- c) States to compile epidemiological and statistical information collected before, during and after disaster and to take preventive actions and to monitor preparedness constantly.
- d) Intensified surveillance of aquatic animal diseases in the disaster affected areas under National Surveillance Programme for aquatic Animal Diseases(NSPAAD)

11.2 Disposal of Carcass:

Arrangement for safe disposal of carcass by following zoo sanitary measures and to be made by respective State AH Departments. State AHD will constitute Animal Carcass Retrieval Teams and provide requisite training to team members. Detailed procedure for Disposal of Dead Poultry Birds is at Annexure- B

11.3 Animal Waste Disposal:

Improper disposal can enhance pest or vector problems. Preparation of compost or digging the manure pit be considered for disposal of animal waste. During prolonged stagnation of flood water, duck rearing and fish farming can be considered as the means of pest control. Small manure gas (or gobar gas) units can also be set up.

11.4 Restoration of fisheries infrastructure and resources

- a) Reconstruction/renovation of fish ponds and hatcheries
- b) Supply of brood stock, seed, fingerlings and feed
- c) Providing of boats, nets and fishing equipments

11.5 Restocking/ repopulation of Livestock/ Animals

- a) **Induction of high genetic merit animals**
Sourcing from: i) other States, ii) bull mother farms iii)Central Cattle Breeding Farms
- b) **Induction of bulls for natural service**
 - i) Indigenous
 - ii) Crossbred
 - iii) High genetic merit

- c) Organizing fertility camps in disaster-affected areas to overcome reproductive inefficiency in milch animals so that the calving is not delayed.
- d) **Induction of small ruminants- sheep, goat and pigs**
- e) **Induction of ram, buck and boar for natural service**
- f) **Repopulation of backyard poultry sourcing from Central Poultry Development Organisations and State Poultry farms**

11.6 Extension of Artificial Insemination Services

- i) Establishment of MAITRIS as per the State requirements.
- ii) Training and retraining of AI workers
- iii) Provision of AI facilities in veterinary dispensaries without AI facilities

11.7 Estrus synchronization of existing bovine population

Assistance to States for conservation and development of specific indigenous bovine breeds: States/UTs can avail assistance under following programme/schemes of DADF to conserve and develop their specific indigenous bovine breeds:

- a) Existing National Programme for Bovine Breeding & Dairy Development (NPBBDD) for genetic upgradation of bovine population. Project has a focus on development and conservation of indigenous breeds which are more resistant to environmental fluctuations.
- b) "Rashtriya Gokul Mission" an initiative under National Programme for Bovine Breeding and Dairy Development has been launched with the aim to conserve and develop indigenous bovine breeds.
- c) National Kamdhenu Breeding Centres are being set up one each in Andhra Pradesh and Madhya Pradesh which will serve as gene banks and repositories of indigenous breeds.

11.8 Assistance for Renovation and maintenance of Milk Processing plants:

- a) States/State milk Federation may avail financial assistance for establishment/modification/strengthening of dairy plants, chilling centres marketing infrastructure, organisation of new dairy cooperative under National Programme for Bovine Breeding and Dairy Development scheme of DADF.
- b) Dairy Entrepreneurship Development Scheme through which cattle induction can be taken up in the disaster affected areas.

Abbreviations

AI	Artificial Insemination
CBRN	Chemical, Biological, Radiological and Nuclear
CPMFs	Central Paramilitary Forces
DADF	Department of Animal Husbandry, Dairying and Fisheries
DM	Disaster Management
HRVS	Hazard Risk Vulnerability Assessment
IMD	Indian Metrological Department
ISDR	International Strategy for Risk Reduction
MAITRIS	Multi-purpose AI Technician in Rural India
NADMP	National Animal Disaster Plan
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
NIDM	National Institute of Disaster Management
NPBDD	National Programme for Bovine Breeding & Development
NSPAAD	National Surveillance Programme for Aquatic Animal Disases
PRI	Panchayati Raj Institutions
RKVY	Rashtriya Krishi Vikas Yojana
RVC	Remount and Veterinary Corps
SDRF	State Disaster Response Force
SOP	Standard Operation Procedures

Feeding Technologies To Be Used During Disaster

Different feeding technologies to be adopted to meet the challenge of fodder scarcity during disaster:

- a) **Straw to be supplemented with concentrate mixture and other local feed resources:**
Supplements such as minerals or proteins can be used to enhance rumen fermentation leading to increased intake and digestibility.
- b) **Urea treatment of straws;**
Urea-treated straw saves on concentrate feeding, increases milk yield, offers better economic returns to the farmers and help in reducing land area required for green fodder production.
- c) **Urea molasses liquid diet (UMLD):**
Molasses can be used as a potential drought/scarcity feed after supplementing deficient nutrients viz. protein, minerals and vitamins.
- d) **Urea molasses mineral block (UMMB):**
UMMB blocks can be stored, transported and distributed as against the common bulky diets during disaster.
- e) **Compressed complete feed block (CCFB):**
Complete feed is a system of feeding concentrates and roughages together in blended form. Minimizing feed cost and labour cost and maximizing production is the need of time and can be achieved by complete feed system. This system is economical and efficient as it allows inclusion of low cost agro industrial by-products and low quality crop residues with their efficient utilization.
- f) **Silage technology for scarcity during various disaster:**
 - i) Ensiling paddy straw, fruit factory waste and poultry droppings: these by-products which cause a great disposal problem can be ensiled with paddy straw and poultry droppings.
 - ii) Ensiling paddy straw and poultry droppings: Paddy straw, poultry dropping, green grass and molasses on dry matter basis form very good silage and is highly relished by animals.
- g) **Use of sugarcane crop residue as animal feed:**

By-product of sugarcane i.e. sugarcane tops, sugarcane bagasse, molasses can be fed to cattle and buffaloes during scarcity period. Urea when used for treatment of bagasse enhances its nutritional quality. However; its digestibility can be increased by steam treatment.

h) **Tree leaves and vegetable leaves:**

Leaves of neem, mango, banyan, pipal, babul, subabul, mahuva, etc. can be used as green fodder which are good source of protein, calcium and Vitamin A. Vegetable leaves and creepers like cabbage, cauliflower, and potato are rich source of crude protein and soluble sugars which can be used as animal feed during scarcity.

i) **Crop residues:**

Treated crop residues can form a good maintenance diet for livestock.

- i) Best Crops techniques to be adopted so that crop-weed competition for water gets reduced.
- ii) Identification of more than one supply chain for feed and fodder so that failure of single supply source does not disrupt the rescue/relief operations
- iii) Proper sanitary and phyto-sanitary of feed and fodder is required to stop the ingress of crop /animal disease in the disaster affected areas.
- (iv) Feeds not to be fed exclusively during such calamities:

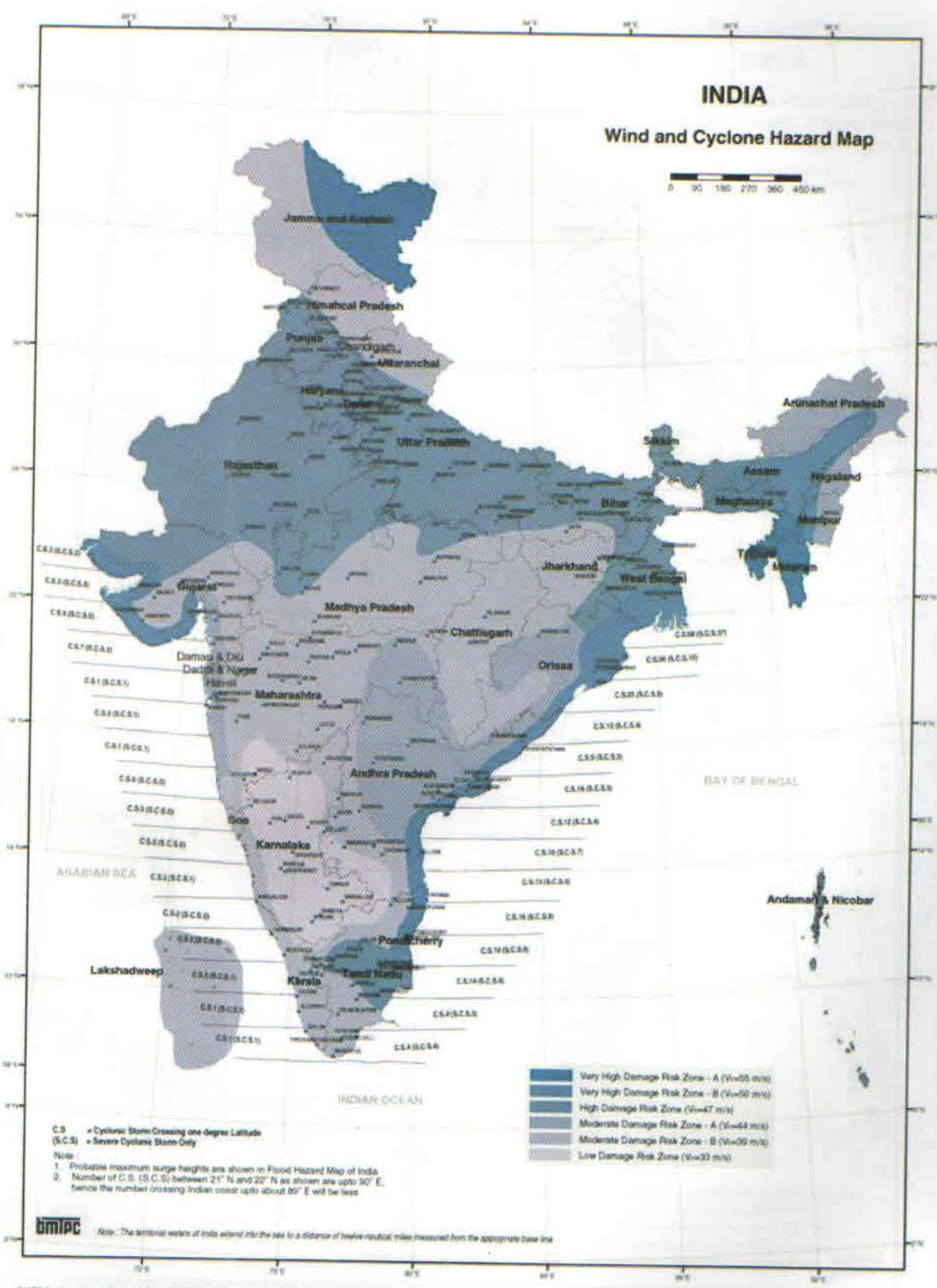
At the end of scarcity period, animals usually develop craving for food and eat uncontrolled access to herbage. Thus, it is desired to be careful in feeding the farm animals after the flood water has receded. Newly grown grasses which contain high concentration of nitrite and nitrate should be fed in small quantity mixed with dry roughages like paddy straw and wheat straw.

Disposal of Dead Poultry Birds

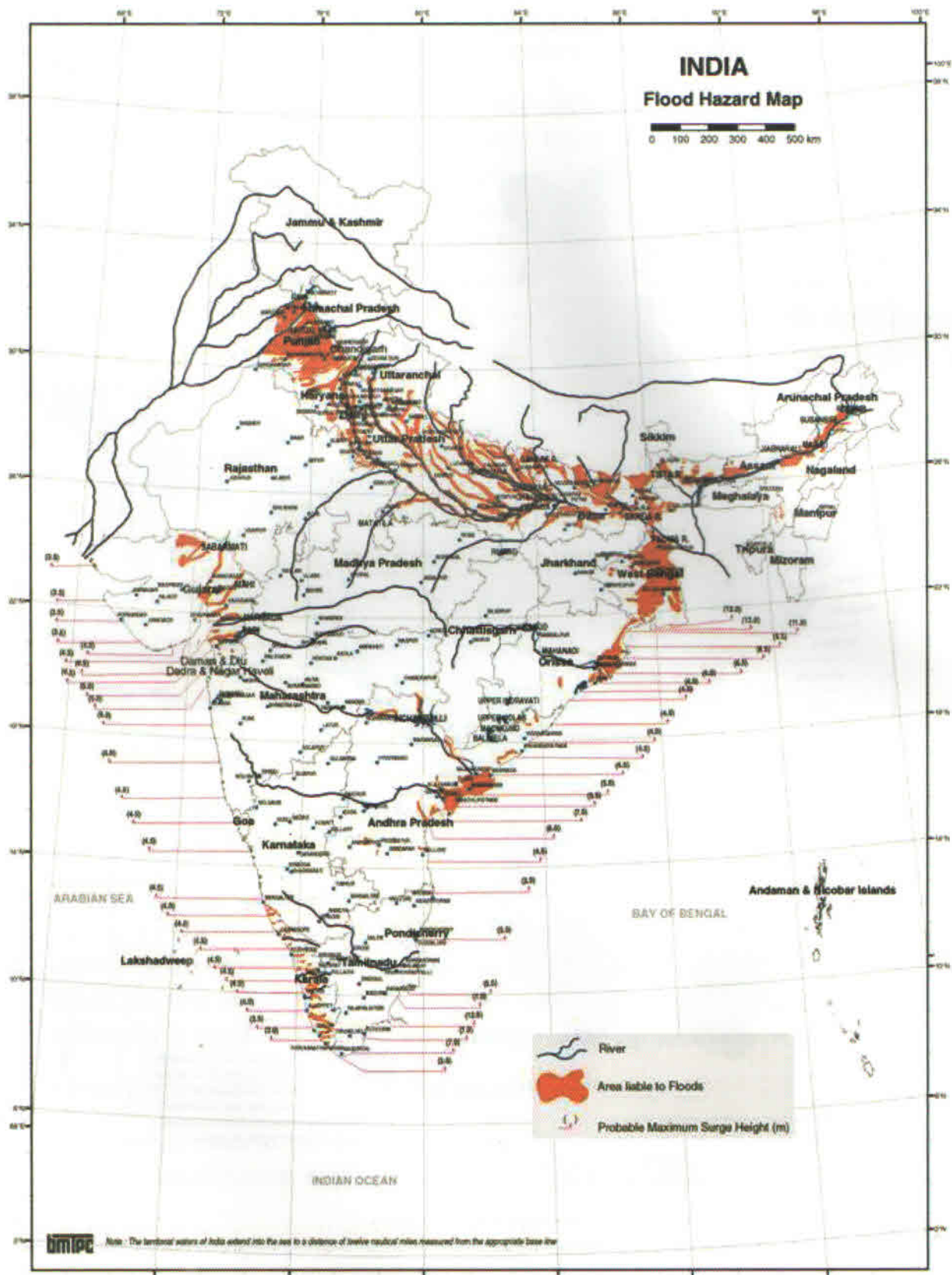
Most appropriate is to burn or incinerate the dead / sacrificed birds. Approximately 5 quintals of fuel wood would be required to burn 100 kg of dead birds. However, the most common practice in the recent outbreaks has been to bury in deep pits, cover with calcium hydroxide followed by at least 40 cm layer of soil. More layers of lime and soil can be applied to level the pit. A pit of 2x2x2 meters will accommodate around 1800 birds (fowls) and about 450 turkeys. Pits must be deep enough to prevent access to rodents or dogs etc. The burial ground is suitably marked and is not opened for at least one year. Top it up with earth and lime if it sinks over time. A certificate of disposal of birds must be obtained from the designated officer. The burial site should be away from the habitat and water logged areas/ ponds/ rivers etc.

Sites for disposal of birds and its management

- a) For proper management, pits should be dug on a common land within the infected zone, in limited numbers.
- b) All the pits should be well covered with multiple layers of lime and soil.
- c) Adequate amount of lime should be spread over the pits.
- d) The pit sites should be fenced with kanta/ bushes.
- e) Permanent warning signboard should be fixed in all the pit sites.
- f) The pits should be monitored at regular intervals to check any sinking, water accumulation etc. and if necessary, steps be taken as mentioned above.
- g) The pits should be located on the farm premises, and in case of backyard, a village common land/ forest land preferably be at a higher level, to avoid accumulation of water during rainy season. Pits should be located away from river/ lake side and residential areas. No crop should be grown further for at least one year on the pit site. During digging of the pits, it should be ensured that no water is oozing out of the pit.
- h) All the pits should be dug one day in advance of the culling.
- i) To minimize risks to the environment and human health by way of leaching etc., the environmental impacts of the construction methods of pits should be carefully adopted.



BMIPC : Vulnerability Atlas : Civil Edition, Pwrr Group, MHSUPA. Map is Based on digitised data of SCL, GOI / Basin Wind Speed Map, IS 875(3) - 1987, Cyclone Data, 1977-2005, IMD, GOI



INDIA

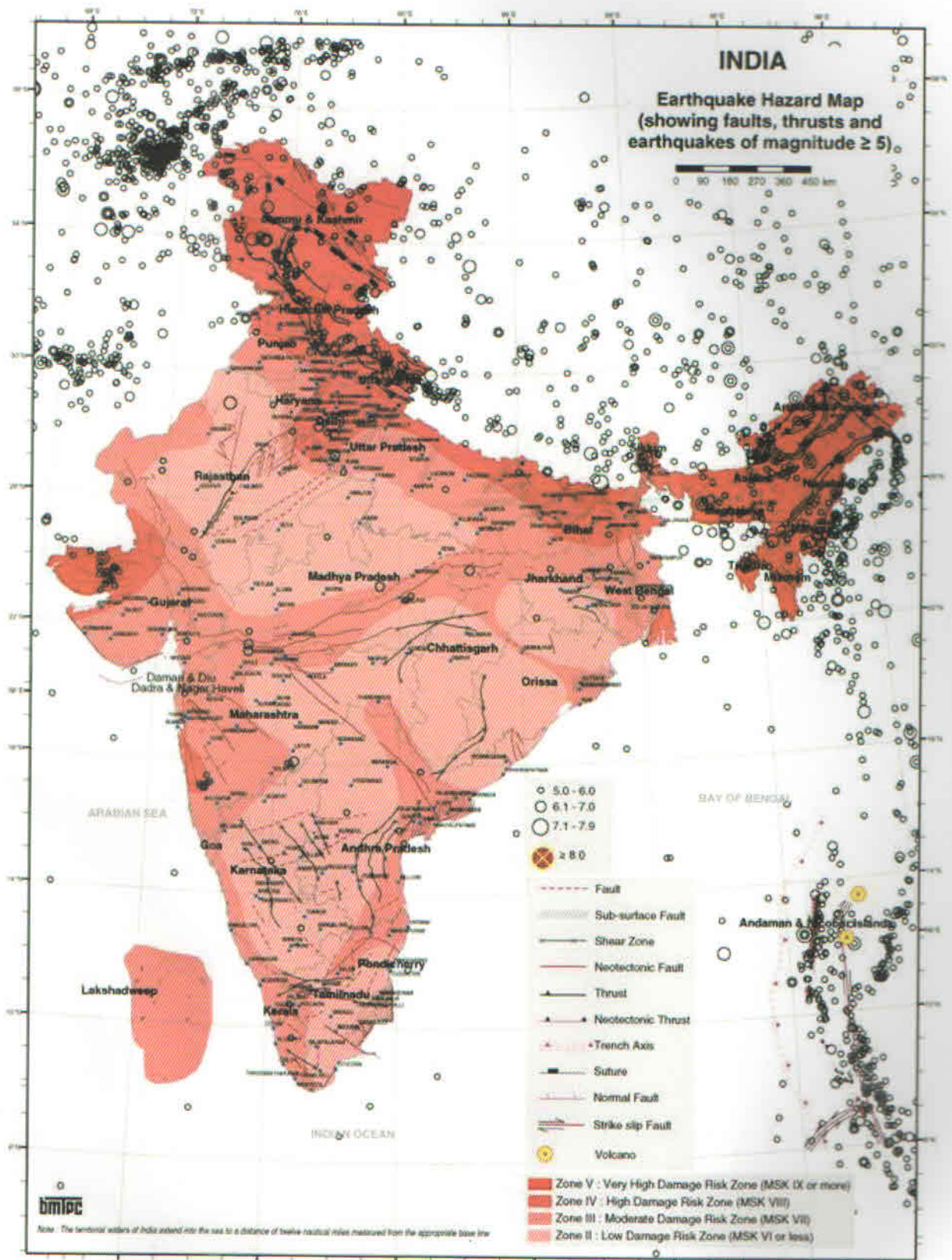
Flood Hazard Map

0 100 200 300 400 500 km

 River
 Area liable to Floods
 Probable Maximum Surge Height (m)

 Note: The territorial waters of India extend into the sea to a distance of twelve nautical miles, measured from the appropriate base line

BMIPC; Vulnerability Atlas - 2nd Edition; Peer Group, MoHA/UPA; Map is Based on digitized data of SOI, GOI; Flood Atlas, Task Force Report, C.W.C., G.O.I.



BMTPC : Vulnerability Atlas - 2nd Edition; Peer Group, MoHA/UPA; Map is Based on digitised data of SGI, GCI; Seismic Zones of India Map IS:1993 - 2002, BIS, GCI, Seismotectonic Atlas of India and its Environs, GSI, GCI