




जहाँ है हरियाली ।
जहाँ है सुखवासी ॥

National Workshop on Chemical Disaster Management

Chhanda Chowdhury
Ministry of Environment and Forests
Government of India
New Delhi
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Structure of the Presentation

- Recent International Developments in Chemicals Management.
- National Legislations on Chemical Accidents
- Chemical Crisis Management Setup & status of Implementation of Legislations
- Projects and Programs undertaken by Ministry of Environment & Forests.
- Key Issues

Developments at International Level

- ROTTERDAM CONVENTION-1998/ 2002 / 2005
- STRATEGIC APPROACH TO INTERNATIONAL CHEMICALS MANAGEMENT (SAICM). 2006
- STOCKHOLM CONVENTION 2001/ 2004/ 2006

National Legislations on Chemical Disaster Management

- Factories Act, 1948 amended 1987
- Public Liability Insurance Act, 1992.
- Chemical Weapon Convention (CWC) Act, 2002
- Disaster Management Act, 2005
- Environment (Protection) Act. 1986

MSIHC Rules, 1989 & Chemical Accidents (EPPR) Rules 1996

- MSIHC Rules, 1989 as amended in 1994, &2000
- Chemical Accidents (EPPR) Rules 1996
 - Constitution of:
 - Central Crisis Group
 - State Crisis Group
 - District Crisis Group
 - Local Crisis Group
- Industrial Associations to help preparation/update of off-site emergency plans

Chemical Crisis Management System

- Constitution of Central Crisis Group at the Centre
- Setting up of a Crisis Control Room
- Publication of Red Book
- Programmes and Activities

Other Statues for Hazardous Substance Management

The Indian Explosives Act, 1908
 The Poisons Act, 1919
 The Petroleum Act, 1934
 The Drugs and Cosmetics Act, 1940:
 The Inflammable Substance Act., 1952
 Prevention of Food Adulteration Act, 1954
 The Insecticide Act, 1968
 Water prevention and Control of Pollution) Act, 1974
 Air (Prevention and Control of pollution) Act, 1981:
 Environment (Protection) Act., 1986
 Central Motor Vehicles Act 1988
 National Environment Tribunal Act, 1995
 National Appellate Authority Act , 1997

Status of Implementation of Law

As on 25th September 2008

STATES	MSHC RULES, 1989				CA(EPPR), RULES, 1996-Crisis Groups Constituted		
	MAH Units	Distt. with MAH units	On-Site Plans Prepared	Off-Site Plans	State	Distt.	Local
A&N	3	1	3	0	Not Const.	Not Const.	Not Const.
A.P.	132	23	125	8	Constituted	Constituted	Constituted
Arunachal	No MAH Unit	-	-	-	-	-	-
Assam	28	11	27	11	Constituted	Constituted	Constituted
Bihar	20	8	20	0	Constituted	Not Provided	Not Const.
Chandigarh	No MAH Units				Constituted	Constituted	Constituted
Chhatisgarh (2005)	19	5	18	5	Constituted	Constituted	Constituted
Daman & Diu	No MAH Units				-	-	-
Dadra & N.H.	No MAH Units				-	-	-
Delhi	18	7	15	7	Constituted	Constituted	Constituted
Goa	16	2	16	2	Constituted	Constituted	Not Necessary
Gujarat	537	22	513	22	Constituted	Constituted	Constituted
Haryana	52	12	Not clear	Not clear	Not clear	Not clear	Not clear
H.P.	Information not received				Not Received	Not Received	Not Received
J&K (2004)	11	5	8	5	Not Const.	Not Const.	Not Const.
Jharkhand (Old)	Information not received				Not Received	Not Received	Not Received
Karnataka	77	15	77	15	Constituted	Constituted	Constituted
Kerala	38	8	38	8	Constituted	Constituted	Constituted
Lakshdweep (2004)	No MAH Units				No MAH Units	No MAH Units	No MAH Units
M.P.	71	20	71	20	Constituted	Constituted	Constituted

STATES	MSHC RULES, 1989				CA(EPPR), RULES, 1996-Crisis Groups Constituted		
	MAH Units	Distt. with MAH units	On-Site Plans Prepared	Off-Site Plans	State	Distt.	Local
Maharashtra	347	23	305	23	Constituted	Constituted	Constituted
Manipur (Old)	Information not received				Not Received	Not Received	Not Received
Meghalaya	2	1	2		Incomplete Information	Constituted	Not Constituted
Mizoram (Old)	No MAH Units				No MAH Units	No MAH Units	No MAH Units
Nagaland (2006)	3	2	1		Incomplete Information	Not Constituted	Not Constituted
Orissa	31	12	31	6	Constituted	Constituted	Constituted
Puduchery	3	2	3	1	Constituted	Constituted	Constituted
Punjab	60	12	59 (1 Closed)	6	Constituted	Constituted	Constituted
Rajasthan	107	16	107	11	Constituted	Constituted	Constituted
Sikkim (Old)	No MAH Units				No MAH Units	No MAH Units	No MAH Units
Tamil Nadu	137	24	109 (22 Closed, 6 N.P.)	5	Constituted	Constituted	Constituted
Tripura	2	1	2		Incomplete Information	Constituted	Constituted
Uttar Pradesh	121	38	114	4	Constituted	Constituted	Constituted
Uttarakhand	29	4	4	0	Not Constituted	Not Constituted	Not Constituted
West Bengal	85	12	85	0	Constituted	Constituted	Constituted
Total	1949	286	1607	159			

Major Chemical Accidents Reported during 2002-2008

State	Nos of Accidents	State	Nos of Accidents
Andhra Pradesh	08	Maharashtra	21
Assam	02(one terrorist)	Punjab	04
Delhi	01	Rajasthan	01
Gujarat	15	Tamil Nadu	03
Haryana	02	Uttar Pradesh	05
Jharkhand	02	Uttarakhand	14
Kerala	02	West Bengal	04
Madhya Pradesh	03	Total =87	

States/ UTs with No Accidents (2002-2008)

S No	States	Remarks
1	ANDAMAN & NICOBAR ISLAND	No Accidents
2	BIHAR	No Accidents
3	CHATTISGARH (as reported till 2007)	No Accidents
4	GOA	No Accidents
5	KARNATAKA	No Accidents
6	MEGHALAYA	No Accidents
7	NAGALAND (as reported till 2007)	No Accidents
8	ORISSA	No Accidents
9	PUDUCHERY	No Accidents
10	TRIPURA	No Accidents
11	JAMMU & KASHMIR	Not Available
12	MANIPUR	Not Available
13	HIMACHAL PRADESH	Not Available

(No MAH Units: Mizoram, Lakshdweep, Sikkim, Daman & Diu, Dadra & Nagar Haveli, Arunachal, Nagaland)

Status of Crisis Group- September 29, 2008

Crisis Group Constituted for State, District and Local (All three)	Andhra Pradesh, Assam, Delhi, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Puducherry, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal, Chandigarh and Chattisgarh(2005)
Crisis Group Constituted for State and District (Two)	Goa
Crisis Group Constituted for State (one)	Bihar, Meghalaya
Crisis Group Not Constituted	Andaman & Nicobar Island, Jammu & Kashmir(2004), Nagaland(2006) and Uttarakhand
No MAH Units	Arunachal, Daman & Diu, Dadra & Nagar Haveli, Lakshdweep (2004), Mizoram (Old), Sikkim (Old) and Chandigarh
Info Not Received/ Info Not Clear	Haryana, Himachal Pradesh, Jarkhand(Old), Manipur(old)

Programs & Activities Ministry of Environment & Forests

Programmes & Activities

➤ Financial assistance:

- National Fire Service College, Nagpur
- National Civil Defense College, Nagpur
- Office of Chief Inspector of Factories of: NCT Delhi, MP, Andhra Pradesh, Assam, Gujarat, Maharashtra, Tamilnadu, Orissa, Kerala, Rajasthan, etc.

➤ Training and Awareness

- National Chemicals Management Profile
- 347 isolated storages identified-MAH Installations

Vulnerability and Risk Assessment for Transportation of Hazardous Chemicals

- To identify major highways susceptible to major chemical accidents.
- To gauge the awareness of regulations and status of implementation.
- 16 stretches have been covered so far in 4 states
- Studies for following stretches are on way
 - (i) Delhi – Mathura-Agra (NH- 2), (ii)Madurai-Dindigul-Karur-Salem(NH- 7)
 - (iii)Mangalore-Hassan, Karnataka(NH-48) ,(iv) Hassan –Bangalore, Karnataka (NH48) ,(v) Kolkatta- Haldia W.Bengal, (vi)Surat-Vadodara , Gujarat , (vii) Rajkot- Jamnagar, (viii) Chandikhol – Paradeep, Orissa

Vulnerability and Risk Assessment of Transportation of Hazardous Chemicals : General Recommendations

Consignors

- Valid driving license with training endorsement
- Check Lists for document & vehicle inspections
- Compatibility Checks: Chemicals of current & previous consignment
- Provide stop blocks and loading /unloading under supervision
- Make the driver to read the TREM Card & Emergency Response procedures
- Seal /lock valves after loading
- Emergency Information Panel (EIP). Class labels, HAZCHEM Codes.
- Communicate the routes and schedule halts to driver and transporter

Transporters

- Careful selection of Drivers, vehicle maintenance, appropriate EIP, class label, proper painting
- Ensure availability of all relevant documents
- Provide route maps to driver

Vulnerability and Risk Assessment of Transportation of Hazardous Chemicals : General Recommendations

Driver

- Lack of education, knowledge, awareness and other factors.

Authorities

- District authorities – police needs to be trained for Haz Goods Transportation, regarding applicable legal requirements
- Specific training on handling and transport of non-petroleum cargo

Hazard Analysis in selected industrial districts/ pockets

- **Industrial Pocket-wise Hazard Analysis studies undertaken since 8th Plan.**
- **Of 286 districts, hazard analysis studies initiated for 103/85 completed**
- **26 off- site plans based on hazard studies**

Emergency Preparedness

- **Establishment of Emergency Response and Poison Control Centers.**
 - Five Emergency Response Centres (ERCs) have been established - Manali (TN), Bhopal (MP), Mahad (Mah.) Vishakapatnam (AP) and Hyderabad. Three more in AP are final stages.
- **A Poison information Centre (PIC) has been set up at the All India Institute of Medical Sciences (AIIMS), New Delhi and PCC in Govt medical Hospital, Chennai**

GIS Based Emergency Planning and Response (GEPR)

Objectives:

- To help response agencies mainly Central Crisis Group (CCG), District Crisis group (DCG) and Local crisis Group (LCG), during pre-emergency state for planning and rehearsing response to major chemical disasters and also during actual emergency situations.

GIS Based Emergency Planning and Response (GEPR)

- **PHASE -I**
 - Gujarat - Ahmedabad, Bharuch, Kutchh, Surat, Vadodara and Valsad.
 - Maharashtra - Mumbai, Nashik, Pune, Raigad, Ratnagiri, Thane
 - Tamil Nadu - Chennai, Salem, Tiravallur
 - Andhra Pradesh - East Godavari, Medak, Rangareddy, Vishakapatnam and West Godavari
- **PHASE II**
- **Major Cluster in 10 States**
 - NCT-Delhi, Assam, Haryana, West Bengal, Madhya Pradesh, Uttar Pradesh, Karnataka, Punjab, Rajasthan, Kerala (Ernakulam)
- **Covered 22 district**
 - Dalhi, Alwar, Jaipur, Bulanshahar, Ghaziabad, Panipat, Bangalore, Mysore, Mangalore, Ernakulam, Burdwan, Hooghly, 24 Parganas (N) and (S), Kolkata, Howrah, Bongaigaon, Guwahati, Dhar, Bhand, Ropar and Hoshiarpur

GIS Based Emergency Planning and Response (GEPR)

Phase III

Selected districts in Gujarat and Maharashtra

- **Web based GIS Technology**
- **High Resolution Mapping** – Quick bird data taken for study area and high resolution maps will be used. This will enhance the quality of spatial features like road, railways etc.
- **Enhanced Modeling features**
- **Cascading or Domino Effects within a MAH Unit or between 2 MAH units**

Web based Chemical Accident Information and Reporting System (CAIRS)

OBJECTIVE

- Prompt notification of the major chemical accidents to the designated authorities
- Develop an online accident reporting and analysis mechanism

FEATURES

- A web Based System for Accident Reporting
- Pre-set formats to post information on the web
- Capability to do the accident data analysis
- Supports online queries/report generation
- The system will have the centralized databases of major chemical accidents.

Key Issues

- Flow of Information
- Accident Reporting in prescribed format
- Lack of Communication
- Lack of Infrastructure & Support- CIF/DIHS
- Compliance of various provisions of the Rules
- Compliance of CMV Act, 1989 - Transportation of Hazardous Chemicals
- Tendency of first responders (in drills) to 'rush into the scene without proper briefing

Key Issues

- Develop and implement a Community Awareness Emergency Response (CAER) program to include the training of members of the community.
- Develop aide memoirs to assist Emergency Response Groups and personnel in the discharge of their duties.
- Communities not sufficiently informed or prepared. Emergencies (chemical release, fire, explosion hazard) require different actions (evacuation, safe shelter) – need for effective early warning system
- *Regulatory/ statutory authorities in need of training in first response (Haz. Materials)*
- *Governmental Agencies must be appropriately trained for first response/ managing emergencies*

Key Issues

- *Lack of dedicated manpower with the monitoring authorities.*
- *A designated focal point in the nodal ministries viz. Ministry of Environment & Forests and Ministry of Labour at the central and state level and assigning of an emergency Coordinator/SDM at district level is essential.*
- *Effective participation of Stakeholders*
- *Chemical Disaster Management should find a specific mention in the list of important duties in the handbook of the DM.*

