

PREPARING FOR TECHNOLOGICAL DISASTER-WHERE GUJARAT STANDS

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ABSTRACT

Gujarat is industrially the second most advanced state in the country, largely because of availability of natural oil and gas in the state and other natural resources. Gujarat has been recognized as one of the most important chemical center of India. It tops the country with maximum number of chemical industries in the State. This factor has resulted in the concentration of many major, medium and small scale units manufacturing and processing various types of chemicals, fertilizers & petrochemicals, dyestuffs, paints, pesticides, insecticides, manmade fibers, drugs and pharmaceuticals, etc. Development of chemical industry in the State is a matter of pride but cannot be forgotten the hazards and threats posed by them to the environment. In this research paper analysis of DM activity of Government of Gujarat to handle Technological disaster is done and show the strong and weak points.

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1. INTRODUCTION

Gujarat is one of the most industrialized states in India. Gujarat Industrial Development Corporation is a government body to promote industry in the Gujarat state. GIDC has established 182 industrial estates all over the state.

Almost 40% of the dyestuff factories in India are located in Ahmedabad. Pharma giants like Cadila pharma, Zydus Cadila, Torrent Pharma and many small pharma companies are situated nearby Ahmedabad. Moreover several key high growth industries such as textile, Fertilizer Companies, natural gas, petrol refineries of Vadodara and Jamnagar are in Gujarat.

2. TYPE OF TECHNOLOGICAL DISASTER

Due to development of industries in Gujarat, industrial accidents shown below are occurred frequently and expected in future.

- Explosion
- Fire
- Gas leakage
- Toxic release
- Poisoning
- Boiler explosion
- Sabotage by terrorist activity

3. HISTORY OF TECHNOLOGICAL DISASTER IN GUJARAT

In past some major incidents occurred in Gujarat are shown in table 1

Table 1 Major Industrial incidents occurred in Gujarat

Year	Place	Incident
September, 2002	GACL, Vadodara	Chlorine gas –explosion
December, 2002	IPCL, Gandhar	Chlorine gas release
April, 2004	Shyamlal Industry, GIDC, Ahmedabad	Benzene Fire
October, 2004	Gujarat Refinery, Vadodara	Explosion in slurry settler
June, 2005	Gujarat refinery, Vadodara	Fire
October, 2006	Reliance industry Refinery, Jamnagar	Leaked hot vacuum gas oil catches fire in air

Source: NDMA guideline-Chemical disaster-2007

4. SOURCE OF TECHNOLOGICAL DISASTER

Technological disasters are possible during following process

- During manufacturing, Commissioning process & operation process
- During maintenance process
- During storage in Godown, warehouse, including tank, fuel depot etc
- During transportation (Road, Rail, Air, water, Pipeline)
- Natural calamities also trigger technological disaster
- Due to terrorist attack & sabotage

5. PRESENT REGULATION FRAME WORK IN INDIA

India is amongst the very few countries, which have enshrined the right to live in a clean and wholesome environment as a fundamental right. The Factories Act was enacted in 1948, for ensuring safety, health and welfare at the workplace. Recognising the need to mainstream environmental Concerns in all developmental activities, a separate ministry—the Ministry of Environment and Forest—was created in 1980, and was declared as the nodal ministry for the Management of chemical (industrial) disasters. The regulatory framework on chemical safety can be traced to the Factories Act, 1948 and chemical class-specific regulations like the Explosives Act, 1884; the Insecticide Act, 1968; and The Petroleum Act, 1934. Later, an umbrella Act, the Environment (Protection) Act, 1986, was enacted, which also deals with chemical management and safety. A number of regulations covering safety in transportation, insurance, liability and compensations were enacted thereafter. The Government of India has further reinforced the legal framework on chemical safety and management of chemical accidents by enacting new rules.

In 2005 DM act was passed. This act seeks to institutionalise the mechanisms at the national, state and district levels to plan, prepare and ensure a swift response to both natural calamities and man-made disasters/accidents.

6. INSTITUTIONAL FRAMEWORK IN GUJARAT

Factory wing in Gujarat is headed by Director, Industrial safety and Health, Gujarat State. For efficient administration and effective control state is divided in to four regions namely Ahmedabad, Vadodara, Surat and Rajkot. These regions are under control of Joint Director, Industrial Safety & Health.

The Directorate, Industrial Safety and Health looks after the implementation of following statue functions of the Department is to implement the following Labour Laws

- The Factories Act, 1948 and the Gujarat factories Rules, 1963
- The Environment protection Act ,1986
- The Manufacture, Storage and Import of Hazardous Chemical rules, 1996
- Chemical Accidents(Emergency Planning, Preparedness & Response)Rules,1996
- The Payment of Wages Act, 1936 and Rules there under
- The Maternity Benefit Act, 1961 and rules there under
- The Gujarat Physically Handicapped Persons (Employment in Fact.) Act, 1982
- The Gujarat payment of unemployment Allow. to workman (in fact.) Act, 1981
- The Building and Other Contraction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and Rules there under

Composition of State Crises Groups has been made in which following officers & representative are included.

- 1 Chief Secretary-Chair person
- 2 Secretary(Labour)-Member Secretary
- 3 Secretary(Env.)-Member
- 4 Secretary(Health)-Member
- 5 Secretary(Industry)-Member
- 6 Secretary(Pub.Health Eng.)-Member
- 7 Chairman, State Pollution Control Board
- 8 4-Experts (Ind. Safety & Health) to be nominated by the State Govt.
- 9 Secretary/Commissioner(Transport)
- 10 Director (Industrial Safety)/ Chief Inspector of Factories
- 11 Fire Chief
- 12 Commissioner of Police
- 13 One Representative from the "Industry to be nominated by the state Govt



7. ACTS AND RULES PROVIDE REQUIREMENTS FOR THE DISASTER MANAGEMENT

- Identification of the major accident hazardous units based on inventory of hazardous chemicals and to take adequate steps to prevent major accident.
- Preparation of on-site emergency plan by factories involving hazardous process
- Preparation of off-site Emergency plan by the District Authority
- Constitution of crisis alert system
- Constitution of central, State, District and Local crisis groups.

8. ACTIONS TAKEN BY GOVERNMENT OF GUJARAT

- Identified all chemical factories in FOUR categories first time in India, i.e. MAH, A, B, and C, type.
- Identified all the MAH Factories in the state. (There are 433 MAH units in the state.)
- Formation of specialized team for inspection of MAH units and inspections are carried out by them regularly.
- MAH units of the Gujarat state are also inspected by chemical inspector of factories, Gujarat state.
- Constituted DCPC i.e. District Contingency Planning Committee, under the chairmanship of District Collector and Factory Inspector as member secretary.
- Prepared off-site emergency plans in most of the districts.
- Off-site emergency rehearsals have been conducted in most of the district.

- Constituted district crisis group each district under a chairmanship of District Collector and Factory Inspector as a member secretary.
- Constituted local crisis group in each industrial pocket under a chairmanship of Sub-divisional Magistrate/District Emergency Authority and Factory Inspector as a member secretary.
- Received up dated on-site emergency plan from all MAH units in the state
- The MAH units are carrying out on-site emergency plan rehearsals.

9. GAPES

- Lack of coordination between GSDMA and Districts regarding technological disaster.
- Ambulance service is available with Highway authority but 1-0-8 type emergency facility service is not available.
- Firebrigade service is available with big cities and with big towns. However, requirement of state fire service is essential.
- In big cities and also in big town, lifts are using in flats , in Multistored Buildings and in public institutions. As per statutory requirement, all lifts are required periodical maintenance. To implement this requirement inspection schedule is required.
- There are a large number of industrial units that require inspection and the manpower to do so is limited. Inspection formats and guidelines on followup action also require updating. Currently, the departmental inspection manual does not adequately address process safety requirements and leaves much to individual discretion resulting in compromising on safety.
- A safety audit is a tool for identifying and rectifying gaps in institutional safety management systems and is currently mandated to be carried out every two years by law. This requirement is often unmet. Problems arise due to inspection by two or more different departments for the same location, for example, the Controller of Explosives, Director of Factories, Pollution Control Board and Fire Service Department. The requirement of a single inspection system has not been established.
- There is currently no system in place to report accidents that occur during commissioning and decommissioning of plants. It is observed that a number of accidents take place during these processes
- The testing of On-Site emergency plans every six months is a statutory requirement. A large number of units conduct mock drills shop-floor wise or cover only a few components, while the requirement is for the installation as a whole.

- A yearly mock drill of district Off-Site emergency plans is essential and mandated. Very few full-scale drills of district Off-Site emergency plans are being conducted in the country, and even those are not conducted as per the norms
- Preparation of SOPs for rescue teams and other QRTs regarding the wearing of full protective gear before entering the hazardous zone and cordoning off the disaster site are required.
- District Off-Site emergency plan should include a separate section on management of medical emergencies, which should also be tested yearly during mock drills.
- Self-inspection by the industries and corporate responsibility for safety are not practised; these measures need to be established through the training of trainers
- Highways are prone to numerous chemical emergencies due to bulk transportation of HAZCHEM but still no appropriate highway DM Plan exists. It needs to be comprehensively addressed.
- A national and state-wise directory of chemical/technical experts needs to be compiled and published for ready reference of traffic police and other service providers.
- Emergency response guidance for first responders and highway DM Plans are not available.
- Fire services lack required technological sophistication and number of HAZMAT vehicles for quick emergency response.
- Transporters of chemicals including drivers lack the requisite training to discharge their roles satisfactorily during a HAZCHEM incident.
- Traffic police lack requisite training, basic knowledge of relevant statutes, use of support tools such as TREMCARD, and their role in emergency response.
- In big cities as well as in small/big towns, slums are found nearby Railway track. At the time of Railway accident this slum area may increase vulnerability.
- In big cities as well as in small/big towns so many factories are run nearby residential area illegally. Municipal Corporation and District Authority should remove these factories.
- So many residential colonies are constructed nearby industrial areas illegally in Ahmedabad and other big cities. To avoid any major vulnerability at the time of disaster in future, Municipal Authority should take prompt action.

10. CONCLUSION

Gujarat is one of the state where industry development is very high. However due to lack of coordination of safety agencies, lack of manpower, lack of inspection schedule, and lack of integrity, technological disasters are frequently occurred. Government of Gujarat has established crises Management group and safety directorate to stop technological disaster but still so many gaps which are required to remove.

INTERNET RESOURCE

1. NDMA Guideline-Chemical Disaster(industrial)-2007
2. Website of Director Industrial Safety and Health, Govt. Of Gujarat
3. Indian Railway DM plan