पी एन जी आर बी
PNGRB

GUJARAT INSTITUTE OF DISASTER MANAGEMENT
BUILDING RESILIENCE

ENHANCING SAFETY, PREPAREDNESS AND CAPACITY IN INDIA'S OIL AND GAS SECTOR

Capacity Building on Emergency Response and Disaster Management Plan (ERDMP)

A Joint Initiative of Petroleum and Natural Gas Regulatory Board (PNBRG) and Gujarat Institute of Disaster Management (GIDM), Government of Gujarat

06-08 January 2026

BACKGROUND

India's petroleum industry is expanding, with a total of 23 refineries across the country, boasting a combined refining capacity of 256.816 MMTPA as of April 2024. India's petroleum industry is a comprehensive sector encompassing exploration, production, refining, distribution, and marketing of petroleum and its by-products. This includes upstream, midstream and downstream activities. This includes upstream activities that cater to the extraction of crude oil and natural gas, midstream activities such as transportation and storage, and downstream processes that include refining and distribution of fuels like petrol, diesel, LPG, and kerosene. India ranks among the top five refining nations globally, thanks to its robust infrastructure and strategic geographic location. The country is the seventh-largest exporter of refined petroleum products. Facilities like the Jamnagar refinery, one of the world's largest, underscore India's dominance in the refining sector. India's refining capacity is expected to grow to 300 MMTPA by 2028 as per estimates, with 58% of the increase coming from brownfield expansions, while the remaining growth, totaling 18 MMTPA from greenfield projects.This global standing enhances India's energy security and positions it as a key player in international energy markets. The International Energy Agency (IEA) in February 2024 assessed that India will become the largest source of global oil demand growth between now and 2030. India is the second-largest economy in biofuel blending, following Brazil.

This industry also provides direct and indirect employment to millions, spanning exploration, refining, distribution, and retail sectors. The industry's value chain supports ancillary industries such as petrochemicals, logistics, and manufacturing. The sector enhances socio-economic stability by fostering skill development and offering diverse career opportunities. The petroleum industry's expansion has multifaceted implications. Economically, it boosts GDP, foreign exchange earnings, and industrial growth. Politically, energy independence strengthens India's global standing and reduces strategic vulnerabilities. Socially, the industry's growth promotes rural development through improved energy access and employment.[1]

Chemicals, being an integral component of modern industrial systems, have garnered significant attention within the government, private sector, and broader community regarding disaster management. The frequency and severity of chemical disasters have surged in recent years, exemplified by the Bhopal Gas Tragedy with leak, being the most prominent

[1] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2096817

and devastating till the L G Polymers incident with Styrene gas leak during the COVID- 19 pandemic in 2020 known as Vizag gas leak. The resulting vapour cloud spread over a radius of around 3.0 km (1.9 mi), affecting the nearby areas and villages. Few major chemical incidents that took place during the last 25 years include an explosion in IPCL Gas Cracker Complex at Nagothane in Maharashtra (1990); fire in an oil well in Andhra Pradesh (1995); vapour cloud explosion at HPCL refinery at Vishakhapatnam (1997); MS Tank Fire broke out in Digboi Assam (2003); IOCL Fire Tragedy of Jaipur (October 2009) and IOCL Hazira Tank Fire (2013). This rise can be attributed to the rapid expansion of chemical industries across various sectors, including manufacturing and formulation, other-chemicals, pharmaceuticals, agro-chemicals (fertilisers, pesticides), industrial chemicals, and facilities dedicated to handling hazardous chemicals such as oil depots, exploration/mining operations, and others. The expansion of plant sizes, storage capacities, and carriers, particularly in densely populated areas, has heightened the risk and vulnerability to such disasters.

In light of this, a comprehensive legal and institutional framework exists in our country. Several regulations governing safety in transportation, liability, insurance, and compensation have been enacted. The relevant provisions on chemical disaster management in our country include [2]:

- The Petroleum and Natural Gas Regulatory Board Act 2006
- The Explosives Act 1884
- The Petroleum Act 1934
- The Factories Act 1948
- The Insecticides Act 1968
- The Environment Protection Act 1986
- The Motor Vehicles Act 1988
- The Public Liability Insurance Act 1991
- The Disaster Management Act 2005
- The Disaster Management (Amendment) Act 2025.

Government of India has further reinforced the legal framework on chemical safety and management of chemical accidents by enacting new rules such as Manufacture, Storage, and Import of Hazardous Chemicals (MSIHC) Rules 2009; The Chemcial Accidents (Emergecy Planning, Preparedness and Planning (EPPR)) Rules 1996; Static and Mobile Pressure Vessels (Unfired) (SMPV) Rules, 2016; The Central Motor Vehciles CMV Rules 1989; The Gas Cylinder Rules 2016; Hazardous Waste Management Rules; The Dock Workers (Safety, Health & Welfare), Regulations 1990 and by way of amendments to them.

[2] https://nidm.gov.in/pdf/modules/chemical.pdf

With a focus on sustainability and energy efficiency, India is poised to maintain its leadership in the global energy landscape while aligning with its climate commitments. As the downstream petroleum and gas infrastructure expands rapidly across the country, the need for enhanced risk management capabilities, emergency response systems, and safety standards is greater than ever.

CAPACITY BUILDING PROGRAM ON EMERGENCY RESPONSE AND DISASTER MANAGEMENT PLAN

1.1 Introduction

The Disaster Management Act 2005, the Disaster Management Amendment Act 2025, and the Petroleum and Natural Gas Regulatory Board (PNGRB) Regulations (Codes of Practice for Emergency Response and Disaster Management Plan (ERDMP) Regulations, 2010) have mandated the implementation and preparation of disaster management/emergency plans. Despite the existence of these acts and policies, there are ongoing challenges regarding coordination, planning, and the implementation of these duties. The primary cause of these challenges is the lack of adequate understanding and skills among relevant stakeholders. In response to these challenges, it is proposed to organise a series of training programs on ERDMP. The current focus aligns with the principles of "zero tolerance" and "extended producer liability," which address risks throughout the lifecycle of a hazardous material.

Emergency Response and Disaster Management Plan (ERDMP) is applicable to following :-
(a) hydrocarbons processing installation (refinery, gas processing, LNG Re-gasification installations etc.);
(b) pipeline such as natural gas, propane, butane etc. and the hydrocarbons products which remain in gaseous state at NTP;
(c) petroleum and petroleum product pipeline;
(d) petroleum storage facilities including POL depot, installations and terminals;
(e) hydrocarbons gas bottling Installations having receiving, storage and handling facilities including storage for LPG, propane and butane;
(f) city or local natural gas distribution facilities;
(g) retail outlets dispensing like Petroleum, Auto LPG, LNG, CNG and like other retail outlets;
(h) transportation of petroleum products [LNG, CNG etc.] by road;
(i) any other installation as may be notified by the Board from time to time;

Therefore GIDM has developed the programme for the capacity development to cover all entities as noted above from (a) to (i).

1.2 Aim

The aim of the training and capacity building programs is to update the knowledge and skills of the participants to multi-dimensional aspects of disaster risk management and emergency incident response, effective planning, integration and coordination delaing with petroleum and natural gas.

1.3 Objectives

The objectives of the program on 'Capacity Building on Emergency Response and Disaster Management Plan (ERDMP)' are to enable participants to assess and deliver the respective aspects and roles about emergency/disaster management, delineate strategies for risk mitigation, and implement effective response and preparedness activities.

The objectives of the training and capacity-building program are to enable participants to:

- ✓ Understand the scenario and challenges associated with disaster risks and the consequences associated with oil and natural gas.
- ✓ State various legal/regulatory frameworks, provisions, guidelines, and institutional arrangements concerning activities.
- ✓ Enumerate various tools, technologies, and methods in chemical disaster management, including GIS, ICT, and web-enabled systems.
- ✓ Accident reporting, investigation, risk assessment, and root cause analysis.
- ✓ Capacity building in disaster risk management, safety, and emergency preparedness.
- ✓ Training, skill development, and knowledge sharing for oil and gas professionals.
- ✓ Documentation and development of ERDMP.
- ✓ Technical support and guidance to industry stakeholders for aligning with regulatory and international safety norms.

1.4 Training Content

The training shall cover the following aspects of ERDMP, and will be drawn looking to the target participants, resources and contexts of the particular batch and course programme:

- ✓ Understanding the Basics of Disaster Risk Management
- ✓ Deep understanding on hazards involved in oil and gas sector
- ✓ Disaster Response and Incident Response System in India
- ✓ Mechanism of Emergency Response with respect. ERDMP Regulations
- ✓ Sectoral Recovery and Resilience Building
- ✓ Disaster Recovery in the Energy Sector
- ✓ Development of ERDMP
- ✓ Resilience building in Energy Sector

1.5 Training Approach

The training approach will be selected based on the specific topic of ERDMP, from a range of the following options:

- ✓ Documentary/film followed by question-and-answer sessions based on real-life incidents
- ✓ Lecture followed by query-and-answer sessions
- ✓ Presentation (slides) and discussion
- ✓ Group discussion
- ✓ Mock exercises/drills/simulation/tabletop exercises

1.6 Target Group

The training programme is designed to meet the specific requirements of middle-level officials dealing with petroleum and natural gas in Public Sector Undertakings (PSUs), industries/factories and various aspects of disaster management, environmental development, and other relevant fields.

- ✓ HSE Officers
- ✓ Safety Officers
- ✓ Fire and Safety Personnel
- ✓ Middle-level officials from PSUs, industries and factories handling petroleum and natural gas operations.

1.7 Expected Results

- ✓ Better assessment of chemical disaster (oil and natural gas) related risks and vulnerabilities
- ✓ Systematic approach in planning, preparedness and mitigation of such disasters
- ✓ Improved coordination amongst various agencies and organisations
- ✓ Integration of onsite and offsite plans with Disaster Management Plans and holistic DRR framework
- ✓ Equipped to Develop and get an audited ERDMP document in line with the regulations

1.8 Training Duration and Location

The training will be conducted over 3 days at the GIDM Campus, Village Raisan, Gandhinagar- 382007.

1.9 Monitoring and Evaluation

- ✓ Assessments to evaluate knowledge and skill improvement
- ✓ Feedback sessions to gather participant insights

2.0 Training Course Fee

The **course fee is 20,000/- per participant (inclusive of GST)**. Participants will be provided accommodation, along with working lunch, dinner and refreshments during the program duration. Details of the accommodation facilities at GIDM can be accessed at: https://gidm.gujarat.gov.in/en/residential-annexe.

Please note:

- No arrangements shall be made for the supporting staff of the nominated participants. The responsibility of nominating and arranging travel for participants from base locations to the training venue does not fall under GIDM's jurisdiction. The travel expenses incurred by the participants will be borne by the respective nominating agency.