

Topic of the Day - Chemical Disaster Risk in India

Chemical disasters may be traumatic in their impacts on human beings and have resulted in huge casualties and also large-scale damage to nature and property. The elements which are at highest risks due to chemical disaster primarily include the industrial plant, its employees & workers, hazardous chemicals vehicles, the residents of nearby settlements, adjacent buildings, occupants and surrounding community.

This article will talk about the factors of chemical disasters and the legal safeguards in place against such disasters within the context of the IAS Exam.

Background

In the year 1984, India had witnessed the world's worst chemical (industrial) disaster – the "Bhopal Gas Tragedy". The Bhopal Gas tragedy was the most traumatic chemical accident in history. The tragedy led to the death of over 2500 people due to accidental release of toxic gas Methyl IsoCyanate (MIC). The current generation continues to bear the ill-effects of the tragedy.

Such accidents are significant in terms of loss of lives, suffering, pain, injuries, damage to environment and property and loss of lives. India continued to witness a series of chemical accidents even after Bhopal had demonstrated the vulnerability of the country.

There are about 1861 Major Accident Hazard (MAH) units, spread across 298 districts and 25 states & 3 Union Territories, in all zones of the country. Besides, there are thousands of registered and hazardous factories and unorganized sectors dealing with numerous ranges of hazardous material posing serious and complex levels of disaster risks.

Factors causing chemical disasters:

- Ageing of process plants, defects in design and inadequate steps to pace with modern technologies in Indian chemical industry has increased vulnerability to chemical disasters.
- Organic solvents are the most common source of fires and explosions in the chemical industry.
- A majority of the industrial accidents occur due to human error as a result of non-compliance of Standard Operating Procedures (SOPs). Piper alpha accident is a classic example of how human error can lead to chemical disasters, wherein a worker accidentally activates a pump under maintenance without a safety valve in place that leads to gas leak and subsequent explosion.
- There is an increased threat due to terrorist activities and sabotages. Natural disasters such as floods and earthquakes have also caused a major disaster in the chemical industry.

- Another common cause that results in chemical disasters is improper maintenance of equipment. Regular maintenance at scheduled intervals following the manufacturer's recommendations is important for ensuring that the equipment runs smoothly and safely. The Flixborough incident is a prime example of improper maintenance which led to the death of 28 people and injured many.
- Non-availability of an emergency response team to mitigate accidents during the transportation of hazardous chemicals have also resulted in major disasters in several locations in India.
- Hazardous waste processing and its proper disposal needs special attention as these activities can also contribute to fire, explosions and toxic releases to the environment.
- Terrorist attack/ unrest leading to sabotage

Legal Safeguards against Chemical Disasters in India

The government passed a series of laws regulating the environment and prescribing and specifying safeguards and penalties. Some of these laws are as follows:

1. Bhopal Gas Leak (Processing of Claims) Act, 1985, which gives powers to the central government to secure the claims arising out of or connected with the Bhopal gas tragedy. Under the provisions of this Act, such claims are dealt with speedily and equitably.
2. The Environment Protection Act, 1986, which gives powers to the central government to undertake measures for improving the environment and set standards and inspect industrial units.
3. The Public Liability Insurance Act, 1991, which is an insurance meant to provide relief to persons affected by accidents that occur while handling hazardous substances.
4. The National Environment Appellate Authority Act, 1997, under which the National Environment Appellate Authority can hear appeals regarding the restriction of areas in which any industries, operations or processes or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards under the Environment (Protection) Act, 1986.
5. The National Green Tribunal, 2010, provides for the establishment of a National Green Tribunal for effective and expeditious disposal of cases related to environmental protection and conservation of forests.

