

# The bhopal gas tragedy

[Countries](#), [India](#)



Macie Marr Mrs. Curran English 4/5 1/12/13 The Bhopal gas tragedy The Bhopal disaster, also referred to as the Bhopal gas tragedy, was a gas leak incident in India, considered one of the world's worst industrial disasters. It occurred on the night of 2-3 December 1984 at the Union Carbide India Limited (UCIL) pesticide plant in Bhopal, Madhya Pradesh. Over 500,000 people were exposed to methyl isocyanate gas and other chemicals. The toxic substance made its way in and around the shantytowns located near the plant.

Estimates vary on the death toll. The official immediate death toll was 2,259. The government of Madhya Pradesh confirmed a total of 3,787 deaths related to the gas release. Others estimate 8,000 died within two weeks and another 8,000 or more have since died from gas-related diseases. A government affidavit in 2006 stated the leak caused 558,125 injuries including 38,478 temporary partial injuries and approximately 3,900 severely and permanently disabling injuries. November 1984, most of the safety systems were not functioning and many valves and lines were in poor condition.

In addition to this, several vent gas scrubbers had been out of service as well as the steam boiler, intended to clean the pipes was nonoperational. Other issue was that, Tank 610 contained 42 tons of MIC which was much more than what safety rules allowed. During the night of 2-3 December 1984, water entered Tank E610 containing 42 tons of MIC. A runaway reaction started, which was accelerated by contaminants, high temperatures and other factors. The reaction was sped up by the presence of iron from corroding non-stainless steel pipelines.

The resulting exothermic reaction increased the temperature inside the tank to over 200 °C (392 °F) and raised the pressure. This forced the emergency venting of pressure from the MIC holding tank, releasing a large volume of toxic gases. About 30 metric tons of methyl isocyanate (MIC) escaped from the tank into the atmosphere in 45 to 60 minutes. The gases were blown in southeastern direction over Bhopal. The initial effects of exposure were coughing, vomiting, severe eye irritation and a feeling of suffocation. People awakened by these symptoms fled away from the plant.

Those who ran inhaled more than those who had a vehicle to ride. Owing to their height, children and other people of shorter stature inhaled higher concentrations. Many people were trampled trying to escape. Thousands of people had succumbed by the morning hours. There were mass funerals and mass cremations. Bodies were dumped into the Narmada River, less than 100 km from Bhopal. 170, 000 people were treated at hospitals and temporary dispensaries. 2, 000 buffalo, goats, and other animals were collected and buried. Within a few days, leaves on trees yellowed and fell off.

Supplies, including food, became scarce owing to suppliers' safety fears. Fishing was prohibited causing further supply shortages. Within a few days, trees in the vicinity became barren, and 2, 000 bloated animal carcasses had to be disposed of. On 16 December, tanks 611 and 619 were emptied of the remaining MIC. This led to a second mass evacuation from Bhopal. The Government of India passed the " Bhopal Gas Leak Disaster Act" that gave the government rights to represent all victims, whether or not in India. The acute symptoms were burning in the respiratory tract and eyes, blepharospasm, breathlessness, stomach pains and vomiting.

The causes of deaths were choking, reflexogenic circulatory collapse and pulmonary oedema. Findings during autopsies revealed changes not only in the lungs but also cerebral oedema, tubular necrosis of the kidneys, fatty degeneration of the liver and necrotising enteritis. Immediate relieves were decided two days after the tragedy. Relief measures commenced in 1985 when food was distributed for a short period along with ration cards. Madhya Pradesh government's financed department allocated 874 million (US\$15.91 million) for victim relief in July 1985. Widow pension of 00 (US\$3.64)/per month (later 750 (US\$13.65)) were provided. They government also decided to pay 1,500 (US\$27.3) to families with monthly income 500 (US\$9.1) or less. As a result of the interim relief, more children were able to attend school, more money was spent on treatment and food, and housing also eventually improved. From 1990 interim relief of 200 (US\$3.64) was paid to everyone in the family who was born before the disaster. In 2007, 1,029,517 cases were registered and decided. Numbers of awarded cases were 574,304 and number of rejected cases 455,213.

When the factory was closed in 1986, pipes, drums and tanks were sold. The MIC and the Sevin plants are still there, as are storages of different residues. Isolation material is falling down and spreading. The area around the plant was used as a dumping area for hazardous chemicals. In 1982 tube wells in the vicinity of the UCIL factory had to be abandoned and tests in 1989 performed by UCC's laboratory revealed that soil and water samples collected from near the factory and inside the plant were toxic to fish. Several other studies had also shown polluted soil and groundwater in the area.

Till this day chemicals abandoned at the plant continue to leak and pollute the groundwater. Whether the chemicals pose a health hazard is disputed. Contamination at the site and surrounding area was not caused by the gas leakage. The area around the plant was used as a dumping ground for hazardous chemicals and by 1982 water wells in the vicinity of the UCIL factory had to be abandoned. UCC states that " after the incident, UCIL began clean-up work at the site under the direction of Indian central and state government authorities.