

# A Luminent Living Testimonial to Rapacious Industrialization: MIC Gas Crippled Bhopal

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## ABSTRACT

*It is over thirty years since the Bhopal Gas Tragedy happened on the chilly night of December 2<sup>nd</sup>/3<sup>rd</sup> (00:15 am) 1984. Poisonous gases like Methyl Isocyanate (MIC), Phosgene were escaped from the Union Carbide India Limited Plant a subsidiary of the U.S. based Union Carbide Corporation, situated in the north-eastern side of the city Bhopal. The impact was saddened it was a catastrophic and genocidal has no parallel in industrial history. People were unaware of what was making them choke and fight for life saving breath led their warm beds in panic, in the darkness running helter-skelter, hopefully away from the murderous toxins that had clouded the skies. In an hour or so 3,000 of them could not outrun the deadly poisons, and they collapsed all over, the city, in a bizarre dance of death that had no dignity. Hundreds of thousands from a city of million plus vanished from the city, coughing, retching and mortally scared. Those who are escaped from death, the poisons have made their life hell for ever and are suffering and dying. There are lesions here for the multinationals, the developed countries, the developing countries and the community.*

## I INTRODUCTION

India was plagued with periodic droughts that resulted in famine in the northern part of India before the period of Green Revolution. Drought resistant varieties of wheat, originally from the Sonora region of Mexico was developed to adapt to Indian conditions. This wheat variety had bigger inflorescence, and resistance of hot, rain and wind, but it required high fertilizer application and high pesticide. In these circumstances Government of India began approving pesticide factories all over India. Thus the parent Union Carbide Corporation (UCC), West Virginia USA, opened the pesticide factory in Bhopal, India in 1969. The company was permitted to setup its hazardous factory in the midst of densely populated settlement and within 2kms, distance from the railway and bus station. The UCIL manufactured the pesticide carbaryl (sevin). In the manufacture of sevin, two lethal compounds available- Methyl Isocyanate (MIC) and Carbonyl Chloride (Phosgene) are required (Nair A, 2001). Initially, MIC was imported to manufacture Sevin, but in 1977 the UCIL plant obtained the technology for the production of MIC from the parent UCC and by 1980 the UCIL commenced the production of MIC. The production was intended primarily for demand within the country. However, the plant had a production capacity far greater than the production planned for UCIL, Bhopal. Interesting matter is the demand and use in agriculture for carbaryl in India was far below the output from the UCIL plant. UCIL had a large stockpile of phosgene when the disaster had occurred. That was more than what required for the manufacture of the pesticide carbaryl. Phosgene, chemically known as carbonyl chloride is a deadly gaseous toxin which was used in World War II. The MIC gas tragedy in Bhopal occurred

in 1984 demonstrated the world its potential to annihilate mankind and its use as a good chemical warfare agent. Bhopal is still reeling under the shock of this ghastly tragedy (Pillai, 2014). Neither the local authorities nor the factory management seemed to know the exact nature of the leakage and possible protective measures which could minimize its impact. The tragedy is a standing testimony of the dehumanizing influence of the hazardous endeavor of the rapacious Industrialization.

## II HISTORICAL BACKGROUND

Union Carbide Corporation was founded in 1886 as a carbon company, which developed the first dry cell battery trade named Eveready. UCC acquired its name in a merger of four companies in 1917. During the World War I the company diversified to gases and chemicals and atomic energy producing in World War II as a contractor to the US government in nuclear weapon production (Satpathy, nd). In 1905 the company started its operations in India. In 1924 an assembly plant for batteries was opened in Calcutta. Manufacturing of batteries was started in India through the Eveready (India) Company. In 1959 the Company changed its name to Union Carbide India Limited (UCIL). In 1960s the market for pesticides in Europe and other developed countries began to be saturated because of new knowledge and citizen's avowal began to get restricted. Then the Multinational Companies turned to the Third World, which offered cheap labor, low maintenance cost, compensation are just namesake where the cost of human life is negligible when compared to the developed country and relative indifference to occupation. Aim was to formulate a range of pesticides and herbicides derived from a carbaryl base. The process of carbaryl manufacture begins

with the reaction of carbon monoxide with chlorine to yield the intermediate phosgene. Phosgene is in turn reacted with monomethylamine to produce methyl isocyanate (MIC) the principal gas involved in the Bhopal Tragedy (Nair A, 2001) MIC is reacted with alpha naphthol to produce carbaryl, different concentrations of which are used to formulate the end product. Sevin is not an affordable pesticide to Indian farmers, so there was actually no need to manufacture sevin for Indian farmers and putting at risk the lives of so many people by storing and all the more producing MIC in India. Furthermore, the Government knew there was no provision in the state or even the to handle a disaster, and why was this issue sidelined to produce MIC. MIC is highly combustible therefore it was kept under a blanket of nitrogen. This storage location on site of the factory was ill advised since the factory was located among densely populated area (Morehouse and Subramaniam, 1986). This Location was rejected by the municipality authorities of Bhopal, but then the Central Government gave approval (Nair M, 2005). By the malfunctioning of the valve, on the night of December 2<sup>nd</sup>, 1984, water got into the storage tank No. E-610 contained 41 metric tones (91,000 pounds or 11,209 gallons) of MIC, and reacted with nitrogen and thus the blanket gone, MIC leaked out. Within 2 hours the storage tank was empty.

### **III THE CATASTROPHE CRIPPLED BHOPAL**

It was the chilly winter night was one of the blackest dates in the industrial history. On Sunday 2<sup>nd</sup> /3<sup>rd</sup> (00:15 am) December 1984. The City Bhopal had been struck with an unprecedented catastrophe. Poisonous gases like Methyl Isocyanide (MIC), Phosgene, were escaped from the tank No.610 one of the three tanks of the Union Carbide Plant Bhopal. When the plant was established the surrounding areas were uninhabited but later huts and shanties were erected. The poor shanty dwellers never realized that they were sitting in the mouth of a volcano. Within few minutes the gas swept away the adjacent areas. At first the inhabitants thought that somewhere somebody had roasting chilies and the fumes were causing severe irritation in the eyes. But soon the people began suffocate and collapsed were left their homes and ran in all directions blindly in the darkness for life. All alike retching, gasping, shrieking, falling, running, crying, Eyes were getting reddened and swollen. The deadly brew of gases burned the tissues of the eyes and lungs and attacked the nervous system. People began vomiting uncontrollably were wracked with seizures and quickly fell dead. Others drowned in their own secretions as their lungs ravaged by the

killer gases filled with fluid. People were falling down, crashing into each other, stumbling over bricks and bodies in the mad, chaotic dash for life. Very soon, the lanes, streets were littered with corpses and carcasses of human and animals like a doomsday. All hell was let loose. 2,500 persons died within few hours about 250 dead bodies of infants were found abandoned by their mothers unattended. Many persons never got to even see the bodies of their dead kin. People were dying in the hospital, on the bed, in the verandahs, lawns, floor and ground. Corpses were being piled up one up on another. Brutal dance of death was all around.

The toxic gas leaked over the city carried by the wind a vast area of 40 sq km. The next morning, several thousands were discovered lying dead on the streets of Bhopal, to the railway station where at least 200 people were found dead lying on the platform. Post mortem revealing highly necroses lungs, and filling with fluid and in some cases holes appeared in the lungs due to the reaction with MIC (Morehouse and Subramaniam, 1986). The hospital personals were unaware about the nature of the toxin and antidotes or equipments which deals with such an emergency. Yet, they did whatever they could by the way of symptomatic treatment, to make the last moments of the victims on earth, more tolerable. The helpless doctors were neither aware about the nature of the 'Killer Gas', which had escaped in to the air from the Union Carbide India Ltd factory, nor did they have any idea about antidotes to be administrated (Katoch, Director General ICMR, 2010). The gravity of health effect was compounded by the fact that nobody had a clue about the nature of the toxic effects of MIC. Furthermore, even though the Tank No. 610 contained MIC, what escaped into the atmosphere was not MIC alone, but contained many more deadly chemical compounds due to chemical reactions going on inside the Tank (Technical Report of BGDR (ICMR) 1985-1994).

The impact of the disaster, continuing in these days, in terms of psychological and neurological disabilities, blindness, birth disorders and skin, vision, breathing problems.(Bhopal Gas Tragedy Relief & Rehabilitation Department, 2009). Doctors from Bhopal, in press conference Kolkatta were confirm that congenital birth defect in affected areas of Bhopal seven times higher than unaffected area (Brown, 2013). Hundreds of thousands from a city of million plus vanished from the city. Those who are escaped from the death, but the poison pursuing them like a wild beast, made their life hell for them, and they continuing to suffer and dying this toxic effect. My personal interview with victims they explained that "those who were passed away were lucky we are moving dead bodies with diseases". A single person is pray for three or more diseases.

The country India faced the worst industrial man made hazard ever in the world, which was responsible for claiming over 5,000 lives and rendering over more than responsibility of 200,000 morbid helpless people. The town of Bhopal had 56 municipal wards in 1984 out of which 36 had been identified as core affected and the rest were unaffected. The deadly toxic cloud spread in the different direction according to the prevailing winds and the low ambient temperature of the cold December. The demarcation of the region was based on the number of deaths in these localities between 3<sup>rd</sup> and 6<sup>th</sup> December 1984. The 36 affected wards again divided in to severely, moderately and mildly affect.

#### **IV REDRESS AND COMPENSATION**

On war footing the State government, Central Government and many NGO's under took a number of measures to provide some immediate relief to the victims and their families. A majority of the victims were belonging to the economically weaker sections of the society. They need immediate relief. It is quite usual that, companies dispute their own role in the accident and deny the health effects of the accident also reluctant to economic compensation of victims. In this case one side under developed handicapped country India, poor illiterate collapsed victim slum, other side UCC militated against the idea of multinational enterprise liability and had sued before the US court. The tragedy was national calamity and it is the right and duty of Indian government indeed, to take care of their citizens in the exercise of 'parens patriae' jurisdiction or on thereto. According to the Indian concept the doctrine of 'parens patriae' recognized King (Government) as the protector of all its citizens as parent (Directorate of Bhopal Gas Tragedy Relief & Rehabilitation, 1997). The stand of the Indian government had been in consideration of economic advantages that, the Bhopal plant was established with defective and inadequate safety standards in comparison with the design of UCC's other plant in America. This difference manifested an indifferent and neglect of human safety, tragedy had been the result of a conscious deliberate action of UCC. Redress and compensation was sought from UCC through legal means, a settlement took place between the Govt. of India and UCC in 1989. Under the terms of the settlement, UCC promised to pay 470 million US Dollars (Rs. 705 crores) for compensation while the government agreed to drop all criminal cases against it.

#### **V TALE OF BETRAYS**

UCC weaved such a pattern on the Indian soil, which later becomes knot of vipers for the Bhopal. Workers or nearby communities of the plant had never received or communicate any training or information about the horrible toxicity and possible calamity of the chemicals manufacturing their neighbor lap.

The change in the leadership of the state government facilitated the victory of the maneuvers of those who did not want the truth to surface. And thus the judicial Inquiry Commission headed by a High Court Justice was bound up and facts were swept under the carpet. (Singh, Collector and Dist. Magistrate, 2008). Who is responsible for all this havoc? Who is to account for this unchaste disregard for human life? Whether the satanic mill is not an abominable and disgusting embodiment of catastrophic worship of mammon and brazenly criminality? Whom to blame? The leak is like a monstrous dragon the gas is ferociously putting to death hundreds and thousands. Whosoever may be the blameworthy (Pandey, 1994)? Apply a semicolon for this toxic tale here with illustrating with famous poet Khayyam's one stanza.

**“And strange to tell, among the earthen lot  
Some could articulate, while others not  
And suddenly one more impatient cried!  
Who is the potter? Pray? And who the pot?”**

**-Omar Khayyam-**

Hundreds of thousand people are still lingering on with their horrible tales. The pricked holes in their minds and has turned their hearts in to a sieve and they living Bhopal with a pulverized psyche and hemophilic hearts. One thing is clear that the horridness of this horrible tragedy demonstrate that how much horribly rapacious and dehumanized these multinational companies?

#### **VI SAFETY CONSIDERATIONS**

There is a wide variety of chemicals and many diverse situations in which they can be found and used; the result is that no country has a single statute covering all chemical substances and their related hazards. Modern life use of chemical product is unavoidable from our daily life. But we are unaware about how much they damage us. The damage to plant and property can be valued at the book value is replaced. But what of those who suffer injury or die? Human value is depends upon his dependability or dependence. It is different from country to country and circumstances (Pillai, 2014).

It seems to be no doubt that the Bhopal Gas Tragedy was man oriented. Whatever the prime cause, the magnitude of its effect was the result of faulty design, poor maintenance and careless plant operation. It could and should have been prevented. The simplest and cheapest route to prevention would have been not to store high quantity of MIC at all.

All accidents result in damage and loss. From reviews understand that some of the incidents the damage and loss beyond the confines of the manufacturing company itself. Since risk cannot be completely avoided, it is the duty and responsibility of the management to minimize risk. The management recognized their responsibility to educate, train and motivate the workforce to use safe procedures; it seems that they can only go so far. But it is accepted that the same value should be placed on human life everywhere in the world, the home government of the multinational should insist on all companies following the same standards and codes of practice both at home and abroad.

Safety of the Chemical industry is about how the disasters of the past can become the basis of hazard control and risk reduction for the future. The best way to increase safety is both to learn and then to apply the lesson from the accidents that have already occurred. Learning valuable lesson helps us to avoid similar accidents.

## VII CONCLUSION

The nutshell of my study is comes out the disasters that have occurred in the past is that, while legislation and legislators, with government inspectors, play a very vital part, it is crucial that companies and their safety officers themselves adopt a 'self policing' approach to safety. They know best of all what they are doing and the possible hazards that are involved. For their own sake they must not only seek to make their operations ever safer but they must also develop emergency plans to cope with possible disaster, plans that take in to account both the workforce and the community in which they live and work. In most of the disasters we study the community around the industry bore with the disaster. It is therefore that the industry takes the public fully in to its confidence. Unfortunately this disinclined seems to persist, usually under the guise protecting the proprietary know-how.

Accidents can never be eliminated completely. Man is frail creature and makes mistakes. He is far from perfect, but the system which he himself designs and operates under can be so organized that mistakes are less likely to occur, and the consequences of those that do occur are contained or mitigated (Pillai, 2014).

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