



HOW THE UCC WAS NOT LIABLE FOR THE BHOPAL GAS TRAGEDY: AN ANALYSIS OF ONE OF THE BIGGEST INDUSTRIAL DISASTER

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ABSTRACT

The Bhopal Gas Tragedy was truly one of the most devastating industrial accidents in the world. Thousands of people died immediately whereas lakhs suffered permanent injuries. The exact number has never been verifiable with different reports claiming different numbers but one can be sure these were one of the darkest moments in our country's history. On the 2nd and 3rd December a major MIC gas leak incurred from Union India Carbide Limited Plant a subsidiary of Union Carbide which manufactured pesticides. MIC or Methyl isocyanate is an intermediate chemical which is used in the production of carbamate pesticides spread through the city of Bhopal. Those who were exposed to the gas had immediate effects such as coughing, vomiting, feeling of suffocation, eye irritation etc. This paper analyses why despite all arguments UCC is not liable for the Bhopal Gas Tragedy and the Government and UCIL instead are liable for the accident. This paper will analyse the Arthur D Little and Ashok S. Kalekar report entitled "INVESTIGATION OF LARGE-MAGNITUDE INCIDENTS: BHOPAL AS A CASE STUDY", judgments of courts in India as well as in USA and also analyse why the UCC was not responsible for the design, operations and activities of the plant. This paper will also analyse what actions UCC had taken to provide continuing aid

after the disaster and will analyse whether the UCC has to rehabilitate the area near the plant.

I. INVESTIGATION OF LARGE-MAGNITUDE INCIDENTS: BHOPAL AS A CASE STUDY

1. HINDERANCES IN THE INVESTIGATION CAUSED BY THE CBI

According to the report 2 separate major technical investigations had taken place of the tragedy. One investigation was sponsored by the Government of India which was conducted by a staff of scientists and engineers from the Council of Scientific and Industrial Research (CSIR). Whereas the other one was sponsored by the Union Carbide Corporation, Union Carbide India Limited (UCIL), outside experts and attorneys. Both these investigations were independent investigations. The Central Bureau of Investigation was also conducting its own investigations. Within days of the accident the Union Carbide investigators were at the site of the plant to provide any sort of assistance and to conduct their investigation. But to their shock they found that the plant had already been sealed by the CBI and the CBI had full and exclusive control of the plant. Along with this the records of the MIC unit were also under the control of the CBI. Although the investigation team was permitted to see the copies of the records but it was only allowed to do so after specifically requesting a copy of a particular document.¹

¹Pg. 3, Investigation of Large-Magnitude Incidents: Bhopal as a Case Study, Bhopal as a Case Study-Union Carbide Corp, May 1998, Ashok S. Kalelkar and Arthur D. Little.



The CBI also prohibited interviews with the plant employees. A list of 193 plant employees were sent to the CBI for interview by the UCC team but the permission was refused. Only discussions with the Plant Manager and the MIC Production Superintendent were authorized by the CBI. Neither of them were on duty on the night of the incident. The CBI on the other hand was conducting a criminal investigation into the incident, and it was contended by the CBI that attempts by Union Carbide's investigating team to interview the workers formally would tamper the evidence in the criminal investigation.²

The CBI also conducted its criminal investigation using aggressive tactics. These tactics played a big role in the development of a "cover-up" by plant employees. In the interim the Indian Government filed a civil suit against Union Carbide Corporation in the United States, asserting that the government was the sole representative of the victims of the tragedy. But in an institutional role it continued to control and restrict the access of the sources of proof. This restricted the Union Carbide to find out the truth. The access to the sources of proof was denied for over a year due to which a lot of evidences got destroyed. Many employees had shifted to other places to seek employment and they had left Bhopal without leaving any forwarding addresses. It took weeks to ascertain their whereabouts by questioning former landlords and

²Pg. 4, Investigation of Large-Magnitude Incidents: Bhopal as a Case Study, Bhopal as a Case Study-Union Carbide Corp, May 1998, Ashok S. Kalelkar and Arthur D. Little.

neighbours. Several had even relocated to Nepal and other remote areas of India.³

2. TENDENCY OF PLANT WORKERS TO OMIT AND DISTORT FACTS

The plant workers to on the other hand had a tendency to distort and omit facts which was clearly evident. This made collection of evidence a time consuming process. The story which was told by the workers initially was a preferable one from their perspective, because it absolved everyone, except their supervisor. According to them the reaction happened instantaneously because of which there was no time to take preventive and remedial measures, and there was no known cause. Despite the fact that critical facts were being omitted and distorted the investigation continued and each new evidence was reviewed and reanalysed. Ultimately several firm pieces of evidence came to light which did not fit the story which was told initially by the workers. This led to the conclusion that a direct water connection was found by the workers and the workers had covered it up.⁴

One of the more reliable accounts came from a witness who had absolutely no motive or reason to distort or omit facts. He was the "tea boy" who served tea in the MIC control room. Just before the incident the tea boy reported that when he entered the unit at around 12: 15 a.m. everyone was quite. The atmosphere was tense. The operators refused

³Pg. 4, Investigation of Large-Magnitude Incidents: Bhopal as a Case Study, Bhopal as a Case Study-Union Carbide Corp, May 1998, Ashok S. Kalelkar and Arthur D. Little.

⁴Pg. 10, Investigation of Large-Magnitude Incidents: Bhopal as a Case Study, Bhopal as a Case Study-Union Carbide Corp, May 1998, Ashok S. Kalelkar and Arthur D. Little.



to have tea. After questioning the operators, it was apparent that those operators who were directly involved were unable to give consistent details of events that never occurred.⁵

3. SYSTEMATIC EFFORTS TO ALTER OR DESTROY LOGS

A sketch was found when reviewing the daily notes of the MIC unit for the period to the incident. The sketch showed a hose connection to an instrument on a tank, and it appears to explain how the water entered the tank. After further searching the records, several attempts to cover the story came to light. The time of occurrence of the incident had been altered log after log to reflect that the incident had occurred at a different time than which was initially recorded. Further in some logs, pages relevant to the period in question had been completely or partially ripped out.⁶

4. WATER WASH THEORY ARGUMENT FAILURE AND DIRECT WATER CONNECTION

The water wash theory is false on many grounds. The UCC team after it gained access to the plant, talked to many witnesses and considered all evidences. It was concluded by the team that the theory could not withstand minimal scientific scrutiny. The Indian Government despite having all

records and test results that discredit this theory, continues to embrace it.⁷

The UCC team had considered all possible routes of water entry. It became convinced that the water had entered through a direct water connection. A disgruntled worker must have hooked up one of the readily available rubber hoses to Tank 610. He must have entered that storage area on the night of the incident. It was well known among the plant's employers that water and MIC should not be mixed. He must have unscrewed the local pressure indicator, which can be done using hands and connected the hose to the tank with the intention of contaminating the tank contents. Minor incidents of sabotage by employees had occurred previously in the plant. These incidents occur in all industries around the world.⁸ It can't be ignored as well that it was the time when the Prime Minister of India Mrs. Indira Gandhi was assassinated and there was wide spread of riots and attacks. This only increases the probability of sabotage.

The local pressure indicator was present two days prior to the incident. The instrument supervisor had told the UCC team that he found a hose lying beside the tank in the morning after the incident, and the water was running out of it. The local pressure indicator was also missing on Tank 610 after the incident. After his statements became

⁵Pg. 13, Investigation of Large-Magnitude Incidents: Bhopal as a Case Study, Bhopal as a Case Study-Union Carbide Corp, May 1998, Ashok S. Kalelkar and Arthur D. Little.

⁶Pg.13, Investigation of Large-Magnitude Incidents: Bhopal as a Case Study, Bhopal as a Case Study-Union Carbide Corp, May 1998, Ashok S. Kalelkar and Arthur D. Little.

⁷Pg. 8, Investigation of Large-Magnitude Incidents: Bhopal as a Case Study, Bhopal as a Case Study-Union Carbide Corp, May 1998, Ashok S. Kalelkar and Arthur D. Little.

⁸Pg. 14, Investigation of Large-Magnitude Incidents: Bhopal as a Case Study, Bhopal as a Case Study-Union Carbide Corp, May 1998, Ashok S. Kalelkar and Arthur D. Little.



public the CBI attempted to change his testimony through interrogation for 6 days.⁹

II. GOVERNMENT'S ROLE IN THE INCIDENT

The Union Carbide India Limited was a vast chemical complex which contained miles of complicated piping and hundreds of specialized reactors, pressure vessels and other equipment's. More than 1,000 workers were employed. The Madhya Pradesh Government selected the location and the plant started operations in the late 1960's. At that time the area near the site was very lightly populated. However in the coming years, thousands of people were encouraged to settle near the plant by the authorities and the authorities distributed "pattas" to them. The UCIL management made many complaints but the Government of Madhya Pradesh disregarded the complaints. Therefore the Government of Madhya Pradesh and the Union of India should be held liable for their negligence.¹⁰

The Government also in those days made policies which made it difficult for the UCIL plant to function. The Government at that time curtailed foreign investments in India and insisted on "technology transfer" without considering the fact whether the local talents will be able to handle such advance technologies.¹¹

Where technology is available in India, it must preferred to foreign technology (regardless the quality of the technology). Once technology is imported in India, it

⁹Ibid.

¹⁰ Bhopal Plant History and Ownership, Union Carbide Corporation.

¹¹Ravi Kiran and Sharmanth, 7 ways the government played a role in the Bhopal disaster, Money Life, December 3rd, 2014.

becomes Indian technology. For not more than a period of 5 years it should not be paid.-Industrial Policy 1948

In 1956, following the Companies Act enacted that year, Union Carbide Corporation was forced to sell of 40% of its holdings in its Indian subsidiary, of which most was bought by the Indian government through public sector banks and companies. The plant eventually became Union Carbide India Limited. Robert Bidinotto in 1985 though his article in New York Times brought to light the government's role in the tragedy.¹²

Under (India's) industrial policy, business and government are seen as "partners" in joint ventures to promote "national goals." What does business bring to such a "partnership"? Basically, every creative element: vision, ideas, effort, know-how, capital. What does government bring to such a partnership? Basically, every coercive element: favours, dispensations, subsidies and other "carrots" for politically approved businesses, on the one hand—and on the other, prohibitions, regulations, punitive taxes and other "sticks" against politically unpopular businesses.¹³

Under the pretext of creating jobs a lot of automation had taken place, which left room for human error. The UCIL was also asked by the government to end all foreign collaborations with UCC as soon as possible. The interim extension for UCC-UCIL collaboration was to end in January 1985. The accident occurred in 1984. Under this act new rules were made to decrease the share in equity of foreign holders. UCC had to eventually decrease its holding from 60%

¹²Ibid.

¹³Ibid.



to 50.9%. Most foreign companies closed their Indian subsidiaries. Between 1973 and 1980, 40 % of the companies shut down their Indian operations. Companies like Coca- Cola and IBM were also included in the list. They were forced to reveal their trade secrets.¹⁴

III. UCC NOT LIABLE FOR THE ACTS OF ITS SUBSIDIARY

In the case of *Gunther vs. Capital One* it was held that “liability for shareholders for the acts of a corporation is not there unless there is a reason to lift the corporate veil this is the basic rule of corporate form.”¹⁵In the case of *Esmark, Inc. vs. N.L.R.B.*, 887 F.2d 739, 759 (7th Cir. 1989) it was held that (“direct participation” theory of liability “limited to situations in which the parent corporation’s control over particular transactions is exercised in disregard of the separate corporate identity of the subsidiary”).¹⁶The 2nd Circuit Court held in the case of *Janki Bai Sahu vs. UCC and Warren Anderson*, that Sahu and many others near the plant have suffered terrible injuries which are long lasting. It is obvious that someone is responsible for this but after 9 years of contentious litigation and discovery the evidence of this case shows that UCC is clearly not that entity.

IV. SETTLEMENT GIVEN BY THE UCC WAS ADEQUATE

The Supreme Court had fully considered and rejected the challenges of inadequate settlement in the case of *Union Carbide Cooperation and Others vs. Union of India and Others*.¹⁷The same decision was taken in the case of *Bhopal Gas Peedith Mahila Udyog Sanghathan and Another vs. Union of India and Others*.¹⁸In the case of *Union Carbide Corporation vs. Union of India and others* it was held that a settlement of 470 million US Dollars has to be paid by the UCC to the Union of India It was held that the settlement was full settlement of all claims, liabilities and rights related to and arising out of the disaster. It was also further held in the case that all civil proceedings arising out of and related to the disaster be quashed wherever these may be pending. On February 15, 1989 the settlement was signed by the Attorney General for the Union of India and the Counsel for the UCC.¹⁹

It was also decided that the settlement shall dispose all past, present and future claims, causes of actions and criminal and civil proceedings of any nature pending by all Indian citizens and all public and private entities with respect to all past, present and future deaths, health effects, losses, civil and criminal complaints of any nature, personal injuries, compensation against UCC, Union Carbide India Limited and Union Carbide Eastern, and all their affiliates and subsidiaries as well as each of their present and former directors, officers, agents,

¹⁷Pg. 698, *Union Carbide Cooperation and Others vs. Union of India and Others* (1991 4 SCC 584), Supreme Court Cases.

¹⁸ Pg. 7, *Bhopal Gas Peedith Mahila Udyog Sanghathan and Another vs. Union of India and Others*(2007 9 SCC 707), Justice Information Centre.

¹⁹Pg. 3, *Union Carbide Corporation vs. Union of India and others* (1989 ACJ 427).

¹⁴Ibid.

¹⁵Court Listener, *Gunther vs. Capital One, N.A.*, 703 F. Supp. 2d 264, 277 (E.D.N.Y. 2010).

¹⁶ Pg. 14, *Janki Bai Sahu vs. UCC and Warren Anderson*.



representatives, attorneys, employees, advocates and solicitors.²⁰

The compensation paid by the UCC was a lump sum payment. The court had considered all factors before deciding the amount. All U.S and Indian court filings, relevant laws, applicable law and the needs of the victims were accessed. It had called the settlement as just, equitable and reasonable. The court had also held that in an unlikely event the sum comes out to be less adequate the Union of India has to do well out of the shortfall. This was upheld in *Union Carbide Cooperation and Others vs. Union of India and Others*.²¹

A rough and ready estimate was taken into consideration by the High Court and it was estimated that the number of fatal cases was 3000 where compensation would range from Rs 1 lakh and Rs 3 lakhs. This would amount to Rs 70 crores which is 3 times higher than what is awarded in motor vehicles accident claims. 5 years is enough to calculate the settlement amount.²² In the case of *Union Carbide Corpn vs. Union of India* it was observed that the amount of disbursement available with the RBI was Rs. 1503.01 crores. The Reserve Bank of India by November, 1990 reported that the settlement fund, with interest, was approximately twice what was estimated to be needed to compensate the victims.²³

The Supreme Court of India after 15 years had ordered to release all remaining

settlement funds to the victims. The number of deaths according to the Indian Council of Medical Research (ICMR) was 2,000 to 2,500. It was also reported that the number of overall deaths in gas affected areas declined rapidly after the disaster. Some politicians and writers have been motivated to inflate the fatality number.²⁴ It was also held in the case of *Bhopal Gas Peedith Mahila Udyog Sanghathan and Another vs. Union of India and Others* that there is already a system in place and any claims are to be determined by that system. The first determination is made by the Additional Welfare Commissioner and thereby a revision to the Welfare Commissioner. If even still the grievance exists then the proper remedy is to approach the High Court who would deal with the case more expeditiously and give relief to the claimant without any undue expense rather than approaching the Supreme Court under Article 32 or Article 136 of the Constitution.²⁵

According to the Browning report a very shaky estimates had been made by the Indian claimants for damages a number that has been as high as 5, 00,000. The documents considered by the Supreme Court showed that 75% of the claims were from the areas the government did not recognise as gas affected. Approximately 2, 50, 000 claimants elected did not respond to requests made to them to appear for physical examinations.²⁶ A large number of claimants were asked to come for medical evaluations

²⁰ Pg. 4, *Union Carbide Corporation vs. Union of India and others* (1989 ACJ 427).

²¹ Pg. 689, *Union Carbide Cooperation and Others vs. Union of India and Others* (1991 4 SCC 584)

²² Pg. 3, *Bhopal Gas Peedith Mahila Udyog Sanghathan and Another vs. Union of India and Others* (2007 9 SCC 707), Justice Information Centre.

²³ Pg. 322, *Union Carbide Corporation Ltd vs. Union of India* (2006 13 SCC 321).

²⁴ Ibid.

²⁵ Pg. 6, *Bhopal Gas Peedith Mahila Udyog Sanghathan and Another vs. Union of India and Others* (2007 9 SCC 707), Justice Information Centre.

²⁶ Pg. 13, *Union Carbide: Disaster at Bhopal*, Jackson Browning Report- Union Carbide Corp, Jackson B. Browning.



and categorisations of health status of the affected persons but only 3, 61, 166 appeared. Even if the relief was reached it was not given to those who were genuinely affected by the disaster and there is a huge probability that those not affected also got compensated.

V. IMMEDIATE AND CONTINUING AID GIVEN BY THE UCC

UCC immediately after the disaster provided approximately \$2 million to the Prime Minister's Relief Fund. UCC also immediately and continuously provided medical equipment and supplies. A vocational technical centre was constructed and opened in Bhopal and UCC had provided \$ 2.2 million for it. But the centre was closed down by the government. An international team of medical experts was also sent by the UCC. UCC also funded the attendance by Indian medical experts at special meetings on research and treatment for victims. An additional \$ 5 million to the Indian Red Cross was given by the UCC along with an initial \$ 10 million to build a hospital in Bhopal but the offer was declined. UCC also shared all its information on methylisocyanate (MIC) with the Government of India which included all published and unpublished toxicity studies available at that time. UCC also provided \$90 million to the charitable trust for a hospital. Furthermore in accordance to the order given by the Supreme Court in the 1991 judgment UCC also on humanitarian grounds bore the financial burden for the establishment and equipment of a hospital, and its operational expenses for a period of 8 years.²⁷

²⁷ Union Carbide's Response Efforts to the Tragedy and the Settlement, Union Carbide Corporation.

VI. UCIL WAS NEVER UNDER THE CONTROL OF THE UCC

In 1987 the U.S Court of Appeals for the 2nd Circuit held that UCIL is a separate entity, owned, managed and operated exclusively by Indian citizens in India. It upheld the lower court's decision that UCC's participation was limited and its involvement in plant operations was limited and its involvement in plant operation was terminated long before the accident. UCC did provide a summary 'process design package' for construction of the plant and services of its technicians to monitor the progress of UCIL in detailing the design and erecting the plant under the 1973 agreements. However the terms of the agreements were controlled by the Union of India. UCC was precluded from exercising any authority to "design, erect, detail and commission of the plant," which was independently done from 1972 to 1980 by UCIL process design engineers who supervised around 55-60 Indian engineers employed by Humphreys and Glasgow a Bombay engineering firm²⁸.

The plant could not have been constructed using the preliminary process design information furnished by UCC. Detailed process design and engineering data prepared by hundreds of Indian engineers, process designers and subcontractors was required for construction. The monitoring instrumentation, vent gas scrubber and the storage tank were manufactured by Indians in India.²⁹

²⁸ Pg. 6, Union of India vs. Union Carbide Corporation, West Law.

²⁹Ibid.



In conclusion the plant has been constructed and managed by Indians in India. At the time of the incident no Americans were employed. More than 1,000 Indians were employed at the plant between 1980-1984. During that period only American was employed and he left in 1982. During the 5 year period before the incident the communications between the United States and the plant were almost non-existent. UCIL was responsible for “modifying the equipment, the engineering standards and process, as necessary to adapt the process design to the equipment and materials available in India.” UCC’s participation was limited to “major changes” in design aspects such as plant capacity, raw material specifications, and materials of construction.³⁰

In the case of Janki Bai Sahu vs. UCC and Warren Anderson the US Court of Appeals for the 2nd circuit held that UCC did provide limited guidance to UCIL, but it does not follow that UCC designed the Bhopal Plant’s waste disposal facilities. Several UCIL employees on June 15, 1973, were sent a memorandum commenting UCIL’s waste disposal plan by Mr. G. R Hattiangadi of UCC. In that memorandum, UCC noted that UCIL “recommended neutralization of waste hydrochloric acid using limestone,” a procedure UCC found to be “perfectly acceptable”, and offered observations on UCIL’s evaporation pond concept, which was “somewhat different” from UCC’s concept. However, UCC had previously confirmed that” after he transmits the comments he has prepared proposals that have been made in India, Mr Hattiangadi has

³⁰Ibid.

no further obligation to provide general information on the disposal of the plant wastes- other than any reviews or consultations that may be specifically requested by personnel in India.³¹

It was further held that for the waste liquid incinerator to be used at Bhopal, UCC did provide a “criteria report”- a report laying out UCC’s performance and design requirements”. In simple words UCC specifically and clearly mentioned UCIL that it will play a limited role in respect to the design of the waste disposal system. It was told that all work in construction and engineering will be done in India and UCIL had assumed an overall responsibility for the implementation of the project.” There is no evidence in the records which show that UCIL manufactured the pesticides on UCC’s behalf. Holding UCC liable by agency also fails. There is absolutely no evidence to show that UCC’s approval power went beyond the strategic plans. It never extended to other areas of UCIL’s operations.³²

VII. UCC IS NOT LIABLE ON THE GROUNDS OF TECHNOLOGY TRANSFER

Severe operating problems were encountered by UCIL with its naphthol operations. Although UCIL requested “UCC’s assistance to sort out the naphthol process problems there is no evidence to suggest that UCC in fact provided any naphthol technology to UCIL, and UCIL ultimately shut down the naphthol plant in 1982. Technical assistance that UCC

³¹ Pg. 19, Janki Bai Sahu vs. UCC and Warren Anderson

³² Pg. 41, Janki Bai Sahu vs. UCC and Warren Anderson.



provided to UCIL was performed in accordance with a 1973 Technical Services Agreement. UCC pursuant to this agreed to offer training and instructions for technical personnel, for a fee and only “upon the request of UCIL.”³³ In the case of *Janki Bai Sahu vs. UCC and Warren Anderson* it was held that UCIL developed any unproved technology used in the plant. Extensive liability is not recognized by potential waste disposal issues.³⁴

VIII. UCC NOT LIABLE JUST BECAUSE IT WAS MAJORITY SHAREHOLDER

In the case of *Fletcher v. Atex*, the court dismissed claims against Kodak, the parent company on its allegation of participating in Atex’s manufacture of keyboards users to develop carpal tunnel syndrome. It held that since there was a lack of “special relationship” between Kodak and Atex. Kodak cannot be held liable just because it was generally aware that use of keyboards could contribute to repetitive stress injuries, that it acted tortuously by failing to warn the plaintiffs about the danger or by failing to prevent Atex from manufacturing the keyboards.³⁵

In the case of *Quinn v. Thomas H. Lee Co* the court dismissed negligence claim against the parent company. It held that the only connection between plaintiff and the defendants is that Thomas H. Lee Company

was the majority shareholder in American Health Companies.³⁶

IX. UCC IS NOT LIABLE FOR ENVIRONMENTAL REHABILITATION

UCC should not be held liable for environmental rehabilitation as well. Around the Union Carbide premises samples from the tube wells and other drinking water sources were collected and analysed. The analysis found no traces of chemicals used in the Union Carbide factory or the wastes there. No residue of chemicals was also found from the water sources which may be linked to chemicals of the factory or the wastes there.³⁷ Improper drainage of water and other causes of environmental pollution is the reason for the contamination of water sources. Many samples from these water sources have been collected and analysed by the National Environment Engineering Research Institute (NEERI), Naqpur. No traces of chemicals were found that may be related to the chemicals used in Union Carbide factory was found in these analyses.³⁸

For the treatment of contaminated water of the factory three solar evaporation ponds were constructed. Under the supervision of experts the silt of pond number 1 and 2 had been safely disposed of in pond number 3. This was done through the secure landfill technique suggested by the NEERI. After possession of the land by the State Government, the State Government had ensured safe disposal of the residual Sevin tar and Nephthol tar from the factory and had

³³ Pg. 28, *Janki Bai Sahu vs. UCC and Warren Anderson*.

³⁴ Pg. 29, *Janki Bai Sahu vs. UCC and Warren Anderson*.

³⁵ *Fletcher vs. Alex* (68 F.3d 1451), Case briefs.

³⁶ *Quinn v. Thomas H. Lee Co*, Case Briefs.

³⁷ Pg. 1, No Contamination of Groundwater or soil from wastes, Madhya Pradesh Government press release.

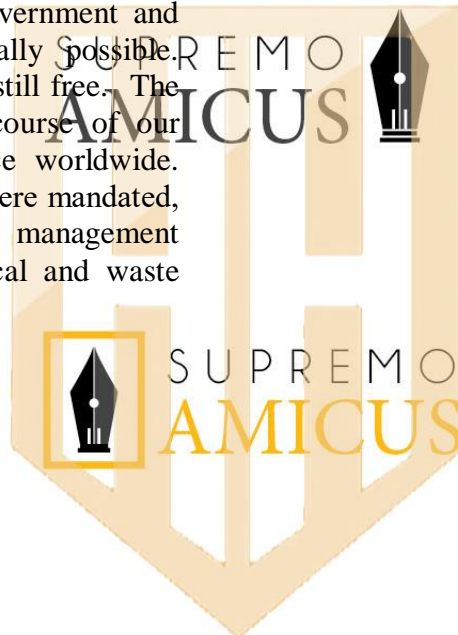
³⁸ *Ibid*.



told that this would be in consultation with the NEERI Nagpur and I.I.C.T, Hyderabad.³⁹

CONCLUSION

Thus after examining all reports, court decisions etc. it can be concluded that the UCC is not liable for the Bhopal Gas Tragedy. What happened that night is truly devastating. Someone needs to be held responsible for this disaster but after years of analysing and examining all the facts of this incident one thing should be made clear that UCC is not responsible for this incident. All theories made by the Government and the press are not scientifically possible. After years the real culprit is still free. The accident truly changed the course of our country. It made a difference worldwide. Worker's safety precautions were mandated, legislation for environmental management was strengthened and chemical and waste management was reinforced.



³⁹Ibid.