The Bhopal Waste Story

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Abstract

On a fateful night during December 2-3, 1984, the worst industrial accident ever happened when water entered the tank no. 610 containing 42 tons of Methyl Isocyanate (MIC) resulting in a runaway exothermic reaction, venting out toxic gases into the atmosphere, killing and injuring thousands of people. Ever since the Union Carbide India Limited (UCIL), an Indian subsidiary of Union Carbide Company (UCC) opened its pesticides manufacturing plant at Bhopal in the year 1969 to produce Carbaryl under the brand name Sevin, it had a poor record of compliance to environment and safety norms many times, which is evident from the fact that during the years 1980 to 1984, there were sixty-seven leakages of MIC occurred at the UCC factory. This does not only reflect the poor concern towards environment and safety by the industry, but also the negligence and incompetence of the regulatory authorities. What happened till the disaster might have only been just the warnings that the industry, authorities and the workers collectively chose to ignore. However, what happened after the disaster was even fortunate as it showed that we somehow collectively fail to learn even from the disasters. In between all the blame game and debates on who is responsible, what many people conveniently forgot was the huge amount of highly toxic and hazardous waste lying around at the abandoned site of UCIL. The legal battle for clean-up of the site which effectively started in the year 2004 with Activist Alok Pratap Singh filing a public interest litigation 2802/2004 before the Hon'ble Madhya Pradesh High Court, went on to become a never ending struggle with action plans and proposals on paper but no change in the ground. With all these aspects in background, this paper tries to highlight, using the case study of the Bhopal gas tragedy waste materials, how we tend to forget the root-cause behind any environmental crisis while continuing our political battle and tries to explain the necessary alternatives.

Keywords: Bhopal Gas Tragedy, UCIL, Bhopal Toxic Waste, Incineration, Waste Disposal, Post-Disaster Plan

1. Introduction

The Union Carbide Company (UCC) opened its pesticides manufacturing plant at Bhopal in the year 1969 as an Indian subsidiary Union Carbide India Limited (UCIL) to produce Carbaryl under the brand name Sevin (PIL, 2011). From 1969-84, UCIL mainly produced two other pesticides along with sevin, that are temik (aldicarb) and sevidol, which is a formulation of carbaryl and gammahexaclorocyclohexane (γ-HCH) (CSE, 2013). In the pursuit of higher productivity and greater yield, this period saw a nationwide surge in the use of fertilisers and pesticides. Silent Spring, a 1962 book by Rachel Carson, did spread some awareness about the ill-effects of the indiscriminate use of the pesticides. However, for the nations whose primary goal was to feed their hungry population, the use of fertilisers and pesticides seemed inevitable. The environmental and safety regulations during those times were very few and were often dealt with utter negligence. Same thing happened even in Bhopal.

'Green Revolution', characterised by the shift of manual, organic agriculture that developed over thousands of years into large scale, chemically and mechanically supported agriculture, was initiated in India as well as in many developing countries during 1960s and 70s. Though Green Revolution was believed to be a political and technological breakthrough, that somehow broke the natural limits, it came with a number of unforeseen ecological and cultural costs. The other face of the Green Revolution was very violent, as Vandana Shiva explains using the example of Punjab (Shiva, 1991), instead of abundance, Punjab has been left with diseased soils, pest-infested crops, waterlogged deserts, and indebted and discontented farmers. However, the one thing all will agree upon is that the 'Green Revolution' did increase the demand of pesticides dramatically and this did become the economic

rationale behind the construction and expansions of the Bhopal factory (Hanna, 2007).

However, during its expansion in 1972, the UCC designers are said to have pointed out that the solar evaporation pond (SEP), the proposed waste management system at the UCIL has the risk of subsurface water pollution (Hanna, 2007). It should also be noted that the, UCC cut the cost of construction from $28 million dollars to $20 million dollars, in pursuit of retaining its 50.9% of stake in the undertaking (Hanna, 2007). In addition to plant safety which is the responsibility of its operators, the safety of the city however, is perceived to be the responsibility of the government. However, the Government authorities also in this case, were found to have violated the national laws including those for the zoning restrictions, to ensuring comparable safety standards (ibid). Further, as per Eckerman, 2005 UCC had previously violated the environment and safety norms many times, violating the health of workers and residents. As an example he mentions that during the years 1980 to 1984, there were sixty-seven leakages of MIC occurred at the UCC factory. These sequences of events demonstrate that neither the organisation nor the authorities were serious about the safety and the environmental concerns. The unfortunate disaster inevitably happened during the night of December 2-3, 1984 when water entered the tank no. 610 containing 42 tons of Methyl Isocyanate (MIC) resulting in a runaway exothermic reaction, venting out toxic gases into the atmosphere, killing and injuring thousands of people (Kalelkar and Little, 1988).

1. The Continuing Disaster

The legal battle for the justice by the victims of the Bhopal tragedy is a long and tedious story in itself. However after much struggle finally, UCC acknowledged its moral responsibility for the tragedy and in a settlement mediated by the Indian Supreme Court, it agreed to compensate the victims with $470 million that will be allotted to the Indian government for distribution into the claimants as a full and final settlement (Broughton, 2005). This figure was arrived after much deliberations was said to have been based on the disputed claim that only 3000 people died and 102,000 suffered permanent disabilities (ibid). However, as agreed by many, this compensation amount is highly inadequate for the victims themselves leave alone the environmental clean-up and remediation (Amnesty, 2014).

There has been already a lot of study and debate on the failure of the industry to avoid the disaster, Governing body or institutional failure in authentic checks on industries, legal battle for compensation, and many more aspects. In between all these debates, what many people conveniently forgot was the huge amount of highly toxic and hazardous waste lying around at the abandoned site of UCIL. All those years since 1969 to 1984, when the plant was in operation, the hazardous and toxic wastes produced in the UCIL factory were being dumped at some specified areas inside the plant itself such as outside the solar evaporation pond (SEP) (CSE, 2013). The plant which was closed following the disaster in 1984 became the silent warden for the highly toxic waste dumped in an unscientific manner. Over the years or we can say decades, this waste left out irresponsibly, has continued to be a source of land and groundwater contamination. A study of over 15 investigations at the site, which was performed by the by the Centre for Science and Environment (CSE) in 2013, found that the soil is heavily contaminated due to the waste where as the groundwater quality studies show many discrepancies and hence need a thorough assessment (ibid).

The primary reason behind the disaster itself, as agreed by many researchers, was storing MIC in huge quantities above the recommended levels (PIL, 2011). Yet, the storage of such huge quantities of hazardous and toxic material has continues even after the disaster, not for some days or months but for over three decades now. There exists a lot of confusion regarding the volume as well as the constituents of the waste which has already been excavated and packed by M/s Ramky Ltd., in 2005, as per the directions of the Government of Madhya Pradesh. As per the present consensus, the volume of the packed waste is about 350 tonnes (CSE, 2013). However, further studies have suggested that the excavation

is incomplete and there may be still more contaminants lying around the plant (ibid).

In the year 2004 Activist Alok Pratap Singh files public interest litigation 2802/2004 before the Honourable Madhya Pradesh High Court demanding to hold Dow Chemical responsible for pollution at the site and immediate action for clean-up (Public Interest Litigation, 2011). The long struggle for clean-up of the site was hence started with Hon'ble Madhya Pradesh High Court directing the Union of India to come with an elaborate action plan for clean-up. Since 2005, the Government of India (GOI) considered three different places in India including Ankaleshwar in Gujarat, Nagpur in Maharashtra and Pithampur in Madhya Pradesh for incineration of packed toxic waste, but could not go ahead because of the strong opposition by local community. In 2012, a proposal was made by Gesellschaft für Internationale Zusammenarbeit (GIZ) to airlift the waste to Germany for incineration but was later withdrawn. Finally, the incinerator plant at Pithampur was considered for disposal (CSE, 2013)

These proposals for incinerations at different places were usually unsuccessful mainly because of the protests from the local people. As the protestors at the receiving places rightly assert, incineration of hazardous and toxic waste, even with utmost precautions, might releases toxic, unburned waste and products of incomplete combustion (PICs) i.e. new chemicals formed during the incineration process. These contaminants are perceived to be more harmful than the original waste (PIL, 2011). Therefore nobody is ready to take that risk of exposing their locality to such hazard. However, on August 13 to 17 of 2015, the first trial burning of the waste war carried out at the Pithampur site of Dhar district and the stack emission as well as the ambient air monitoring reports were said to have been satisfactory (Ranjan, 2015).

2. What Went Wrong?

Though there is so much deliberations on how and why this disaster happened, there are still many unanswered questions. Somehow, we might blame certain set of people for a disaster. However, if we do not learn even from that disaster and correct our ways, then somehow, it becomes our collective failure as a society. What happened with the Bhopal toxic waste is one such live example where even after the worst ever industrial disaster the society has not learnt its lessons. It has been over 31 years since the disaster occurred and still the waste remains in the site continuing to pollute the soil, water and the atmosphere. This has become another one of the legacies left behind by the disaster, a rather unavoidable one. Therefore, let us try and assess what are all the aspects where we went wrong to have reached to such situation:

- Safety should have been the primary priority for any industrial activity. It has an economic rationale also. A disaster, however small or big it may be, will have very bad impact on the brand image as well as the business of any company. Trading safety for cost reduction, higher productivity or any other reason will have catastrophic consequences.
- The mechanism to regulate the industries in terms of their safety and environmental compliances has miserably failed to keep pace with the pace of industrialisation and development in India throughout the history. This makes the industries to have an easy way out rather than to spend all the money and time required to comply with the regulation.
- The policies have time and again proven that they are insufficient to fulfil the requirements of adequate environment and safety. With the advent of newer products, production processes, and technologies it is very essential for the law to be adequate to assess and prevent disasters.
- The comprehensive understanding of the long-term impacts of the policy decisions is very necessary to avoid the greater risks. The pursuit of development should not push us out of the track with such disasters which pulls back the development by years.
- The delay in response to environmental concerns, post-disaster deteriorated and makes the remediation, even more difficult. Sometimes such delays might even result in irreversible damages to the environment that could be avoided by the timely response.

- The public participation in the waste management, disaster management and environmental well-being is very crucial for exerting the necessary political pressure required for an efficient management of any incident. Such participation, if absent, can result in the bureaucratic channels getting into an undefined time span for environmental remediation.
- Absence of a comprehensive Post-disaster plan. Most of the industrial operations have mechanisms such as monitoring and standard operating procedure to avoid the disaster. Many also have a disaster or emergency response plan for the immediate response during a disaster. However, very few have a post-disaster plan and even the ones who have it do not have a comprehensive one. For instance, the schedule of monitoring, assessing and cleaning up of the environmental damages is never included in these plans. Therefore, a comprehensive Impact Assessment post –disaster should be made for all major disaster that should be done within a specified time after the disaster. This can further include the extent of damage, the action plan for remediation and the time line.

3. Conclusion

The 'Green Revolution' started with a noble intent of eradication of the food scarcity. However noble is the intent the implementation should be as per the procedure. Forsaking the basic safety standards in pursuit of higher productivity or cost reduction will have catastrophic consequences. However, what is even more disturbing is that our society does not learn from its mistake even after such a huge disaster. The toxic waste of the plant, left abandoned ever since December 1984, has continued to contaminate the local soil and water in and around the plant area for over 3 decades now. This demonstrates the tendency of our society to forget the root-cause behind any environmental crisis while continuing our political battle. Therefore having a compulsory, binding, post-disaster plan that will unfold itself immediately after the disaster, no matter what the circumstance is, can be the best option to address such concerns and avoid irreversible damages. Such plans can include the post- disaster response in terms of immediate safety, environmental restoration, scientific waste management, comprehensive impact assessment and so on. Further, public participation in responsible environmental restoration is also very necessary for effective management of the post disaster environmental crisis.

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