



6.9 DELHI: a case study

1.1 Introduction with present status

We need not wait for nuclear war or a series of RDX blasts to convert Delhi, the heart of the country, into a heap of waste and dust. A few industrial accidents, as have been witnessed in the recent past, in the dingy, unmanned and illegal colonies of the city, housing innumerable illegal and dangerous factories, are enough to create havoc. (See table 1.1a) Whereas people continue to suffer, the government is still to wake up and realise that industrial accident is a grave issue and needs to be looked into with immediate action. "For government, at present issues like family planning, immunisations are of more importance than industrial safety. That's why there is not even a Central Registry System to register industrial accidents in the country. Until government does not think it to be a serious issue, nothing major can be achieved," says Dr S B Lall, Additional Professor, National Poison Information Centre (NPIC), All India Institute of Medical Sciences (AIIMS), New Delhi.¹

Table 1.1a: Chemical accidents in Delhi during 1984-1999

Year	Origin of accident	Products involved	Number of deaths	Injured	Evacuated
1985 ¹	Release	Sulphuric acid	1	340	□10
1989 ²	Toxic Release	-	15	-	-
1992 ¹	Explosion (ware house)	Chemicals	43	20	-
1992 ³	Tanker blast	-	2	10	-
1993 ²	Fire and Explosion	PVC coating	-	9	-
1994 ¹	Fire at a chemical storehouse	Toxic cloud (chemicals)	-	500	-
1994 ²	Fire and explosion	Nitrocellulose	1	10	-
1994 ²	Release	Metal Fumes	14	4	-
1995 ²	Release	Tri-Chloro Ethylene (TCE)	-	1	-
1995 ⁴	Fire	Plastic	-	-	-
1995 ⁵					
1998 ⁶	Fire	Plastic	6	-	-
1998 ⁷	Leakage	Toxic gas	-	12	-
1998 ⁸	Fire	Chemicals	-	-	-
1998 ⁹	Leakage	Polythene	6	-	-
1999 ¹⁰	Fire	Plastic	-	-	-
1999 ¹¹	Explosion	Chemicals	-	-	-

Source: 1 Anon 1999, Select accidents in India involving hazardous substances 1974-1997, in *Industrial Safety Chronicle*, Vol. 29, No 4, Jan-Mar, National Safety Council, p 83.

2 Prestels 1996, Chemical accidents in the country during 1984-1995, in *Preparedness and response to chemical emergencies, India Country Report*, June, p 101-108.

3 Anon 1992, two killed, 10 hurt in tanker blaze, in *Indian Express*, 21.6.92

4 Anon 1998, 6 die in plastic dump fire at Jahangirpuri, in *Indian Express*, 24.3.98

5 Damandeep Singh 1995, Fire in Delhi highlights risk of junkyards in residential areas, in *Business Standard*, June 8.



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- 6 Damandeep Singh 1995, Fire in Delhi highlights risk of the junkyards in residential areas, in *Business Standard*, 8.6.95
7 Anon 1998, Women taken ill with toxic gas, in *The Times of India*, 16.10.98
8 Anon 1998, Fire at Paharganj chemical godown, in *Indian Express*, 8.6.98
9 Anon 1999, Two hurt as scrap plastic in E. Delhi slum catches fire, in *Times of India*, 11.4.99
10 Anon 1998, Fire damages plastic unit in Mayapuri, in *Hindustan Times*, 13.5.98
11 Anon 1999, Chemical factory gutted in Okhla, in *The Times of India*, 6.4.99

The table above clearly shows that over the years industrial accidents, mostly fire and explosion, have grown in the city. The reason being that Delhi houses some major industries in its womb, which include both large scale and small-scale industries. Whereas large-scale units majority comprise of Public Sector Undertakings (PSUs), private companies and few MNCs, small-scale units vary from plastic industry, consumer goods to chemical ones. And these small-scale illegal units pose the greatest threat to public safety. "The large scale units, mainly PSUs are very careful as far as industrial safety is concerned because they know in the long run they only would be benefited from it. It is the small illegal units that are a matter of grave concern," says Mr. R Rajaraman, Deputy General Manager, (Operations and Safety), Engineers India Limited, New Delhi.² All the more disturbing fact is that the general hospitals in Delhi are least equipped and prepared to handle emergency situations such as that arising due to industrial accidents (See box1: Hospitals- ill prepared)

2.1 What areas are under threat? Major accidents

Industries in Delhi are not concentrated in one area but spread to almost all parts of it. Be it north Delhi or south, both large scale and small-scale industries have spread their tentacles in almost all the areas. Some areas where they are concentrated are the Okhla Industrial Area in South Delhi, Walled City in North Delhi, Mayapuri in West Delhi, Jwalapuri in East Delhi, Jhilmil Industrial Area in East Delhi, and so on. The list seems never ending. Most of the units in these areas are illegally set up and run with maximum risk. Often there is an explosion or fire that for the time being stirs people, but then again falls back in its deep slumber. This spread of factories is all the more reason for concern because monitoring becomes difficult if industries are spread over large distances and are not registered.

2.1.1 Okhla: a time bomb- Very recently, in April 1999, property worth lakhs was gutted when a fire broke out in a chemical factory-cum-godown Savitri Petrochemical Factory (A-1232, Okhla Phase-II), in Sanjay Colony at Okhla Industrial Area of South Delhi. The factory used to store highly inflammable chemicals in drums and the four underground tanks in the facility.³ It did not even have permit by MCD to store chemicals in its premises and used to run the illegal business.⁴ What adds fuel to the fire is the fact that the factory is still running, but in the thick of the night.⁵ A visit to that area still tells tale of horror it must have been for the eyewitnesses. The boundary walls of the factory are black in colour and the tress all around stand naked without a single leaf on it. In front of the factory, there are large number of drums and a tanker completely destroyed due to the searing heat of the explosion. The adjacent buildings still suffer the structural damage caused by that fire.⁶

Recollecting what happened on 5th April, Mahipal Singh, the security guard of adjacent garment export house, Rathi Exports, says, "Seconds before the fire broke out, a tanker carrying chemicals entered the premises. Suddenly there was a loud bang and flames erupted. The driver of the tanker tried to get the vehicle out of the premises. But finding that there was no time, he apparently abandoned the vehicle and fled," recollects Mahipal Singh.⁷ The fire proved to be all the more devastating because of the tones of scrap cloth and fibre, which keeps lying outside the boundary wall of godown. The combination of inflammable chemicals and scrap ensured that it took fire



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fighters hours to bring the fire under control.⁸ Although a lot of hue and cry was made after this incident, but nothing has been done to make that area safe. Says Babar, a resident of the colony, "Since last ten years we have been complaining about illegal construction but nobody is ready to listen to us. We are virtually sitting on a time bomb."⁹

2.1.2 Mayapuri- the magic of plastic- Mayapuri industrial area of west Delhi inhabits many small illegal plastic manufacturing units. The owners of such units are not observing even the minimum precautions and are indulging in gross violations. A result of such violations became visible on 13th May 1999, when a fire broke out in the Manjit Plastics (B-51, phase I) owned by Mr. Daljeet Singh causing extensive damage to the unit. Deputy Chief of Delhi Fire Service A K Sharma said that the fire could have been caused by some spark from the machinery that must have fallen on the inflammable material.¹⁰ It is a surprise that inflammable material is handled with least care and even a small spark can lead to a big disaster. Visiting that area 3 months after the accident gives rise to fear about a few more accidents that are in their making stage, keeping in view the illegal units running in that area and the carelessness with which they are being run.

2.1.3 Walled city- High on the list of accidents- Visiting Paharganj area of Walled City is a mountainous task keeping in view the narrow and dingy lanes that run like a web in the whole area. Adding to the problem is the fact most of the lanes are so narrow that a fire tender cannot even enter the area, which is both a residential and commercial place. It inhabits small illegal units for making and storing materials such as plastic, fabric, paper work, electrical, spare parts, consumer goods, etc and also has lot of transport agencies that deal in all kinds of material including chemicals.

Very recently there was a major fire that broke out in the Lal Kuan market close to Paharganj. It was again caused by a chemical tanker that burst out within the premises of a chemical godown causing lot of human and monetary loss. "The loss could have been all the more grave had we not evacuated inmates of a nursing home close to the godown that caught fire," says Mr. Satyendra Jain, Secretary, Forum of Delhi Trade Association.¹¹ He feels that more of such accidents could take place in future, as there has been no change in the way trade is carried out after that accident.

Last year in June, a fire broke out in a chemical and transport godown in the Chuna Mandi area of Paharganj that used to store chemicals, ghee, tyres and other transport equipment due to which property worth lakhs was destroyed. Narendra Nagpal, vice president of the traders' association fears that any more of such accidents could be more hazardous. "This godown was fortunately approachable from at least one side. There are several buildings in the by-lanes here which are built in such a way that they cannot be approached by a fire tender from any side," he adds.¹²

Way back in 1992, a chemical blast had rocked the Naya Bazar area of the walled city and had stirred the conscious of administration and public, but again, not for too long. It left some 43 people dead and many injured. An enquiry was set up under then additional district magistrate, Mr R K Verma, who reported that the accident was result of perpetual negligence of the MCD, the Delhi Fire Service and the Delhi Police. The report also suggested implementation of the provisions of the Master Plan 2001 and decongestion of the Walled City. But, suggestions always remained as suggestions and have not reached the implementation stage.¹³

2.1.4 Kotla- Kotla is situated at the backside of South Extension part-I, and anybody who crosses South Extension cannot imagine what is brewing at its back. It is a residential area turned into a



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mini industrial area with lot of illegal activities going on there. It was the result of such illegal activity that some 3 years back, there was a case of industrial accident in a cheese manufacturing factory that went unnoticed because the owner of the factory was politically powerful. It is still functional and continues to threaten the lives of its workers and neighbours.¹⁴ That particular accident (bursting of the boiler) led to burning of 2 young male employees, one to the extent of 85 per cent burns. The reason for the accident was the poor conditions under which the boys used to work. "The machines seemed to belong to pre-independence era and were not replaced even though they used to make creaky sound whenever they used to run. Everything was in a dilapidated condition, but that did not make the owner think of getting them changed," recalls a boy working in that unit. "Also there was complete lack of first aid," he added.¹⁵

2.1.5 Jwalapuri- the burning issue: Asia's largest PVC scrap market in Jwalapuri, west Delhi, was reduced to ashes in a major fire that broke out in June 1995. Jwalapuri is very prone to such accidents, and nothing has been done to check growth of illegal units over there. Although no casualties were reported, but the fire exposed the people living in that area to harmful dioxins that were released when tonnes of PVC caught fire.¹⁶ CPCB carried out the investigations and found that gases like carbon monoxide, chlorine and vinyl chloride were the combustion products of PVC and were present in excessive amount than the permissible limits. The scientists who studied the area put forward in their recommendations that to prevent mushrooming of polluting industries and hazardous activities in the non-conforming areas, the Delhi Administration should issue notification. While recommending public involvement at community level, they suggested that policy decision should be taken by local authorities for collection and storage of inflammable communities including plastic materials¹⁷. But, while these recommendations are collecting dust, Jwalapuri continues to put public health at stake.

3.1 Why this rise in accidents?

The situation as witnessed in Kotla and the fear as expressed by Narendra Nagpal is not imaginative. Most of the industrial accidents in Delhi play havoc because they occur in areas, which are residential areas and have illegal units running in them. There is no monitoring of such units and they keep on mushrooming posing a threat to human life. Since these units are scattered from old Delhi to areas such as Mayapuri, Seemapuri, Daya Basti, it becomes necessary to put a tab on these ever-growing units and control their future growth.

Although these plans are there in the pipeline, we still need to analyse why such accidents occur and who is responsible for them. One such reason for the accidents is illegal storage of chemicals in godowns without the permit of MCD. Sometimes the MCD is aware of it, otherwise it pretends ignorance. But, what could be the reason for this illegal storage? Explains Mr. Ramesh Sharma, accounts officer, Rathi Exports, an export house adjacent to Savitri Petrochemicals where the fire broke out in April this year, "These chemicals come from Gujarat or Maharashtra to Delhi. The market of chemicals keeps fluctuating and it is always advisable for business profit purpose to store more than for what they have a permit. Since most of the godowns are close to other hazard prone industries, they are not allowed to store inflammable chemicals."¹⁸

Transportation of frequent and bulk hazardous chemicals also poses a constant threat to the population and the environment. Any accident, like a small leak in nozzle to a large spill and from a dent in the vessel to a rupture or explosion leading to the escape of hazardous substances into the environment is considered as transport emergency.¹⁹ These accidents are caused due to improper tightening of valves and taps; missing gaskets; overfilling/under filling; over-pressure due to temperature/pressure variation; collision with other



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vehicles; bad roads; vehicle failure; speed violation; driver's negligence/ignorance or public negligence/ignorance. Most of the transport accidents are caused due to ignorance, carelessness or lack of vehicle maintenance.²⁰ (See Box 2: Death on wheels)

One more reason why the industrial accidents are rising is non-conformity to Disaster Management Plans (DMPs). In order to be in a state of readiness to face the adverse effects of chemical emergency, an emergency preparedness plan (DMP) has to be prepared both by the occupier of industrial installation and the district authorities.²¹ Whereas the large-scale industries, such as PSUs, prepare their DMPs, for many small-scale illegal units spread all over the city DMPs sound Greek. "Industrial accidents cannot be completely stopped, but they can surely be minimised. DMPs can help in averting such accidents and minimise the loss of property and human lives," feels Dr Tanzeem A. Siddiqui, Manager, Engineers India Limited, New Delhi.²² (See box 3: DMPs- Do PSUs fare well?)

But, while these accidents are on rise, where does the law stand? "We have enough laws and their infinite clauses. Implementing them 100 per cent is a zero possibility. But, then we should also remember that such rules have been framed for our safety," says Mr. S Venkatraman, Director (Environment), Oil Industry Safety Directorate, Government of India, New Delhi.²³ Mr N K Jain, Director of Joint Assistance Centre (JAC) in Gurgaon, an NGO involved in raising awareness about industrial safety, also feels the same, "We have enough laws. What we require is their proper implementation."²⁴ Motor Vehicle Rules, 1989 lay down certain rules to be followed while transporting hazardous material. Factories Act, 1948 explains safety within the factory premises and in its vicinity. Unfortunately public awareness on these legislations is very poor and the owners of various factories do not want to get into the trouble of implementing them.

4.1 Too many cooks spoil the broth

The above quote well describes the chaotic situation as far as industrial accidents and their safety are concerned. There are too many players and no body is fully aware as to what the game is all about. So, at best what they can do is to pass on the buck from one to another, or else wash their hands off by saying that it does not come under their purview. There are others that stand out as toothless tigers and are not given enough powers to take action against the violators. Some prominent agencies that need to look into industrial accidents are Central Pollution Control Board (CPCB), Ministry of Health and Family Welfare (MoHFW), Ministry of Environment and Forests (MoEF), Ministry of Labour (MoL), Ministry of Petroleum and Natural Gas (MoPNG), Plant Operation and Safety Department (POSD) of Engineers India Limited (EIL), etc.

These authorities often come into picture when there is an accident, but soon goes into oblivion after the mounting public criticism subsides. One may recall that plans for decongesting the crowded areas were announced some years back when a major fire had broken out in Sadar Bazar. But with the passage of time not only the administration forgot what it had announced, but allowed the problem to get worse.²⁵ The result was that the same tragedy repeated itself in 1992 in Naya Bazar and in 1995 in Jwalapuri. After each accident, the Delhi Administration swings into action and holds high-level meetings to ensure that a tragedy does not occur in the city again. Some of the important decisions taken during such meetings include banning the movement of heavy goods vehicles in the congested walled city areas, prohibiting the storage of hazardous material in the specified areas, immediate shifting of godowns and offices of transport companies to safer places, and finally to appeal to the general public to immediately inform officials manning a specially created cell about the dumping of hazardous material in the stores or godowns owned by the shopkeepers. But, soon they are forgotten, only be raised when the next accident happens. Sometimes actions are taken under pressure but they are only an eyewash. " Under pressure from the High Court, the Delhi government was forced to form District and Local Crisis Groups, but they are a farce. These groups cannot be activated at any point of time and are almost non-existent. Delhi also has an off site plan prepared by the district authorities



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with the help of a south India based consultant. The government on its part has no understanding of it and if it is told to make a presentation on the same, it will fail to do so," says Mr N K Jain.²⁶ Of late the Delhi government plans to relocate inflammable chemical godowns in commercial or residential areas of the Capital to east Delhi in Ghazipur.²⁷ Apart from chemicals, other materials such as plastic, tyres and liquid petroleum gas would also be dealt with. The government is also considering bringing in legislation for regulating storage and movement of inflammable materials, including chemicals.²⁸ But the present situation is best described in terms of wait and watch situation.

Apart from the Delhi government, other players in the field are various ministries that fortunately or unfortunately have to look into the issue of industrial accidents. But again these ministries look mostly into large-scale industries and often lack coordination within themselves that helps them in passing on the buck. Oil Industry Safety Directorate (OISD), under the MoPNG, coordinates the implementation of a series of self-regulatory measures for enhancing the safety and environment aspects of the oil and gas industry in India.²⁹ "We carry out External Safety Audits (ESAs) periodically which include critical examination of all components of the safety systems viz. Management policy, management attitude towards safety, safety training, review of plant outlays, operation/inspection/maintenance procedures, emergency plans, fire protection systems etc," explains Mr. S Venkatraman, Director (Environment), Oil Industry Safety Directorate, Ministry of Petroleum and Natural Gas, New Delhi.³⁰ But, do they have powers to penalise an industry if it is found guilty? "No, we are not allowed that. That only ministries can do," mourns Mr. S Venkatraman.³¹ Thus they are sitting like toothless tigers, waiting to be given further directions.

Apart from these organisations, a very vital role has to be played by CPCB. Pollution Control Board engineer is supposed to conduct investigations that may be necessary on the incident (accident) including collection of data and information relating thereto.³² There might be 10 more things that CPCB is supposed to do, but on being contacted their officials refused to give any information on the fear of being misquoted. Above all these individual organisations, comes MoEF, which is the all-powerful body. Until and unless the MoEF does not give permit, large-scale industries cannot be set up. It surely is a good step, but needs to be decentralised effectively. Although ministries have created bodies like OISD, a separate Ministry of Steel, etc., but they hardly have enforcement power. "We report to Ministry of Steel, but it does not look into the safety aspect of our plants. For that we have our own nodal agency of SAIL at Ranchi," says Mr. A K Jain, Chief Business Manager (NR), Steel Authority of India Limited (SAIL), New Delhi.³³ Thus there is no common ground where all these industries meet. This makes easy for them and ministries to pass on the buck and play musical chair.

5.1 People's participation- need of the hour

Nothing major can be achieved without active people's participation. We all realise that the government is not doing anything. But, the responsibility lies with us to make government function and that also effectively. A common site is that many small-scale illegal units crop up in residential area and it goes unnoticed or no complaint is made. Rather than reporting such incidents, the neighbours open another of an illegal unit in their house. This keeps multiplying till the whole area becomes disaster prone.

Early this year when the government decided to relocate chemical godowns to the outskirts of Delhi, a decision finally taken after a few deaths and hundreds being hospitalised, the chief minister of Delhi, Mrs. Sheila Dikshit said that the people are equally to be blamed. "Delays do take place in government functioning, but the public too has to respond positively to change. People who are running godowns or other establishments without obtaining a proper license were also responsible. People's awareness and government's vigilance has to go together," she added.³⁴



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There are laws that also aim at people's participation and want industries to be sensitive to the problems of population. According to provisions in the Public Liability Insurance Act, 1991 and Rules, every owner handling hazardous substances in quantities notified will help to pay immediate relief in case of death or injury to any person (other than workmen) or damage to any property in case of an accident.³⁵ Also before setting up any industry or plant in an area, it is mandatory for the owner of that industry to inform the public around the industry about the possible danger and threats associated with the setting up of the industry in that area. It is only after the population agrees to it that a particular industry can be set up. "Although in Delhi we haven't heard much about it, but in Gujarat this concept is very strong. The last such public meeting that I attended had about 80 participants fighting against a particular industry," reminisces Mr. S Venkatraman.³⁶ These kind of public meetings can be of great importance if only people are made aware about them and they come forward to use them judiciously.

Also, at the Emergency Plan planning stage of an industry great care is given to public living in the vicinity. For instance, the Off-Site Plan spells out that during crisis following an accident, the people of an area and large number of media representatives would like to know about the situation from time to time and the response of the district authorities to the crisis. So, it is important to give timely information to the public. "But that is not what happens. Although public have right to information, but it becomes very difficult to exercise that right. Even if someone tries to exercise it, it takes year to see to it that the complaint is heard. There is no proper mechanism/system developed for such redressal. Public education in the field of industrial safety is zero," laments Mr N K Jain.³⁷

Apart from public education in the field of industrial safety, we need proper implementation of the existing laws. "We need cadre of crisis management people to tackle the issue. It is generally very difficult for the young IAS officers to handle so many things in one go," adds Mr N K Jain.³⁸ We also need healthy interaction and coordination between various ministries so that the issue of industrial safety does not keep juggling between them.



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Box 1: Hospitals-ill prepared

Come an industrial accident or any other similar tragedy- the initial commotion over the incident site very often snowballs into a bigger chaos in the nearby hospitals. Several of such incidents in the capital bear a testimony of how hospital staff, police and fireman lose coordination during the crucial emergency hours.

Are our general hospitals ill equipped when an emergent human tragedy arises? "Not at all. We in Safdarjung Hospital are well equipped and prepared to meet disasters. At present our ICU has 17 beds and 17 nurses per bed. Very soon, there are going to be 30 beds. As far as general ward is concerned, we have about 30-35 beds and 4-5 nurses," says Dr Ajit Kumar Biswas, Senior Physiotherapist, Department of Burn and Plastic, Safdarjung Hospital.³⁹ But visiting government hospitals in Delhi show the poor conditions under which they are being run. There are doctors who accept the fact that hospitals are not equipped to handle cases such as industrial accidents. "Forget about 20-30 patients coming in together at AIIMS. Even if we get 10 patients of an industrial accident, it would be very difficult for us to handle the situation. What happened during Uphaar Cinema Hall tragedy is still very fresh in our minds. There were so many patients and we were unable to take the pressure," laments Dr S B Lall, National Poison Information Centre (NPIC), AIIMS.⁴⁰ On being questioned about the preparedness of other hospitals, she goes on to add, "I am sure that others are also not as well equipped as they should be to handle emergency cases." As far as other hospital such as LNJP is concerned, it is also increasing the capacity of its Department for Burn, Plastic and Maxillofacial Surgery to accommodate more patients.⁴¹ The MCD-run Hindu Rao Hospital in north Delhi also claims to be "completely equipped to deal with any emergency situations".⁴² But, these tall claims often prove to be a misnomer when an accident occurs. Although the hospitals claim that they are equipped and can handle any emergency, they often fail to manage things once an accident happens. For instance, when the Naya Bazar case happened in 1992, there was complete chaos at LNJP hospital and Hindu Rao hospital. "If there is any resultant chaos in the hospital after a tragedy, we are not to be blamed, for very often the police and fire brigade bring in the dead ones first and confuse the whole scene. What is the fun in taking the dead bodies to the intensive care units or the centralised accident and trauma services (CATS)?" asks a doctor.⁴³ But, this passing on the buck situation in no way undermines the fact that the general hospitals of Delhi are ill equipped as far as handling emergency situations is concerned.

The government on its part has the Ministry of Health and Family Welfare (MoHFW) to look into the issue of medical relief to affected population. The Emergency Medical Relief (EMR) cell of the Directorate General of the Health Services (DGHS) under MoHFW have drafted a health sector contingency plan for the management of crisis situation in India, according to which National Poison Control Centre (NPCC) is to be set up as part of the plan to provide toxicological information during an accident. One such centre called National Poison Information Centre (NPIC) has been set up in the AIIMS, New Delhi that is way below what it should actually be.⁴⁴ "Ideally it should be NPCC and should be providing information on the toxic effects of chemicals and how to manage poisoned patients, but keeping in view the kind of meager work we are doing, it is called NPIC," says Dr S B Lall, additional professor, NPIC, AIIMS.⁴⁵ She goes on to add, "There is a whole lack of things such as funds, management practice, adequate number and training to staff, physical space, etc. Handling emergency situation requires these gaps to be filled up," says Dr Lall.⁴⁶ Till then people will continue to suffer.



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Box 2: Death on wheels

If one were to stand on a busy highway in Delhi, one would witness huge tankers moving along with passenger buses, trucks, cars, two-wheelers and even cycles. Most are blissfully unaware of the fact that some of these tankers, which at times resemble the harmless water tanker, carry tonnes of inflammable, toxic and poisonous chemicals. A closer look at these hazardous carriers may reveal information panels that display colourful symbols along with certain codes and names of chemicals. In certain cases, they can be hardly read. But if one were to decipher the meanings of these "Emergency Information Panels", as they are called, the conclusion is unmistakable: the movement of time bombs on crowded roads, with most unaware of the consequences. Proof of the existing state of affairs surfaces periodically when one hears of an accident involving road tankers carrying dangerous chemicals.

Tankers carry various hazardous substances such as petrol, diesel, gas, chemicals, etc. They carry such substances from oil and related companies plant/refineries and take them to the bottling plants all over India, including Delhi.⁴⁷ "In Delhi we have very few tankers related road accidents happening. Rather Delhi is very safe. The reason being that in Delhi the training of the driver's is very good and their precautionary habits are sharp," says Mr Mohan Singh, Deputy Director, Pollution Control Division and Enforcement (PCD/ENF), Transport Authority, Delhi.⁴⁸ "If at all it happens, then it is due to various factors playing together such as the driver reflexes (some drivers take time to react), other road users, environmental conditions such as fog, night, etc., and road engineering (how the road is constructed)," he goes on to add.

But things are not that easy and safe in Delhi. Meet a few tanker operators and they will tell tales of impending horror. "We are operating under perpetual tension. Most of the accidents are caused due to overturning of the tanker. This leads to the leakage of the LPG that can destroy villages all together, if not checked in time. That is what happened in 1991 in a village near Patiala in Punjab. The whole village got burnt and lives and property was lost. Such an accident could have been averted if there were Emergency Rescue Vans (ERV) to transplant the LPG from the affected tanker to a safe tanker. But, at present there are only 2 such ERVs with Bharat Petroleum Corporation all over India," laments M M Pal Singh Goldi, managing director, Bombay Highway carriers Pvt. Ltd., a government contractor who deals in LPG in north India.⁴⁹

Another problem associated with movement of LPG and other hazardous goods carrying tankers is the theft of such goods, which poses threat to the public health. "While our drivers are transporting LPG from one place to another, on the way they sell LPG illegally either due to the lure of money or due to threat to their life. The way the black marketers steal LPG from the tanker is very unsafe and can lead to major disasters on the roads. This malicious leakage of LPG and other hazardous substances need to be curtailed if we need to check such accidents," says Mr Goldi.⁵⁰

"Traffic police rather than trying to minimise such accidents sometimes become a cause of the accidents. They unnecessarily stop the tanker drivers and try extracting money from them. In the awe of such malpractice's, sometimes the driver over speeds and loses control," adds a fellow being of Mr Goldi.⁵¹ But the government officials have a different story to tell. "We are becoming very stringent as far as enforcement is concerned. If any driver is found to be breaking the rules, he is challaned and is supposed to come to the court. For overloading also they are challaned and the challan is so heavy that they dare not disobey the law," says Mr Mohan Singh.⁵²



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No doubt there are rules that regulate the movement of hazardous material on roads, but they are hardly followed and are often not monitored regularly. The amended Motor Vehicles Act, besides laying stringent requirements for maintenance of tankers also stipulates that the driver should have the minimum educational qualification-a matriculate. The law lays down that every tanker must have an emergency information panel that offers information about the chemical it transports. It is also mandatory that the consigner shares this information with the tanker owner and the driver. In case of an accident the driver should inform the police so that the damage control procedures can be instituted.⁵³ But in reality these rules are hardly followed. "We do not know who drives our truck. One person might start from Delhi and on the way some other driver joins in. They are least careful about the safety. They sometimes cook their own food on stove that they carry with them, right under the tanker. This practice can cost them their life and lives of others," says Mr Goldie.⁵⁴

The reality remains that people are under constant threat due to the movement of these tankers in the city. It is quite clear that allowing the present situation to continue is like sitting on a powder keg and lighting a cigarette. Sooner or later one is bound to run out of luck.



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Box 3: DMPs- Do PSUs fare well?

Most of the industrial safety experts are of the view that as compared to small-scale illegal units, PSUs are better placed as far as industrial accidents are concerned. “Almost 100 per cent PSUs have their emergency plans and abide by them. They want to be safe mainly because of the two reasons- one it is mandatory or else they will not get clearance from the MoEF. And secondly, they realise that otherwise there is large risk associated with running hazardous units and in the long run it proves to be costly to them,” says Mr. Rajaraman.⁵⁵

What are these DMPs and how do they set large-scale industries such as PSUs apart from other small-scale hazardous units? DMPs are plans that aim at dealing with any industrial accident taking place in industries/factories. It includes both on-site and off-site emergency plans. An on-site emergency is caused by an accident that takes place in a chemical installation and the effects are confined to the factory premises involving only the people working in the factory. On-site emergency plan to deal with such eventualities is the responsibility of the occupier and is mandatory.⁵⁶ The obligation of an occupier of hazardous chemicals to prepare an emergency plan are stipulated in the Rule 13 of the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989. The general public living in the vicinity are also to be informed and educated about safety measures and actions required to be taken in the event of an accident.⁵⁷ If an accident takes place in a chemical industry/unit and its effects are felt outside its premises, the situation thus created is called an “off-site” emergency. It is mandatory under Rule 14 of the Hazardous Chemical Rules for District authorities to prepare an off-site emergency plan in respect of clusters of hazardous chemical industries or at locations where accidents are likely to have an off-site adverse effect. It should also detail how emergency related to major accidents on the site will be dealt with.⁵⁸

“As per the law, all the industries are not supposed to have DMPs. It is not a matter of large scale or small-scale industries. DMPs have to be prepared whenever an industry is using hazardous material above a certain threshold value. And to say that PSUs that have their DMPs ready are safer than small scale units is a misjudgment. These DMPs are prepared by an external consultant and the staff has no knowledge of it. The only staff who could possibly know about DMP would be the first generation staff that worked with the consultant in formulating the plan. The staff that joins at the later stage would not be aware of it. Thus in actuality the DMP is found only in the statutory books of the PSU or any other large scale unit, but otherwise it remains non functional, “ says Mr N K Jain.⁵⁹ But the PSUs have some other story to tell.

“Steel industry is a very hazard prone industry and involves lot of risk and tough conditions, temperatures ranging from 100°C to 1200°C. The management is quite aware of the risk and has pumped in lot of money to make its plant safe. We have prepared our emergency plans and test them also from time to time,” says Mr. A K Jain.⁶⁰ The areas in which the plants of large industries are set up are also very huge. Sometimes they range to 10-km radius. “Within the premises, there are all the facilities, such as dispensaries, safety shops that provide training to all levels of employees from time to time, mock exercises, latest technology and machines, etc. Even if there is an explosion, it won’t affect the local population because of the distance we maintain between our plants and residential colonies,” adds Mr. A K Jain.⁶¹

But, the argument continues. “May be the large scale units meet the statutory conditions and employ Safety Officer as well, but that does not make them safe. If the large-scale units and PSUs



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were safe then we wouldn't have had the incident of the Union Carbide, ONGC fire and other fires in thermal power plants. The problem with us is that we do not have a culture of prevention," says Mr N K Jain.⁶²



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