

Dow Chemical: A Rapsheet

By Nityanand Jayaraman, with inputs from Shivani Patel

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Saran wrap and *Styrofoam* are just two of the better-known household contributions of the Dow Chemical Corporation. Dow's lesser-known household contributions are the many poisons released from the chemical giant's factories and products that have trespassed into the environment and people's bodies. "Living Poisoned Daily", an adaptation by the Bhopal survivors of Dow Chemical's slogan "Living Improved Daily", reflects the fate of hundreds of thousands of men, women and children forced to contend with a life affected by poisons as a result of Dow's business. Operating some 208 manufacturing units worldwide, "The Dow Chemical Company" is the one of the largest chemical corporations in the planet, and is named as a Potentially Responsible Party under US federal or Superfund laws at 24 toxic sites.¹

At 2.5 million tonnes a year, Dow's Vinyl Chloride production is the highest in the world. It also makes Dow one of the largest manufacturers of the Poison Plastic PVC. Every stage of PVC's lifecycle – production, usage, disposal or recycling – is associated with the release of some of the deadliest poisons known to science.

Although Dow products and activities are themselves responsible for trauma suffered by numerous communities – from its hometown in Midland, Michigan to distant Vietnam – its February 2001 acquisition of Union Carbide adds substantially to the toxic skeletons in the company's closet. Despite this, Dow and Union Carbide remain ardent advocates of the chemical industry's unconvincing Responsible Care programme. A voluntary code relating to the chemical industry's conduct towards the environment, communities and its workers. The programme has been dismissed as a PR exercise by many such as the US-based environmental working group. In the 1990s, the US-based chemical manufacturers' association spent \$1 million to \$2 million annually on Responsible Care programmes even while spending five times that amount on advertisements about the programme.

Dow has a history of profiting from war. During World War I, Dow manufactured mustard gas and picric acid. For World War II, it supplied magnesium for bombs and chemicals for rubber processing used by the war industry.

The dreaded Napalm that was used by the US military to burn Vietnamese civilians and soldiers alike was a Dow innovation. The jelly-like chemical when sprayed over people would burn them on contact. The Life magazine photograph of a naked child running down a street in Vietnam screaming in agony captures the effects of Napalm. Extolling the virtues of the "back room boys" or the innovators at Dow, a Vietnam veteran is attributed with this perverse but technically illuminating quote about the development of Napalm:

*"We sure are pleased with those backroom boys at Dow. The original product wasn't so hot – if the gooks [Vietnamese] were quick they could scrape it off. So the boys started adding polystyrene – now it sticks like shit to a blanket. But then if the gooks jumped under water it stopped burning, so they started adding Willie Peter (white phosphorus) so's to make it burn better. It'll burn under water now. And just one drop is enough; it'll keep on burning right down to the bone so they die anyway from phosphorus poisoning."*²

During the reign of the apartheid government in South Africa, Dow supplied it with herbicidal chemicals to render the border between South Africa and Zimbabwe infertile. These actions have cost it a \$71 million lawsuit in New York courts by farmers who claim that their lands remain infertile till date.³ Separately, in October 2003, a New York lawyer filed a case against five companies, including Dow and Union Carbide, accusing them of defrauding South African workers during the Apartheid era.⁴

Dow: A Century Old Now

The genesis of Dow dates back to 1890 when Henry Dow set up the Midland Chemical Company at its current location. From the start, Dow's revenues have been inextricably tied to chlorine chemistry. Chlorine bleach was one of the first products manufactured by the company. As the world's leading producer of chlorine, PVC and chlorine-based chemicals, Dow, according to some of its shareholders, has the unfortunate claim to fame as "one of the largest manufacturers of dioxin generating products in the world. Dioxins are a group of toxic substances that have been linked with cancer, and damage to the immune, hormone and reproductive systems."⁵

Many of the products and emissions from industries such as Dow's just cannot be managed from cradle to grave; chemicals like dioxins, PCBs, and DDT tend to resurrect to haunt future generations. Categorized as Persistent Organic Pollutants or POPs, these chemicals are persistent in the environment and can reappear at harmful doses to humans and other large predators through a process of accumulation and biomagnification in the food chain. POPs and some of their effects can be passed down from mother to child.

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Bhopal: Inheriting a Holocaust

In February 2001, Dow Chemical took over Union Carbide of Bhopal notoriety. Dow was warned by survivors of the Bhopal disaster that Union Carbide is a criminal corporation and a fugitive from justice – a proclaimed absconder from criminal proceedings in the Bhopal court where it faces charges of manslaughter.

Carbide had located an inherently hazardous factory in a crowded area in Bhopal despite knowledge that the technology was unproven and the risks were unknown. The decision to go with a substandard technology in India – even while a safer technology was used at its Institute, West Virginia factory – was made, admittedly, on economic grounds and to retain control over Union Carbide India Ltd.⁶ While the gas leak of December 3, 1984, killed approximately 8,000 in its immediate aftermath, the long-term effects of the poison gases have taken at least 12,000 more lives till date (2003). At least 150,000 people currently suffer chronic health effects, a third of whom are too ill to work for a living.

In its hurry to escape from India, Union Carbide negotiated a secret deal with the Government of India, mysteriously bringing down the Government's multibillion dollar demand to a measly \$470 million. Most survivors received less than Rs. 25,000 (\$500) eight to ten years after the disaster. The oil giant Exxon and the US Government spent more on individual seals and seagulls drenched in the Exxon Valdez oil spill off the coast of Alaska than Bhopalis received as compensation for lifelong injury or death. Despite assuring Indian and US courts that it will cooperate with the Indian courts in the legal proceedings against it, Union Carbide Corporation escaped to the United States, after hiving off its share in Union Carbide India, to get back to business-as-usual.

However, its past has continued to haunt it, as new generations of Bhopalis are being born with noticeable health problems including physical, intellectual and reproductive deficits that are suspected (and in some cases, confirmed) to be the hand-me-down effects of the toxic gases. Thousands of tonnes of toxic wastes and obsolete pesticides abandoned by Carbide continue to litter the factory and its surroundings. Poisons leaching from these wastes have contaminated the groundwater supplying 20,000 people living in the vicinity. Studies have found these poisons in the breastmilk of mothers living near the factory.

In what may be its last bid to disappear, Carbide has merged to hide behind the corporate veil created by the Dow-Carbide acquisition. Dow Chemical has refused to address Carbide's liabilities in Bhopal, although it promptly settled with Carbide's American victims in the asbestos case less than a year after acquiring Carbide.

Agent Orange: Vietnam's Misery

Dow, along with Monsanto, was one of the principal manufacturers of Agent Orange, a combination herbicide containing 2,4,5-T and 2,4-D that was used during the US military's chemical warfare in Vietnam. US air force planes bombed jungles and paddy fields with Agent Orange to destroy forest cover and food crops used by the Vietnamese resistance and villagers. Fact aside that the herbicide itself is a poison, Agent Orange also happened to be severely contaminated with dioxins. While a miniscule quantity of dioxin is sufficient to exert serious health effects in generations of humans, the US military is now known to have dumped the equivalent of 600 kilograms of dioxin over Vietnam.⁷

Today, an estimated 500,000 Vietnamese children suffer serious congenital deformities. A 2003 study by Columbia University estimates that "at least 2.1 million but perhaps as many as 4.8 million people would have been present during the spraying."⁸ In 1984, Dow settled for \$180 million with 4,000 American veterans exposed to the herbicide during the Vietnam war. The US Government has stonewalled attempts so far by the Vietnamese to seek reparations for America's Agent Orange legacy.

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Poisoning its Homegrounds

In 1986, an onsite wastewater facility in Dow's factory in Midland, Michigan, flooded over. This incident is attributed with the release of dioxin-rich wastewaters into the Tittabawassee River. In 2001, extensive contamination was discovered over a wide area downriver of the Tittabawassee. According to documents from the Michigan Department of Environmental Quality (MDEQ), soil samples taken in Midland contained dioxins at levels higher than Michigan's clean-up standard. Some samples exceeded this standard by 80 times.

170 Midland residents have filed a suit seeking reparations from Dow for jeopardising their health and devaluing their property through dioxin contamination. The dioxin swathe extends from the Dow plant to a distance of 36 km. downstream of the River. In November 2001, Dow and the Michigan Department of Environmental Quality attempted to work out a "deal" through which the latter would increase the permissible dioxin levels around the Midland plant to ten times the state-wide level to allow Dow's contamination to fall with legally permissible limits. This attempt was thwarted

by local community and environmental activists.

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VCM Contamination: Louisiana

In 1997, Louisiana Department of Health and Hospitals detected the carcinogen vinyl chloride in the groundwater used by an African American community in Myrtle Grove Trailer Park in Plaquemine, Louisiana. The community, however, was not notified until 2001. The trailer park is located close to Dow Chemical's vinyl chloride monomer factory in Plaquemine. On January 8, 2002, current and former residents of Myrtle Grove filed a suit against Dow alleging that the company knew and covered up information about vinyl chloride contamination in their community. Dow has denied that the VCM in the groundwater is from its factory. Efforts by the Louisiana Department of Environmental Quality to establish the source of the vinyl chloride are reportedly reducing.⁹ Meanwhile, residents of the trailer park have been moved out of their homes.

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DBCP and Infertility

"Dow and three other companies continued to produce the hazardous pesticide Di Bromo Chloro Propane (DBCP) for export to developing countries for years after it was banned in the US in 1979. The US ban occurred after DBCP, one of Pesticide Action Network's Dirty Dozen pesticides, was linked to human sterility in California.

"The companies knew at least since the 1960s that the product caused male sterility in rats, but concealed this information. They also neglected to report findings of reduced sperm and atrophied testicles of rabbits and monkeys when they submitted information for registration and labeling. When DBCP was first marketed in developing countries, it had no labels warning that it was extremely toxic and no instructions on the use of safety equipment.

Not surprisingly, "Widespread use of DBCP on banana plantations around the world has caused the permanent sterility of thousands of workers. One study found that approximately 20-25 % of the male working population in banana plantations on Costa Rica's Atlantic coast, where workers had mixed DBCP by hand, was sterilised through occupational exposure to DBCP. In a 1997 settlement, the four companies that produce the chemical agreed to pay \$45 million to 26,000 banana workers in 11 countries."¹⁰

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Asbestos Legacy

In January 2002, Dow settled a case brought against its subsidiary Union Carbide by workers exposed to asbestos in the workplace. The case was filed before Dow's acquisition of Carbide. However, as Carbide's new owner, Dow had to reach a settlement in the case. Additionally, the company has set aside \$2.2 billion to address future liabilities. Simultaneously, all companies facing asbestos liabilities and many "big business-friendly" Republican politicians from the US are pushing a bill that would restrict the victims ability to reparations and would bar them from suing companies on product liability laws.¹¹

Deadly Dursban

Chlorpyrifos is a nerve toxin and suspected endocrine disruptor that has been widely used in US homes and has resulted in 7,000 reported accidents every year. In June 2000, as a result of pressure from environmental and public health organisations, Dow withdrew registration of chlorpyrifos for use in homes and other places where children could be exposed, and severely restricted its use on crops. The company, however, continues to market Dursban in industrialising countries, including India. In 2003, tests conducted by Delhi NGO Centre for Science and Environment for pesticide residues in Coca Cola and Pepsi Cola revealed levels of chlorpyrifos exceeding EU drinking water standards. Dow, however, is not the only supplier of chlorpyrifos in India.

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In 1998, Dow tested Dursban on 60 paid recruits at a lab in Lincoln, Nebraska. Dow also fed Dursban to inmates at Clinton Correctional Institute, New York, in 1972 to assess its effects on humans, a type of study that is now illegal in the United States. In 1995, Dow was fined \$732,000 for not sending the EPA reports it had received on 249 Dursban poisoning incidents.¹²

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Of Silicone and Leaking Breasts

After women started complaining about silicone breast implants leaking their jellylike goo into their bodies and causing a variety of health effects, Dow subsidiary Dow Corning adopted its time-tested spiel that the implants were "100 percent safe."

In 1997, a New Orleans jury decided that Dow knowingly deceived women with breast implants about the health effects of silicon products. But in 1998, the company Dow Corning and Dow Chemical entered into a settlement for \$3.2 billion

to cover claims associated with silicon implants among 170,000 women.¹³

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Coming together

An aging shareholder attending the Dow AGM 2003 said, "They [Dow] never should have taken Carbide. That was bad *karma*."¹⁴ Interestingly, Dow-impacted communities around the world are getting to know each other and their common antagonist, and are beginning to work together. The combined power of struggles from Louisiana to Midland to Bhopal to Vietnam could be a formidable force for Dow to reckon with.

Nityanand Jayaraman is a Chennai-based independent journalist. Shivani Patel is associated with Ann Arbor-based student group Justice for Bhopal.

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