

Is Dow Chemical Liable for Cleanup at Bhopal?

25 Years after the Disaster, What are the Ethical Implications?

A TRANSFORMATIONAL APPROACH

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BACKGROUND

For those familiar with *GardenOpus*[®] the book, as well as my previously published writing from which some of the chapters in that book are built, the carbamate insecticide *Sevin*[®] is featured prominently in the chapter, “When Beetles Meet Their Match.” In that discussion, plant breeding which exploits natural pest resistance is encouraged as one alternative to the overuse of toxic chemicals to battle common insect pests – particularly on edible crops – as in the example of the chapter – cucumbers.

Let’s revisit Sevin. Invented in the 1950’s by Union Carbide, headquartered in Danbury, CT, it was the end product of an ongoing project known as code name “Seven-Seven”. Launched by the company in 1958 as a miracle pesticide that farmers could rely upon to kill a broad spectrum of pests yet have little residual impact on the edibility of treated crops and the surrounding environment, a great deal of emphasis was placed by Carbide on the sale of Sevin outside the US. After great success with the product in Latin America, Carbide Sales Executive Eduardo Muñoz, an Argentinean, set his sights upon India. Union Carbide developed flyers for the Indian market: they showed a large photograph of a Sikh in a red turban handing a poor rural farmer a box of Sevin, with the text, “Hi, my name is Kuldip Chahal. I am an area pesticide technologist. My role is to teach you how to make five rupees out of

every rupee you spend on Sevin.”¹ Little did Carbide acknowledge then (despite cautionary wisdom about the potential market offered by Muñoz), persistent cycles of drought which make use of pesticides ineffectual would in fact later contribute to a decline in Indian sales of Sevin.

Furthermore, as a result of the people’s inability to even germinate a crop much less protect it from pests, the resulting poverty and despair among Carbide’s intended beneficiaries would soon result in the phenomenon of suicide by intentional pesticide ingestion now growing to epidemic proportions throughout South Asia and Latin America.^{2,3} So all that miracle product which chemical companies had flooded into the market to supposedly improve the destiny of many, alas, has become the unexpected dagger of destiny’s doom for some of our planet’s poorest inhabitants.

Besides its inherent toxicity to insects as well as exposed humans and other animal life (including bees, rainbow trout and more), Sevin also allows those pests which are exposed but not killed outright to produce resistant generations of offspring. Though at *specified rates* it has low comparative residual effect in animal tissues and the environment *over time*, diminished pesticide efficacy due to resistance is, unfortunately, one of many reasons crop protection firms, and the scientists who make crop protectant chemicals their business, have come up with an increasingly bewildering array of chemical insecticides, miticides, fungicides: all of which at some

point and in some form, whether original or degraded, wind up in our soil, groundwater, and ultimately, our food supply.

In 1980, Union Carbide opened a Sevin plant in Bhopal, Madhya Pradesh, India. Though the plant's design was scaled down considerably from the initial model of Carbide's Institute, West Virginia plant, it was still considered a jewel in Carbide's international crown – designed specifically to manufacture a broad spectrum carbamate insecticide which, in theory – could help improve the agricultural successes of millions of farmers of all types not only in India but throughout the subcontinent. The construction of the plant took years and employed many, and once operating, the plant would provide steady employment to hundreds of Bhopalis and an additional number of others – many from outside India.

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Not only would the plant produce Sevin, which had been done before in Bhopal through use of materials produced elsewhere and brought on site to a plant constructed earlier, but also – for the first time on Indian soil – it would produce, among other necessary chemicals, *Methyl Isocyanate*, a key ingredient in Sevin's manufacture. It would also produce *Phosgene* and *Carbon Monoxide* –

additional key ingredients. This would keep the major processes intrinsic to the plant itself and minimize costs by diminishing the need to bring in materials which by their nature were extremely hazardous to transport. *Methyl Isocyanate* “was so volatile that its combination with only a few drops of water or a few ounces of metal dust would prompt an uncontrollably violent reaction.”⁴

The plant, which the Indian Government had approved to produce 5,000 tons of Sevin each year (3,000 more than was estimated to supply the country itself), was looked upon by many as “A New Star in the Indian Sky.”⁵ Though at first the location for the plant had not yet been finalized, over time additional negotiations between Union Carbide and the Indian government arrived at the final site in Bhopal. Carbide's South Charleston, West Virginia team which headed the plant's design and construction attempted to head off concerns of Eduardo Muñoz – who had benefited Carbide by negotiating the “win” from the Indian Government and was now the project leader – by heralding the plant's safety. Muñoz was concerned:

“I quickly realized that my proposal [for batch manufacture of Methyl Isocyanate] would run counter to American industrial culture,” Muñoz would recall. “In the United States, they love to produce around the clock, in large quantities. They're besotted with enormous pipes running into giant tanks. That's how the whole of the oil industry and many others work.”

Nevertheless, the South Charleston team wanted to allay the visitor's fears.

“The numerous safety systems with which this type of plant

*is equipped enable us to control any of MIC's potentially dangerous reactions," the project leader assured him. "You have absolutely no need to worry. Your Bhopal plant will be as inoffensive as a chocolate factory."*⁶

Though initial operations were heralded with much fanfare, for a variety of reasons, not the least of which were frequent droughts already heralded by Muñoz in his list of cautions, sales of Sevin in India were sluggish. After only a few years of operation in Bhopal, Union Carbide cut back on production – and along with it, staffing – of the plant. Notable in these cutbacks were reductions in key maintenance and safety personnel and as a result, maintenance intervals of key components – in particular pipes, valves and stopcocks – were broadened. Key safety procedures began to be subverted – either because safety stations were not staffed or safety equipment fell into disrepair without the appropriate technicians to bring it back into working order quickly.

By the autumn of 1984, a decision by Carbide had been made: as of October 26 the plant would stop producing Sevin altogether. After the production stopped, news had begun to spread that Carbide might soon decommission the plant – possibly transferring production to another similar site in Brazil.

But there was another problem. Actually, there were three of them, known as Tanks 610, 611 and 619. The three rectangular, sarcophagus-like, SS14 stainless steel, concrete-encrusted tanks – approximately 6' high by 40' long – were connected to the rest of the manufacturing process by a network of now-dilapidated pipes and valves; and worse yet, one of the tanks, Tank 610, was filled completely, to

double regulation capacity, with *Methyl Isocyanate*. 610 contained 42 tons of the stuff, "in absolute violation of Carbide's safety regulations. The tanks were never meant to be filled to more than half their capacity, just in case a solvent had to be injected to stop a chemical reaction."⁷ Tank 611 contained 20 tons and tank 619 – a reserve tank meant to stay empty – contained one ton. Thus, a total of 63 tons of the volatile substance was held between the three. On November 30 and December 1, efforts to transfer out some of Tank 610's MIC, using pressure-injected nitrogen, were unsuccessful because of a faulty valve; the nitrogen escaped before it could reach inside the tank. Despite the two attempts, the valve was not replaced and the tank was left idle without being correctly pressurized.

Though each tank had its own shutoff and safety system, the pipes and valves leading from the tanks had become hopelessly compromised due to lack of maintenance, and several layers of additional safety had also been breached. The cooling system – employed to decrease the volatility of the MIC – was in disrepair, thus temperatures which were originally to be regulated at 0° C had been at ambient temperature for over a month (with the requisite temperature alarm disabled). Also, an interim decontamination tower filled with caustic soda "to absorb and neutralize any escaping gas"⁸ was down for repairs. Furthermore, a 120-foot tall flare structure used to burn off excess effluent which escaped from decontamination was also down for maintenance – with several components of one section completely removed. It was a recipe for disaster, a slow cooker that had been simmering for some time. All that was needed to set the dominoes in motion was the right catalyst.

THE ACCIDENT

The hand of fate on this particular autumn night was unfortunately not so invisible. The evening of December 2nd in Bhopal was a night of festivities – food, fireworks, poetry readings and several outdoor weddings, including one involving a high-profile family. Revelry was taking place in various sections of old Bhopal – including major events at Spices Square. Because of Bhopal’s diversity and large Moslem population, many of the celebrations centered on the festival of Ishtema, but the revelers – thousands of them – were as likely Hindu as Moslem.

One of the poetry aficionados was Carbide worker Rehman Khan, who was eager to end his shift in order to attend the festivities and participate with a reading of his own. While on his down time and playing cards with coworkers, he was alerted to an issue by a supervisor – who noted over the intercom that the maintenance crews had not been flushing the tanks’ pipes as required. Because MIC is corrosive and leaves scoria deposits on the pipes, they needed to be flushed regularly with water at high pressure. This served two purposes – to improve flow to the manufacturing process and to prevent contaminant build-up which could cause disastrous effects upon unintentional backflow. So Gauri Shankar, the supervisor, enlisted Khan for help with the task despite the late hour and the fact that production had already been halted. They reviewed the instructions and against Khan’s protests, began the procedure – typically performed (or in this case, not performed) by more experienced others.

Notwithstanding the rusted metal that presented problems when shutting off the flow to each tank prior to starting the procedure, there was more trouble

encountered with debris in the filters. Nevertheless, they were successful in flushing out two of the three tanks’ piping. But a third tank proved sluggish and they did not see water coming through the end of the opened pipe section. Shankar told Khan to leave the pressurized hose in place, the debris would eventually push through, they would leave maintenance notes, and the next shift would shut off the water flow.

The young Muslim agreed, with some reservations. “But if the water doesn’t come through the draincocks, it’ll go somewhere else,” he suggested.

The supervisor failed to grasp the vital implications of this remark. “We’ll just have to see!” he replied, clearly irritated that he had been disturbed for something so trivial.⁹

So Khan left to get ready for the festivities, which he would attend with his family including his young son, after which he, Shankar and the workers of the late shift, along with Carbide and its legacy of bad management decisions, took their places in history.

After noticing some irregularities in one of the dials inside the main facility corresponding to the pressure in Tank 610, some workers began to discern a characteristic odor – a warning sign – like the smell of boiled cabbage.

Those who arrived for the late shift, anticipating business as usual, settled into their stations. After noticing some irregularities in one of the dials inside the main facility corresponding to the pressure in Tank 610, some workers began to discern a characteristic odor – a warning sign – like the smell of boiled cabbage. This odor would indicate the presence of MIC. Though at first this was dismissed by a supervisor who alluded first to fly spraying that had been done on account of the festivals, then to the dials' often indicating incorrectly, the group later went out to check the tanks. They found the pressurized water on full blast, thanks to Shankar's insistence on the previous shift, but were relieved, after a struggle, to be able to successfully turn it off. After doing so, they again checked the pressure indicator dial – it was registering even higher. It was now too late, though they didn't know that quite yet. The reaction inside 610 had already begun. The team made one more check of the tank and saw gas leaking not only from the fittings but from the tower where the burn-off flame should have been. In a matter of minutes, they were all beginning the fight of their lives. Some would win the fight, though scarred for life, but many thousands would soon die. Not only water but corroded metal had infiltrated the tank full of MIC – and there would be nothing at all – humanly or mechanically – which could stop the cataclysm which had already been unleashed.

Though it was just past midnight, the celebrations in Old Bhopal were continuing; for those who were already leaving for the rail station (as many had come from out of town) they were about to enter a death trap. The weather was changing for the season and fog had been reported in other parts of the line, thus train service had been delayed. A wait of up to two hours was predicted for

the hundreds upon hundreds who began to congregate at the station. Because of the special events, the Railway Administration had agreed to provide 100 extra workers for the evening – and they were also all at the station waiting for the next lines to arrive.

In the ensuing few hours the gas cloud, or clouds, heavier than air, moved about the old sections of town, downwind from the factory. The toxic death surprised revelers in mid-celebration. Initial contact caused severe eye irritation, then sudden blindness with eyes first bulging uncontrollably from their sockets – then hemorrhaging and rupturing completely. When the gas was inhaled – often through screams of panic – along with choking and shortness of breath, respiratory arrest followed as the lungs also hemorrhaged and burst. As some victims lay convulsing they vomited blood and yellow foam; their lips and ears burst, and their skin turned a startling blue-violet. They urinated and defecated uncontrollably in their final death throes.

For those who tried to run, the gas cut them down instantly in mid-escape. Panic set in among the crowds. Since the gas was invisible, heavier than air and had moved and settled in pockets and blobs, there was no sense of what a victim was running from or worse, what they might be running into. The few motor vehicles adjacent to the festivity grounds became overloaded (both inside and out) as hijackers attempted to commandeer them, and panic stricken revelers tried to overtake them. Some who made it that far without being affected by the gas were run down and crushed by trucks and cars. The toll of the gas clouds was indiscriminate – they equally disrespected men, children, women, the able-bodied and the infirmed. Many Bhopalis not present at the festivities were stricken in their sleep. Carbide,

unfortunately, had not given the factory, the community or its first responders any indication the exact gases which would be released in a catastrophe, nor any clue as to what might be antidotes, or if even there were. One of the first medical examiners onsite, Professor N. P. Mishra, Dean of the Ghandi Medical College and Hamidia Hospital's chief of internal medicine¹⁰ called a team from the college's Department of Forensic Medicine consisting of Professor Hereesh Chandra and assistant Ashu Satpathy.¹¹ The three immediately set out to conduct field autopsies on the grounds of Hamidia Hospital, where many of the victims had tried to run – blinded, screaming and tripping over one another – before collapsing in death. The team wanted some clue which could help them save lives, if that was even possible at this stage of the devastation.

Chandra knew that the autopsies he and Satpathy would perform that night could save thousands of lives; the bodies of the dead could yield definitive information about the nature of the killer gases and might enable them to find an antidote.

The hundreds of bodies they had to step over to gain access to the medical college looked as if they had been tortured.

“What chemical substances could be capable of doing that kind of damage?” Wondered Chandra as he hurried first to the faculty library. His colleague Mishra had mentioned Methyl Isocyanate. The pathologist leafed frantically through a toxicology textbook. The entry on the molecule did not contain much information, but Chandra suspected that it was capable of breaking down

into highly toxic substances like hydrocyanic acid. Only hydrocyanic acid would be likely to inflict such deadly marks.¹²

The team also enlisted a photographer to capture for posterity each body assessed – once notes were taken by the team, a number was pinned to each corpse and the photograph was taken. This would help in several ways – not the least of which would be serve as a tool to help loved ones to identify the victims later. 400 of the photographed victims were never claimed – possibly due to the gas wiping out entire families and neighborhoods, and possibly due to some of the victims having no permanent address.

As the autopsies began to proceed, the revelations of the killer gas became evident. Blood in the victims was congealed like gelatin; lungs were ruptured, bloody and oozing with frothy liquid; “hearts livers and spleens had tripled in size windpipes were full of purulent clots. Without exception, all the organs seem to have been ravaged by the gas, including the brains, which were covered with a gelatinous, opalescent film.”¹³ And the bodies all gave off an unmistakable odor: that of bitter almonds. Chandra's and Satpathy's suspicions were confirmed – MIC had degraded into *hydrocyanic acid* which had prevented oxygen transport – from the cellular level on up. Though a common antidote, sodium thiosulfate (used in conventional photography) was available, Professor Mishra “refused to believe his colleagues findings and consider their recommendations.”¹⁴ Thus, in the morning of the event, critical time was lost in matching survivors needs to available antidotes.

The tragedy that early morning continued on a grand scale and became even

more revealing as the sun rose. Bodies were littered about Bhopal for several square miles. Those who were suffering from their injuries were often blinded, and literally did not know to whom they could turn for assistance. Caregivers began pouring in from other cities and states within India, then from around the world, in order to help marshal resources. Bodies of Hindus were burned 'round the clock on the four available funeral pyres; bodies of Moslems, after an emergency fatwa was announced, were allowed to be mass-buried – a practice normally prohibited by Islam.

In the days after the accident, 110,000 Union Carbide workers at 700 facilities worldwide observed a simultaneous 10 minutes of silence for the victims. In the weeks after the accident, bucking the warnings of the board and close advisers, then-Carbide CEO Warren Anderson traveled to Bhopal to show concern (without unduly admitting fault, of course) where he was quickly arrested by municipal authorities. So as not to cause an international incident, his release was ordered by the Indian government within a few hours.

Initial reports of the death toll in the first few days ranged from 3,000 to 8,000; however, this has now been revised upward to between 16,000 and 30,000 – with several additional thousands dead since. As of 2009, 10-15 victims continue to die each month. One half million people – Bhopalis and visitors at the time of the accident – have permanent injuries as a result of the disaster. Bhopal has a current population slightly more than 600,000.

After the tragedy, several options were discussed to remove the MIC located in the two remaining tanks. Following careful consideration, it was determined that repairing the plant and making the remaining MIC into Sevin was the best

choice. After 2 weeks of plant repairs, the town was mass-evacuated – mostly in an orderly fashion – and essential plant personnel pulled the trigger. The process went without a hitch, and after 4 days there was no more remaining MIC. The plant was then closed. In 1987, the plant was deconstructed, contaminated equipment was professionally cleaned and a large portion of usable metals sold off as scrap. The main structure, however still stands to this day, abandoned. Various proposals have been volleyed to repurpose the land, but none has gained enough popular momentum to stick.

ATTEMPTED LITIGATION, ACTIONS AND SETTLEMENTS

Almost as soon as the gas clouds had dissipated, attorneys from all over the world, but mainly from the United States, began rallying on the side of the Bhopal victims and descended upon India. Notable among them was Frank Davolta, Jr. who traveled from New York. He assured the survivors he would lobby for “the highest possible compensation in my country’s courts.”¹⁵ Promising a million rupees (approximately \$20,900 in 2009 US Dollars, though in 1984 US Dollars it would have been approximate \$83,000 due to differences in the exchange rate) to a large group of the afflicted while the television cameras rolled. Davolta even had an assistant hand out powers of attorney for the victims, many of whom were illiterate and of course, blinded, to sign. His efforts to gain hearing and standing for the victims in American courts failed. Another American lawyer hired by the Indian government even brought victims to New York to depose testimony before a judge, and sought collective damages for the victims of up to \$15 billion. That effort also failed.

One of the difficulties became the issue of life's value:

*Carbide's defense lawyers argued that an American court was not competent to address the value of life in the third world. "How can one determine the damage inflicted on people who live in shacks?" One newspaper took it upon itself to do the arithmetic. "An American life is worth approximately five hundred thousand dollars," wrote the **Wall Street Journal**. Taking into account that India's gross national product is 1.7 per cent that of the United States, the court should compensate for the decrease of each Indian victim proportionally, that is to say with eight thousand five hundred dollars."*¹⁶

How can anyone place a value on human life? Of course, actuaries do this for a living, and insurance companies use these actuarial figures to assess potential payouts based upon a loss. But many people still find the concept abhorrent, and to pass

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judgment upon the value of life in another culture, based upon comparative economic statistics, leaves a persistent bad taste in many people's mouths.

In the end, Union Carbide settled out of court in February, 1989, paying \$470 million with assurances that the Indian government would take no further legal action, and stating that the figure was their full and final amount. Lawyers for the Indian government accepted the Carbide proposal without negotiation and did not involve comments or consultation with the victims. The amount averaged a meager \$1,400 per death and about half that per survivor. More than twenty-five years after the tragedy, many Bhopalis and aid organizations assert that the full monies of the settlement have not yet reached the survivors.

Though Union Carbide's value dropped \$600 million (15%) in the week following the disaster, the settlement immediately sent the stock up two dollars, reflecting a net 43 cent loss per share. Carbide's Indian subsidiary later tried to assert that the disaster was not an accident at all, but an act of sabotage carried out by a man named Mohan Lal Varma. The charge was not taken seriously and Varma was later vindicated.

POST-DISASTER AND THE CURRENT SCENARIO UNDER DOW CHEMICAL

In 1991 Warren Anderson was charged by a Bhopal court with "homicide in a criminal case" and was summoned to appear. Retired, he was difficult to locate even in the US – with at least one presumed address in Vero Beach, FL. Interpol was unable to serve the warrant. He is still considered by the Indian government a fugitive from justice. As the new millennium dawned the tide began to turn.

In March 2000, in response to a class-action suit by victims' organizations in the southern district of New York, Union Carbide's lawyer William Krohley said the company will accept process served in the name of Anderson but will not disclose his whereabouts.¹⁷

But any hope on the part of the victims needed to take into account that as of August, 1999, Dow Chemical had already purchased Union Carbide's assets for \$9.3 billion, and after Carbide's dissolution, now-defunct French company Rhône-Poulenc took over the Sevin name and manufacture, as after Rhône-Poulenc's dissolutions and merger with Aventis, the crop science division of Aventis (which is mainly a medical biotech concern) was purchased by Bayer in 2002. Aventis also divested its TechPak division to Central Garden and Pet (NASDAQ: CENT and CENTA), of Walnut Creek, CA. Now, five decades after its invention, Central markets Sevin in the US exclusively under its GardenTech™ brand based in Lexington, KY, via an agreement with Bayer, though Sevin's MSDS (Material Safety Data Sheet) lists the manufacturer as TechPak. Confused? Hopefully I've helped straightened things out, and the bottom line is that it Sevin sold at retail packaged by GardenTech in a variety of different, ready-to-use formulations, both dust and liquid form.

Dow stated in 2005:

Bhopal was a terrible tragedy that none of us will ever forget. However, it is important to note that Dow never owned or operated the plant, which today is under the control of the Madhya Pradesh state government. Dow acquired the shares of Union Carbide

Corporation more than 16 years after the tragedy, and 10 years after the \$470 million settlement agreement – paid by Union Carbide Corporation and Union Carbide India, Limited – was approved by the Indian Supreme Court.¹⁸

Dow goes on to say that examples like Bhopal are very important to the industrial arena in that the lessons of such an experience can never be forgotten; thus its “Responsible Care” initiative – in which best practices and total safety management are advocated throughout its system – was born. Dow adds:

While Dow has no responsibility for Bhopal, we have never forgotten the tragic event and have helped to drive global industry performance improvements. Our pledge and our commitment is the full implementation of Responsible Care everywhere we do business around the world.

The former Bhopal plant was owned and operated by Union Carbide India, Ltd. (UCIL), an Indian company, with shared ownership by Union Carbide Corporation, the Indian government, and private investors. Union Carbide sold its shares in UCIL in 1994, and UCIL was renamed Eveready Industries India, Ltd., which remains a significant Indian company today.¹²

However, this has hardly been the last word. Issues regarding not only Anderson, the prior settlement, and soil and groundwater contamination as a result of the Bhopal facility, have continued to dog Dow to this day.

Greenpeace has conducted tests on the Bhopal water supply which reveal an alarming array of dangerous chemicals in large amounts. According to Greenpeace:

*...justice has eluded the people of Bhopal for more than 20 years. Dow, since its merger with Union Carbide, refuses to assume these liabilities in India – or clean up the toxic poisons left behind. More than 20,000 people still live in the vicinity of the factory and are exposed to toxic chemicals through groundwater and soil contamination. A whole new generation continues to get sick, from cancer and birth defects to everyday impacts of aches and pains, rashes, fevers, eruptions of boils, headaches, nausea, lack of appetite, dizziness, and constant exhaustion.*¹⁹

But those who might say that a fringe environmentalist group is simply causing a lot of noise should probably take greater heed, and also pay close attention to the other winds which are currently blowing with increasing velocity. In December, 2007 several “heavyweight” pension fund shareholders asked Dow to come clean about Bhopal. Among the signatories were the New York City Pension Funds and TIAA-CREF.²⁰

On May 14, 2008, nine Dow shareholders signed a letter to the U.S. Securities and Exchange Commission which states, in part, that:

*“...the company hasn’t fully disclosed potential liabilities related to Bhopal. “Up to \$1 billion in Dow Chemical investment may be impeded.”*¹³

Dow, true to form in their 2008 annual report, again failed to acknowledge any potential liabilities – such notes appeared neither in “PART I, Item 1A. Risk Factors” nor in “PART I, Item 3. Legal Proceedings.”²¹ The company continues to assert through spokesperson Scot Wheeler that the responsibility to clean up the facility falls into the hands of the state of Madhya Pradesh, echoing its original 2005 statement.

Dow CEO Andrew N. Liveris has recently gained the ears of various Indian government officials and business people, including one influential corporate leader, Ratan N. Tata, who proposed to Indian Prime Minister Manmohan Singh that Indian corporations should contribute to a fund for Bhopal’s cleanup. Though many Indian corporations have agreed in principle, the Indian Chemicals Ministry did not agree at all and in fact, sent the Prime Minister an opinion from the Ministry of Law asserting Dow’s liability.

Dow’s own “Code of Business Conduct” speaks volumes. Yet again, as Dow continues to assert – Dow did not purchase Union Carbide’s liabilities. However, in 1999 the 900 pound gorilla of Bhopal was unmistakably in the room – and the specter of the Bhopal tragedy was still clearly visible in Dow’s rear-view mirror. With the purchase of a company amid such a legacy of infamy, including the single most deadly industrial accident ever AND a former CEO viewed by some as a fugitive from justice – Dow was already under extreme pressure from shareholders even in 1999. Dow needed to be prepared to act with eventuality and certainty. It did not.

From Dow’s Code of Business Conduct:

Dow’s “Vision of Zero” goal drives all of our Environment, Health and Safety (EH&S) activities.

*Dow's goal is to eliminate all injuries and illnesses, prevent adverse environmental impacts, reduce wastes and emissions, and promote resource conservation at every stage of the life cycle of our products. Dow reports our progress and is responsive to the public.*²²

The public: an important concept which Dow acknowledges but continues to dismiss. The public: not only including shareholders but also including activists in India and abroad, have now stepped up the pressure. Satinath Sarangi, featured prominently in the book *Five Past Midnight in Bhopal*, is instrumental in some of the latest protests. A provider of free health care to Bhopal's Union Carbide victims, he organized a march of 50 victims, who walked from Bhopal to Delhi (nearly 400 miles) in spring, 2008. Upon their arrival, the group staged a mass camp-in.¹⁴

To my surprise as I was composing this section, the Associated Press reported on Saturday August 1, 2009 additional news regarding former Carbide chief Warren Anderson:

An Indian court issued a warrant for the arrest of the former head of the U.S. chemical company responsible for a gas leak that killed at least 10,000 people in Bhopal 25 years ago.

On Friday, in response to an appeal by a victims' group, Prakash Mohan Tiwari ordered the arrest of Mr. Anderson. Mr. Tiwari, the chief judicial magistrate of Bhopal, also ordered the federal government to press Washington for his extradition.

Mr. Anderson was arrested after the disaster, but he left the country soon after. The Indian

*government has said that it didn't know where he was, but has reportedly been living in the U.S. In 1989, Union Carbide paid \$470 million in compensation to the Indian government and said officials were responsible for the cleanup. Victims accuse New Delhi of delaying distribution of the funds.*²³

This new development could add an odd quirk of complications to the current pressures on Dow, which has been accused by some in India of sheltering Anderson (a charge which the company vehemently denies). However, in the context of this assessment I believe the situation involving Mr. Anderson, though likely evolving out of the renewed legal activism on behalf of the Bhopal victims, should be treated separately. Thus, in the next section, I will consider the potential Ethical impact upon Dow irrespective of the current news about Anderson.

CURRENT SCENARIO: DOW CHEMICAL AND ETHICAL IMPLICATIONS:

An Unusual Exercise in Telepathy: "Getting into Dow CEO Andrew Liveris' Head" – or, WHY I BELIEVE IN TRANSFORMATION

A) Consequentialist Approaches: Ethical Egoism, Restricted Egoism and Act Utilitarianism

In the case of Dow Chemical, it is important to consider the concept of profit maximization in the context of *Ethical Egoism*. Would it be likely, given the current wave of major shareholder sentiment toward Dow in relation to the Bhopal disaster, that if Dow paid for cleanup of the Bhopal site and surrounding area, including

soil and groundwater, that it would be acting in its own best long term interest?

I can see arguments on either side, but I will assert “yes” – and this is not because I believe that Dow ever operated the plant or caused the disaster – it is clear that it did not. From the very day that Dow bought Union Carbide’s assets (and again, not their liabilities), that ubiquitous 900 pound gorilla has since made itself very cozy. Nothing Dow has said or done up to this point appears to be able to make that gorilla vanish.

I do want him to occasionally be kept up at night, thinking about the implications. It will be good for his soul and may even produce exciting results!

If CEO Andrew N. Liveris, on behalf of Dow, did commit to the cleanup, without acknowledging responsibility for the site conditions (which would not be difficult – Dow is very good at that already), would the stock price take an immediate hit? Probably so. But in the long run, would the stock price rebound – or even soar – and would students in MBA Leadership and Business Ethics courses be studying cases on Liveris’ remarkable turnaround for years to come? Very likely. Liveris would possibly even be immortalized as a hero, and not just as a mere do-gooder. “A moral theory must tell us either that there are times when we ought to sacrifice our own self-interests or that we always ought to do what is in our own self interests.”²⁴ Now that is a little tricky – as in the article cited, the authors are

contrasting *Psychological Egoism* with Ethical Egoism.

Not knowing Liveris personally, let me try to get into his head for a moment – presuming I even could. If so motivated to act conscientiously, Liveris may try to spin the concept of sacrifice in his own favor. He could APPEAR to be a Psychological Egoist while all the while performing as an Ethical Egoist – taking the stock hit (and probably some nasty verbal hits from the big business naysayers) while appearing to *sacrifice* his own self interests for the good of the

Bhopalis – when all the while he is doing *exactly what is in his own self interest* for the good of his future stock price, the constant stream of TV and radio interviews, and of course, Business School textbook immortality. Liveris, you sly little devil! He speaks to the heartstrings of those who might state, “Let us say, for instance, that we know a person, *P*, who acts only to further his own interests. Whenever *P* helps others he does so only because this ultimately serves his own ends.”²⁵ Of course knowing this about *P* we would not trumpet his acting morally or ethically, but not knowing about *P*’s ulterior motives when he acts in this way, we might still unearth a certain sense of bliss in his apparent good deeds.

Of course, Ethical Egoism is not the only theory which can be put to good use here. ***And once again, allow me to assert that I do not know Mr. Liveris; he is just the unfortunate CEO effigy in this most prominent of examples.*** For all I know he may *want* to clean up the site, he is just resisting because his instinct and duty as a manager and CEO is toward maximizing (immediate) profit for the shareholders. He is likely then acting as a ***Restricted Egoist*** – promoting his own interests and simultaneously allowing the *invisible hand*

to take care of the Bhopalis and their environmental and health woes. After all he may believe in the rightness of acting, however, he may simply not wish to impose his own rightness upon others. One of the inherent criticisms of Restricted Egoism thus might become a boon to Mr. Liveris and Dow: “the fact that restricted egoists agree that a morally right act furthers both self-interest and the interests of society.”²⁶ Is this duality necessarily bad in every case? Perhaps not – especially if this duality is the ethical tool by which Liveris can convince mulish or obstinate board members who resist acting on the Bhopalis’ behalf. If this is the case, he may have both a moral and ethical conflict, in fact I actually I *hope* he does. I do want him to occasionally be kept up at night, thinking about the implications. It will be good for his soul and may even produce exciting results!

So motivated by episodes of insomnia, it is possible Liveris can also consider the utility of the issue. An *Act Utilitarian* will weigh not only alternative outcomes to act (sometimes with several choices) or not to act, but also will weigh the benefit-harm ratio for each affected individual or group.

For Example, take into consideration Actions (A) and Persons (P): Let’s presume that A¹ is *Do Nothing*. A² is *Dow Pays for the Cleanup*. P¹ is *CEO Liveris*. P² are the *Dow Shareholders*. P³ are the *Bhopalis Living in the Contaminated Area*, P⁴ is the *Indian Government*. The Equation might look something like this:

	P ¹	P ²	P ³	P ⁴	TOTALS
A ¹	+8	+8	-10	0	+6
A ²	-3	-3	+10	+5	+9

The trouble with such a scale attributing weight to benefit-harm is that it is so subjective – this is my scale after all. Different eyes and minds will view the scenarios differently. Since I could not infer that any time limit or constraint of immediacy was imposed upon deeds of Act Utilitarianism, it became even more difficult to gauge the impact upon both Mr. Liveris and the Dow Shareholders; it was less of a problem gauging both negative and positive impacts upon the Bhopalis and the Indian Government, whether immediate or long-term.

I’ve intentionally omitted the potential scenario of the Indian corporate consortium contributing to a cleanup fund as mentioned in the *Business Week* article cited; after all – the heart of the issue I explore is the question of Dow Chemical, rather than others, acting or not. Certainly, that alternative scenario could be considered in another context; that proposal – despite buy-in from major Indian corporations, has already been rejected by the Indian Chemicals Ministry.

B) Non-Consequentialist Approaches: The Golden Rule, Kantianism

Working again with the presumption that I don't know Mr. Liveris personally, I hope not to run the risk of appearing to disparage him further as I explore non-consequentialist approaches. That is why I'll favor **The Golden Rule** over pure **Theologism** – as it is difficult enough to infer subjective qualities upon Liveris without also imposing additional inference about his relationship with his God, or Gods, or Goddesses, etc.

Suppose that Andrew N. Liveris summons the greatest level of empathy possible for the Bhopalis adversely affected by the company that Dow acquired, “walks a mile in their moccasins” so to speak. How would he think and feel? Far removed from the mud huts, thatched roofs and other less comfortable “amenities” the victims call home, is it even possible that he can get into their heads, and hearts, and at least imagine that he is there among them? Unless he is profoundly disconnected and dispassionate on the grandest scale, I believe that it is indeed *possible*. And allowing for that glint of possibility, would it not be a facile task for him to imagine how *he* would like to be treated. If he has made it that far, I say, *yes*.

Again, it is true that – at the risk of sounding like Dow's own broken record – Dow purchased Union Carbide's assets rather than its liabilities. No one here is denying that fact. Nor is it lost on me that Sevin continues to be manufactured and distributed by companies other than Dow. Bayer and Central Garden and Pet are likely relieved that the heat for now is upon Dow, but in the true heart of the matter, that is their loss. The Bhopal site, alas, was not only a significant asset to Carbide but also a notorious one at that. I will again assert the opinions of many at Dow pre-Carbide-

purchase as well as my own – the Bhopal tragedy is too significant an event to wipe it from the legacy that Carbide left. In fact, if handled correctly, Bhopal **BECOMES** an asset to Dow and it should be seen as a **WELCOME** and **VALUABLE** one! This **transformational** approach seems clearly overlooked by every analysis, and every view of every interested party, I have reviewed up to this point.

Instead of hemming, hawing and deflecting in every way possible, Dow has an *unprecedented* opportunity to extend a magnanimous hand of kindness by acting on behalf of the Bhopal victims. Dow's has an opportunity to speak between the lines in its *Code of Business Conduct* – a detailed treatise which goes on for dozens of pages exemplifying the highest levels of ethical consideration in a variety of circumstances. This would not just be a win for Liveris, Dow, the Bhopalis, India, the Environment, and Humanity at Large, but a win for all those who have been scarred by the recent, unending acts of corporate greed and who have lost faith in the ability of any major corporation to act on a behalf other than its own. What about Bayer and Central Garden and Pet? They can both sit on the sidelines, after all – this is Dow's moment.

Yes, such an act may be counterintuitive to the well-worn principles of acting on behalf of the shareholders. Knowing that some of the shareholders already have serious concerns, and that the remainder have the same potential to walk a mile in the moccasins as does Mr. Liveris, I do not believe that the performance of such a magnanimous act would be such a far-reaching improbability. Nor do I believe it would go unrecognized – such acts rarely do. Not only transformational but inspirational, I believe the spirit in which the act is undertaken will speak volumes to the

rest of the corporate community, and thus to the world at large.

Corporations would suddenly be in a race to see who could claim which significant project in order to trump Dow's already established nobility – which would unexpectedly be the benchmark for generous acts everywhere. Yes, it is true that some of the motivation by other corporations to act in such ways could be seen as contrived or self-serving – but I would rather see corporations tripping over one-another for the benefit of society rather than tripping over one another to serve themselves another platter of CEO golden-parachute gluttony or other pecuniary plunder. This may sound overly idealistic, but I do not in any way feel it is out of reach.

That is why we need Kant to keep us honest, particularly when it comes to conflicting wants. In *Kantianism*, we are treating “humanity, whether in your own person or that of another, always as an end and never as a means only.”²⁷ I think that's why for me, this becomes the ethical theory which serves the most utility in the widest variety of circumstances, not the least of which are the ongoing thorny issues between Dow Chemical Corporation and the now-inferred liabilities of the former Union Carbide at Bhopal.

Already having presumed that Bhopal was still visible in the rear-view mirror upon Dow's purchase of Carbide's assets, and already having discovered that the movement for Dow to act on behalf of the Bhopalis could not only be in Dow and the Bhopalis' best interests but in humanity's; and not to mention by Dow *not* acting the Indian Government could impede a substantial amount of Dow's ongoing investment in India, I hereby submit that Dow considers its act both as an end *and* a means. After all, Kant specifies “only” as an operator – and by approaching the issues

and its resolution in this way, Dow not only *satisfices*, but *satisfies*, the requirements. It then services the unfortunate citizens of Bhopal, the Environment, its own shareholders, the Indian People, the Indian Government and Humanity at Large all is

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one fell swoop, and looks great in the process. What better way to make the world's day?

Some ethical dilemmas are just not that clear cut. Dow easily could continue to maintain that white knuckle grip on its “assets not liabilities” stance. But who or what is Dow truly servicing if it does? It is true that to date we have not seen identified the full proposal and scope of work which would be required to clean up the Bhopal site and adjoining areas and make the area safe for human habitation. Perhaps the money – as corporate America is so fond of expressing in third-world dollars, is less than Dow might think. Perhaps it is far more. Regardless, it is in every sense of the term, money well spent.

My initial temptation here was to divorce myself from the pressures being placed upon Dow by certain shareholders

and outsiders in order to foster a view more truly aligned with Dow's current perspective: pure and immediate profit maximization. I've even found several ways to justify such a stance. After all, 2008 was not a good year for Dow, and that is stated up front by Liveris in Dow's 2008 Form 10-K. But over and over and over again, I keep hearing "DO THE RIGHT THING" and the words do not in any way alter from the first time they resonated between my ears.

If it were a simpler world, we might have simpler solutions. But the world has shrunk to the proverbial dust speck on the end of a pinhead, and the global reach and impact of most large corporations is now second nature. The very *visible* hand of Dow is at play in over 700 communities worldwide – and for better or worse, many of those communities are in need. Not all of the needs are because of issues caused by Dow or its subsidiaries, but in nearly every case, Dow has an opportunity to impact those needs in a favorable way. Not every impact means the whole-scale remediation of a toxic site: I am sure Dow can help a range of communities in ways both big and small.

But in the case of Bhopal – with Dow already having a substantial ongoing investment in India, the opportunity for an impact of truly epic proportions is at hand – if only Dow's stubborn internal tide can be turned in the right direction. I don't believe anybody is asking or even imploring Dow Chemical Corporation to do the impossible, only for Dow to *do the right thing*.

¹ Lapierre, Dominique and Moro, Javier. (2002). P.88. *Five Past Midnight in Bhopal: the Epic Story of the World's Deadliest Industrial Disaster*. New York, NY. Warner Books.

² Hester, Chad. (2005) *PBS Frontline Rough Cut: Seeds of Suicide, India's Desperate Farmers*. Boston

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http://www.pbs.org/frontlineworld/rough/2005/07/seeds_of_suicid.html, (Accessed 21 August, 2009)

³ Bhatia, Julie. (6 September, 2008). *East and South Asia: Suicide by Pesticide Ingestion Common*. Amsterdam. Global Voices Online. <http://globalvoicesonline.org/2008/09/06/east-and-south-asia-suicide-by-pesticide-ingestion-common/>

⁴ Lapierre, Dominique and Moro, Javier. (2002). P.59. *Five Past Midnight in Bhopal: the Epic Story of the World's Deadliest Industrial Disaster*. New York, NY. Warner Books.

⁵ Ibid. P.107.

⁶ Ibid. P.102.

⁷ Ibid. P.271.

⁸ Ibid. P.270.

⁹ Ibid. P.274.

¹⁰ Ibid. P.325.

¹¹ Ibid. PP 253 and 346.

¹² Ibid. P.346.

¹³ Ibid. P.349.

¹⁴ Ibid. P.350.

¹⁵ Ibid. P.373.

¹⁶ Ibid. P.373. CITING "Averting a Bhopal Legal Disaster," *Wall Street Journal*, May 16, 1985 (no longer available directly through WSJ archives)

¹⁷ Ibid. P.385.

¹⁸ The Dow Chemical Company. (2005, 29 November). *Dow Sustainability - Bhopal*. Danbury, CT.

<http://www.dow.com/commitments/debates/bhopal/index.htm> (Accessed 2009, 1 August)

¹⁹ Greenpeace USA. (First Publication Date Unknown). Bhopal Disaster. Washington, DC. <http://www.greenpeace.org/usa/campaigns/toxics/justice-for-bhopal> (Accessed 2009, August 1)

²⁰ Kriplani, Majeet. (2008, 28 May). *Dow Chemical: Liable for Bhopal?* Business Week. http://www.businessweek.com/magazine/content/08_23/b4087000856552.htm (Accessed 2009, 27 July)

²¹ Dow Chemical Company. (2009). *FORM 10-K, ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934, For the fiscal year ended DECEMBER 31, 2008*. Midland, MI.

²² Dow Chemical Company. (2006, September). *Dow Code of Business Conduct. P.9. Danbury, CT.* http://www.dow.com/about/aboutdow/code_conduct/ethics_conduct.htm (Accessed 2009, 27 July)

²³ The Associated Press. (2009, 1 August). *Court Orders Arrest of Man Blamed in Bhopal Gas Tragedy.* <http://online.wsj.com/article/SB124909342508398709.html> (Accessed 2009, 2 August).

²⁴ Snoeyenbos, Milton. Almeder, Robert. Humber, James (Eds.). (2001). *Business Ethics*. P. 28. Amherst, NY.

²⁵ Ibid. P. 29.

²⁶ Ibid. P. 34.

²⁷ Ibid. P. 41.