

Corporate Crimes

The need for an international instrument on corporate accountability and liability

Greenpeace/ Raghu Rai

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Chapter 1 Introduction

In the lead-up to the Johannesburg Earth Summit, Greenpeace is calling upon Governments to endorse the Bhopal Principles on Corporate Responsibility (see Chapter 2). Experience in the post-Rio Decade has shown that the adoption of these ten Principles is urgently needed. They form a comprehensive set of measures that would ensure that corporations act in a manner that is consistent with Principles 13 (Liability), 14 (Double Standards), 15 (Precautionary Principle) and 16 (Polluter Pays Principle) of the Rio Declaration.

States are ultimately responsible for public welfare, and they must not abdicate this responsibility to the private sector. Unfortunately states are increasingly doing just this, by relying on voluntary agreements, and by failing to develop international instruments to prevent transnational corporations from slipping through holes in the net of national legislation. The few voluntary initiatives with which some corporations are willing to comply, such as the Global Reporting Initiative, the OECD guidelines, and the UN Global Compact, are just not enough.

Corporations benefit from a global market for the development of their business but are not held globally accountable. Therefore, current moves to ensure sustainability require an international instrument of corporate responsibility, accountability and liability. Now is the time for an international instrument that ensures rights and duties, reporting, monitoring, and verification of consistent responsible corporate behaviour. Such an instrument should encompass, *inter alia*, compensation for damages, remediation, right to know, and respect for human and community rights.

Corporate accountability is a subject of concern for a wide range of groups campaigning on issues including human rights, environment, development and labour. Corporate crimes committed on all continents across a range of industrial activities in various sectors (e.g. chemicals, forestry, oil, mining, genetic engineering, nuclear, military, fishing, etc.) clearly point towards the need for greater control, monitoring and accountability of corporate activity in a globalised economy.

Resistance from governments or industry to an international instrument on corporate accountability would only increase the public's perception of increasing corporate control of governments and create public suspicion regarding the real intentions of any corporate social and environmental programme.

Chapter 2 The Ten Bhopal Principles on Corporate Accountability

1. **Implement Rio Principle 13.** States shall as a matter of priority enter into negotiations for a legal international instrument, and adopt national laws to operationalise and implement Principle 13 of the Rio Declaration, to address liability and compensation for the victims of pollution and other environmental damage.
2. **Extend Corporate Liability.** Corporations must be held strictly liable without requirement of fault for any and all damage arising from any of their activities that cause environmental or property damage or personal injury, including site remediation. Parent companies as well as subsidiaries and affiliated local corporations must be held liable for compensation and restitution. Corporations must bear cradle to grave responsibility for manufactured products. States must implement individual liability for directors and officers for actions or omissions of the corporation, including for those of subsidiaries.
3. **Ensure Corporate Liability for Damage beyond National Jurisdictions.** States shall ensure that corporations are liable for injury to persons and damage to property, biological diversity and the environment beyond the limits of national jurisdiction, and to the global commons such as atmosphere and oceans. Liability must include responsibility for environmental cleanup and restoration.
4. **Protect Human rights.** Economic activity shall not infringe upon basic human and social rights. States have the responsibility to safeguard the basic human and social rights of citizens, in particular the right to life; the right to safe and healthy working conditions; the right to a safe and healthy environment; the right to medical treatment and to compensation for injury and damage; the right to information and the right of access to justice by individuals and by groups promoting these rights. Corporations must respect and uphold these rights. States must ensure effective compliance by all corporations of these rights and provide for legal implementation and enforcement.
5. **Provide for Public Participation and the Right to Know.** States shall require companies routinely to disclose to the public all information concerning releases to the environment from their respective facilities as well as product composition. Commercial confidentiality must not outweigh the interest of the public to know the dangers and liabilities associated with corporate outputs, whether in the form of pollution by-products or the product itself. Once a product enters the public domain there should be no restrictions on public access to information relevant to environment and health on the basis of commercial secrecy. Corporate responsibility and accountability shall be promoted through environmental management accounting and environmental reporting which gives a clear, comprehensive and public report of environmental and social impacts of corporate activities.
6. **Adhere to the Highest Standards.** States shall ensure that corporations adhere to the highest standards for protecting basic human and social rights including health and the environment. Consistent with Rio Declaration Principle 14, States shall not permit multinational corporations to deliberately apply lower standards of operation and safety in places where health and environmental protection regimes, or their implementation, are weaker.
7. **Avoid Excessive Corporate Influence over Governance. States shall co-operate to** combat bribery in all its forms, promote transparent political financing mechanisms and eliminate corporate influence on public policy through election campaign contributions, and/or non-transparent corporate-led lobby practices.

8. **Protect Food Sovereignty over Corporations.** States shall ensure that individual States and their people maintain sovereignty over their own food supply, including through laws and measures to prevent genetic pollution of agricultural biological diversity by genetically engineered organisms and to prevent the patenting of genetic resources by corporations.
9. **Implement the Precautionary Principle and Require Environmental Impact Assessments.** States shall fully implement the Precautionary Principle in national and international law. Accordingly, States shall require corporations to take preventative action before environmental damage or health effects are incurred, when there is a threat of serious or irreversible harm to the environment or health from an activity, a practice or a product. Governments shall require companies to undertake environmental impact assessments with public participation for activities that may cause significant adverse environmental impacts.
10. **Promote Clean and Sustainable Development.** States shall promote clean and sustainable development, and shall establish national legislation to phase out the use, discharge and emission of hazardous substances and greenhouse gases, and other sources of pollution, to use their resources in a sustainable manner, and to conserve their biological diversity.

2.2 Why the Bhopal principles?

The Bhopal Principles address concerns about corporate accountability across a wide range of issues. We have chosen to call them the 'Bhopal' Principles because this disaster, more than any other, highlights the current failure of governments to protect public welfare and the failure of corporations to observe basic standards e.g. the avoidance of liability by parent corporations, and the avoidance of responsibility for compensation and environmental cleanup.

On 3 December, 1984, the world witnessed the worst chemical disaster ever when a gas leak in the Union Carbide plant in Bhopal, India, killed at least 8,000 workers and residents in the first three days after the disaster and caused permanent and debilitating injuries to more than 150,000. The tragedy, caused by the leakage of a cocktail of methyl isocyanate and other lethal chemicals into the area surrounding the plant was caused mainly by insufficient safety systems and cost-cutting measures by Union Carbide.

Eighteen years after this tragic disaster, the legacy of poisoning continues. Even today chronically ill survivors remain in desperate need of medical attention. Thousands of survivors and the children born since the disaster continue to suffer debilitating health problems. Many are unable to work. The now abandoned chemical plant is a toxic hotspot, strewn with toxic wastes and materials which have been either dumped or haphazardly stored in rotting sacks and barrels. There is evidence that the residual contaminants have migrated off-site, creating new problems, including contamination of groundwater used by families living near the site for their daily drinking and washing needs.

By deflecting responsibility for the disaster to the Indian government, Union Carbide managed to escape its obligations. By constantly downplaying the damage to limit its liability, Union Carbide has shown its ethical and moral bankruptcy. Recently, Union Carbide merged with Dow Chemicals, resulting in the creation of the world's biggest chemical company. Dow shows no sign of taking responsibility over the Bhopal legacy. Justice remains more elusive than ever for the victims of this disaster.

The lessons of Bhopal have still to be learned. With increasing regularity, similar scenarios continue to be played out around the world¹. Environmental disasters, both chronic and immediate, caused by irresponsible corporate practices are becoming more frequent. Transnational corporations have learned to downplay damage, and to focus attention and liability on the local company in order to elude criminal and/or civil liability.

To curb these abuses, governments must act globally to ensure that both transnational and national corporations are held liable for their actions, particularly in developing countries and countries with economies in transition where companies operate in less regulated environments.

At the Johannesburg Earth Summit, Governments will be looking at what has and has not been done to implement the Rio commitments. The Bhopal case shows that it is important to hold corporations liable and to provide compensation for victims of pollution and other environmental damage, that responsibility for liability and cleanup should be enforceable not only against the local corporate entity, but also against the multinational parent.

¹ See chapter 3

Chapter 3 Cases of corporate crime

3.1 Introduction

This report compiles 37 cases from various industrial sectors, including chemical, forest, mining, genetic engineering, nuclear energy and oil industries in different parts of the world. They illustrate the urgent need for governments to force corporations to uphold the law and become more accountable to the public.

These cases illustrate that irresponsible corporate behaviour continues to severely affect both the environment and people's health, and that the companies who are responsible fail to respond in an adequate manner. They show how companies routinely fail to compensate and/or assist impacted communities, how they evade obligations to clean up or remediate damaged environments, and, by and large, violate human and community rights by failing to monitor, report and provide essential information concerning their products and processes. Such behaviour is no less than criminal, and it is becoming increasingly difficult--sometimes impossible--to seek justice, and to hold these companies accountable and liable for their crimes.

As this report goes to press, British Nuclear Fuels Limited (BNFL) is preparing to ship enough plutonium to make 50 nuclear weapons from Japan to the UK. The material concerned is being returned from Japan after an earlier scandal. In 1999, BNFL shipped its first ever consignment of plutonium MOX fuel around the globe from Sellafield to Japan. During the transit, it was revealed that BNFL had deliberately falsified critical quality control data during the production of the fuel. BNFL ultimately was forced to admit the falsification, and its Japanese clients demanded the material be returned. If the fuel had been loaded into a Japanese reactor, the potential risk for accident could have been significantly increased. The shipment itself is also of concern because in the event of an attack or accident, this shipment could put at risk dozens of coastal nations on its 30,000 kilometre voyage back from Japan. The failure of the UK and Japan to provide an adequate liability arrangements is of major concern to en-route states

The cases below provide information on the relevant companies, the type of incident, the effect on people and the environment, the outcome of legal procedures, the amount of damage and the conclusion regarding the (ir)responsibility of the company. The cases are divided into industry sectors. The report starts with a cluster of cases on Dow Chemicals due to its intolerable lack of action to help the Bhopal victims. Not surprisingly, this corporation is also involved in several other cases of corporate crime around the world.

An important aspect in many of the cases is the apparent difference in behaviour of a company in a rich "western" country which has relatively strict rules protecting people and the environment and the disappointing behaviour of the same company in "poor" countries where the laws are lax and hardly enforced. The cases show that the global markets make it possible for corporations to practise double standards, misusing lax standards in poorer countries to save on costs and to maximise profits. For example, asbestos can be handled more cheaply in industrialising countries in Asia without the stringent rules protecting workers that exist in the USA or Europe.

It is not only global companies which act in an irresponsible manner. National, state-owned or even employee-owned companies can fail to act in an acceptable way. In countries such as the Czech Republic, Russia or India where the state occupies a very strong position in the companies concerned, the situation can be even worse. A global international instrument is also needed to address these peculiarities.

The cases listed here are not exhaustive or final. The intention was neither to cover all categories of industry involved nor to present only the most important cases. These cases should simply be seen as a preliminary register of corporate crimes with huge and very long lasting impacts on people and the environment, positive proof of the need for urgent international action.

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The cases

DOW Cases

Dow (formerly Union Carbide) (Bhopal, India) ²

Company details	<p>Union Carbide India Limited, Bhopal-India. Main products: Pesticides, Battery cells, Bulk Chemical Intermediaries.</p> <p>At the time of the disaster Warren Andersen was CEO of the corporation.</p> <p>Today the company is merged with DOW and Ravi Muthukrishnan is the CEO. The Indian operations mainly supply chemicals to industry and only a few end consumer products. After the merger with Union Carbide DOW emerged as the largest chemical corporation in the world. The group headquarters of DOW is in Midland-Michigan, USA.</p>
Location of damage	Bhopal, India
Company Activity	Chemical production. Primarily methyl iso cyanate production for pesticide manufacture
Type of incident	December 3 rd 1984. Accident that led to leak of gases, chiefly methyl iso cyanate (MIC), mono methylamine, carbon monoxide and possibly 20 other chemicals.
Type of damage	Loss of life. More than 8,000 people died in the first 3 days. 520,000 people were exposed to poisonous gases. 150,000 victims are still chronically ill, with even now one person dying every two days.
Range of damage, amount of loss	<p>Conservative figures are at least 20,000 thousand dead. The gas leak killed many thousands instantly. Of the affected people who survived the initial leak, many died over the years due lack of proper care. Improper diagnosis led to ineffective medical treatment. The improper diagnosis was due to refusal by Union Carbide India Limited (UCIL) to disclose all the details regarding the leaked gases. Misinformation and lying by the company³ led to confusion, making treatment difficult. Victims were made further vulnerable by the delay in providing timely medical aid. Late and inadequate compensation compounded the situation and more lives were lost.</p> <p>Today the survivors suffer from lung fibrosis, impaired vision, bronchial asthma, TB, breathlessness, loss of appetite, severe body pains, painful and irregular menstrual cycles, recurrent fever, persistent cough, neurological disorders, fatigue, weakness, anxiety and depression. Tens of thousands of children born after the disaster suffer from growth problems and far too many teenage women suffer from menstrual disorders. In the years following the disaster, the stillbirth rate was three times, perinatal mortality was two times and neonatal mortality was one and a half times more than the comparative national figures. TB is several times more prevalent in the gas-affected population and cancer cases are on the rise. Chromosomal aberrations in the exposed population indicate a strong likelihood of congenital malformations in the generations to come. Some of this is already apparent. A third generation of victims is emerging. These are the children born to parents born after the gas leak and they are suffering from various abnormalities.</p>
Who is responsible	The storage of huge volumes of MIC in a densely inhabited area was itself in contravention of company policies strictly practised in its other plants. 67 tons were stored in Bhopal against a permissible maximum in Europe of only 0.5 tons. The company ignored protests and built large tanks in a crowded community. MIC is required to be stored at extremely low temperatures, but the safety measures were reduced to cut operating costs. The air conditioning plant was 'expensive' to run and cost-cutting measures (saving USD 50 per day) led to less than optimal conditions in this critical area. The company cut down the size of the preventive maintenance staff to save money and then provided insufficient training

² Source: Factsheet on the Union Carbide Disaster in Bhopal, Greenpeace, 2002

³ Union Carbide's doctor of Health, Safety and Environmental Affairs, Jackson B. Browning, described the gas a few days after the disaster as "nothing more than a potent tear gas".

	<p>even to this reduced few. Safety training was slashed to 2 weeks as against the standard 24 weeks. Routine maintenance was neglected and critical equipment, which should have been replaced every 6 months, was often replaced only after 2 years. Scrubber systems were inadequate. The company never created any Disaster Management Plans for the community who lived around the factory.</p> <p>State authorities are also culpable for failing to implement the law. The proposition to store large volumes of MIC on site led to a public outcry, but the company 'managed' the government and got it built. Pollution control measures and mandatory safety measures were not met as many departments of the governments failed in their duties.</p>
Legal and/or public action taken	<p>The case was filed and the Supreme Court of India directed Union Carbide Corporation (UCC) and UCIL to pay a total of USD470 million in full settlement of all claims arising from the tragedy. The government, UCC and UCIL agreed and the two companies paid in full on February 24, 1989.</p> <p>Public action has included court cases, health surveys, protesting at government establishments and the parliament, targeted campaigns against company officials and government bodies, rallies, international showcasing etc.</p>
Subsequent behaviour of company	<p>Initially the company attempted to conceal the nature of the damage by saying that gas was just potent tear gas and refused to release data on the gas mixture, thereby preventing proper diagnosis and treatment.</p> <p>After the Bhopal leak the company went against the advice of experts and reopened operations to use the 15 tons of MIC in one tank. 400,000 people left town and many stayed away for a month due to this dangerous action.</p>
Legal outcome	<p>The legal processes have only been marginally effective due to government's friendly attitude towards industry. Company complicity in making deals with government is known but remains difficult to prove. Judgement was made without meaningful participation from the affected people who were not party to the negotiated settlement between the government and the company. Later the Supreme Court, strangely, also issued an opinion explaining why the settlement was adequate, even though the obvious reality was starkly contradictory.</p> <p>Although the court allowed the criminal case to be reopened and directed the Government to purchase medical insurance for the 100,000 presently asymptomatic persons who may later develop symptoms, very little has been actually implemented on the ground. The courts passed pious orders that the government ignored.</p>
Final Greenpeace statement	<p>The Bhopal accident led to some changes in the way large corporations operate. In Europe and the US laws were promulgated to prevent such disasters. India too passed some laws. But in practice nothing changed. The company was allowed to sell and leave, and the final merger with Dow is almost a final break. It continues to evade responsibility and even today denies access to the gas leak data as an infringement of corporate secrets.</p> <p>The most basic principles of justice have been denied. Misinformation and lying has been the norm. Profits are pursued irrespective of the costs to humans and environment.</p> <p>Today there is a move to remedy this gross injustice. A recent victory in the US Second Circuit Court Of Appeals in a decision that affirms the environmental damage claims of the survivors is likely to have far reaching consequences for Dow.</p>

Dow Brazil S.A. (Brazil)

Company details	<p>Dow Chemicals</p> <p>CEO Michael D. Parker 2030 Dow Center, Midland, MI 48674, USA</p> <p>CEO José Eduardo Senise</p> <p>Facility involved in this case: Guarujá Complex Av. Santos Dumont, 4.444 Conceiçãozinha – CEP 11460-003 Guarujá - SP – Brasil</p> <p>Other Facilities: Dow Chemicals owns plants and industrial complexes in the Brazilian states of Bahia (in Candeias), Pernambuco and São Paulo (in Jundiá).</p> <p>Administrative Unit Rua Alexandre Dumas, 1671 Chácara Santo Antônio CEP 04717-903 São Paulo – SP</p> <p>Revenues in Brazil: USD 180 million in 2000.</p>
Company activity	<p>The first Dow chemical plant in Brazil was established in 1971, in the city of Guarujá, in the coastal area of São Paulo. The complex is responsible for the production of polystyrene, latex, and polyols for producing polyurethane foams and epoxy resins, among others. The plant's production capacity was expanded from 120 thousand tons to 200 thousand tons a year in 2001¹. They also have a sea terminal, which transports approximately 70% of Dow's products in Brazil.</p>
Type of incident	<p>In 1999, Dow incorporated the rival company Union Carbide, which in Brazil owns part of Petroquímica União, located in Santo André, in the state of São Paulo². One of the properties owned by the company in Guarujá is contaminated by carbon tetrachloride, a chemical that Dow has not used since the 1980's. According to the company, this issue has been under discussion with CETESB (Brazilian state environmental agency), since 1994. Approximately 350 tons of sediments considered of low contamination, which were stored inside the plant, have been removed and sent to cement kilns for disposal³.</p>
Type of damage	<p>From April to August 1998, Greenpeace collected three sediment samples in the vicinity, one of them in the river Santo Amaro, as well as one effluent sample. The material was analysed by Greenpeace's Laboratory at the University of Exeter, in the UK. All samples showed a range of organic compounds, such as tetrachloromethane, chloroform, and other volatile organochlorines. Heavy metals were also present in river sediments, as well as in the effluents⁴.</p>
Legal and/or public	<p>The Federal Public Prosecutor opened an investigation into the case in</p>

¹ Gazeta Mercantil, 20/11/2001

² Gazeta Mercantil, 5/8/1999

³ Gazeta Mercantil, 26/6/2000

⁴ Greenpeace - *Identificação e significado ambiental de poluentes orgânicos e metais pesados encontrados nos efluentes industriais e nos sedimentos do rio relacionados com a Companhia Dow Química, Guarujá, Brasil, 1998.*

⁵ Gazeta Mercantil, 26/6/2000

action taken	January 2000. They are still collecting information and monitoring CETESB decisions.
Legal outcome	CETESB states that it has not yet decided whether the contaminated area of 500 meters needs remediation or not. In 2000, CETESB concluded that only one of the various monitoring points showed inadequate levels of potability ⁵ . The company avoids commenting on the issue.
Final Greenpeace statement	Since the case came to public attention, very little has been done to remediate the contaminated area. The company needs to take full responsibility for the damage they caused.

Dow Chemicals (India)

Company details	Dow Agrosiences, Zionsville, IN (Primary Manufacturer of Raw Chemical) CEO in India: Mr. Ravi Muthukrishnan Dow Chemicals India, Corporate Office, Eastern Express Highway, Chembur, Mumbai.
Location of damage	India
Company Activity	Dow produced chlorpyrifos and marketed Dursban (chlorpyrifos) in Asia for insect control despite stringent restrictions for use of the chemical in the USA. "Dursban" is the popular name of chlorpyrifos also sold as "Lorsban" for agricultural use by Dow Chemicals Ltd. The chemical name is 0,0-diethyl-0-(3,5,6-trichloro-2-pyridyl) phosphorothioate. Chlorpyrifos is an organophosphate pesticide, a neurotoxin that kills animals by attacking the nervous system.
Type of incident	Poisoning and contamination of people and the environment
Type of damage	Accidental poisoning and permanent pollution: Cases of accidental poisoning have been many. In the US Poison Control Centres alone there have been more than 7,000 cases just in 1996, of accidental exposures due to Dursban. ¹ Most susceptible are children playing at home and in the garden. ² There are no data on poisoning in India and other countries. Dursban has been declared as unfit for almost all home/garden uses by the US Environmental Protection Agency (US EPA). However, Dow is still selling it to consumers in poorer countries for the same uses ³ . There have been several cases of accidental poisoning of workers in India.
Range of damage, amount of loss	Quantification of Damage: A US government study done in 1994 found over 80% of Americans with detectable levels of TCP (greater than 1 microgram /liter) and 31% with over 5 micrograms/litre: a six-fold increase between 1974 and 1994 ⁴ . Research on assessing damage has not begun in India ⁵ . Chlorpyrifos was first marketed in the USA in 1965 by the Dow Chemical Company and is now one of the top five insecticides with annual sales over USD 2 billion. The chemical causes more than 1,000 cases of poisoning and 7,000 cases of accidental exposure per year in the US alone ⁶ .

¹Environment Working Group's website: <http://www.bandursban.org/epa/poisonings.shtml>

² ibid: <http://www.bandursban.org/science/>

³ (3)Interview of field investigator S.Usha, Thanal Conservation Action and Information Network, Kerala, India.

⁴ Fact sheet compiled by Albert Donnay, *Dursban Information Group, c/o MCS Referral & Resources, 508 Westgate Road, Baltimore*

⁵ Interview with Pesticides researcher, Thanal Conservation and Action Network .

⁶op cit: Environmental Working Group: <http://www.bandursban.org/epa/poisonings.shtml>

Who is responsible?	Dow Chemicals is responsible for marketing a chemical, known to them as a neurotoxin and unfit for use by the US population, in poorer countries such as India. State authorities share responsibility because they have not restricted use of this chemical in India. Indian Companies who actively propagate the use of this chemical in their formulations without considering the established adverse health effects are also accountable
Legal outcome/ Public action	US victims filed more than 270 lawsuits against Dow in the 1990s. The US EPA fined Dow USD 732,000 in 1995 for failing to disclose reports of adverse effects associated with use of or exposure to Dursban ⁷ . In January 1997, the US EPA announced a voluntary agreement with DowElanco to discontinue many uses of chlorpyrifos (including all broadcast sprays and foggers) and to require changes in the education of both applicators and the general public. On 8 June, 2000 EPA banned all uses of Dursban in residential and commercial buildings. The EPA also instituted major restrictions of the use of chlorpyrifos, the active ingredient in Dursban, in food crops ⁸ . Public action: over the last two decades many NGOs in the US have run Anti-Dursban campaigns.
Subsequent behaviour of company	The company has not withdrawn Dursban from Indian markets even after the adverse health effects of the chemical has been proven in the US, despite its "Responsible Care" rhetoric. Dow has not warned other chemical manufacturers against serious health effect of chlorpyrifos and the need to stop production (or formulation) and sales of chlorpyrifos due to these risks. Instead, Dow continues its sales with statements like: "Used as directed, chlorpyrifos products are safe for use around adults and children." ¹⁰
Legal outcome	In India environmental laws and regulations are now catching up with the developments in the US. The precedent set by the US EPA banning the chemical would help the campaign to raise awareness and concerns about the dangerous properties of the chemical and the need to ban it from the Indian market.
Final statement	Dow Chemicals should follow their own claims of "responsible care" and stop using double standards in the production and distribution of its products.

⁷ibid: <http://www.bandursban.org/dow/>

⁸ ibid: <http://www.bandursban.org/latest/>

¹⁰ Dow Agrosiences Website Q&A page: <http://www.dowagro.com/about/issues/qa.htm>

¹¹ ibid: <http://www.dowagro.com/chlorp/rpa/about.htm>

Dow Agrosiences (NZ) Ltd, (New Zealand)

Company details	<p>Dow Agrosiences (NZ) Ltd, fully owned subsidiary of DowElanco¹. Registered Office: 89 Paritutu Road, New Plymouth General Manager: Peter Dryden</p> <p>Formerly Ivon Watkins Dow. Located in urban Paritutu, suburb of New Plymouth , New Zealand</p>
Location of damage	<p>The primary location of damage is New Plymouth, however IWD products containing 2,4,5-T were sprayed extensively around New Zealand's agricultural and forestry land to control weeds. A working party report states that at least 3.4 kg of dioxin was sprayed over New Zealand agricultural and forestry land in such products².</p>
Company Activity	<p>Ivon Watkins Dow (IWD), commenced producing 2,4,5-T in New Plymouth in 1948. In 1969, the company moved its plant into the urban area of Paritutu. IWD imported trichlorophenol (TCP) from the USA and Germany until 1969, when they started manufacturing TCP in New Plymouth³. In 1987, this plant was the last in the world still producing 2,4,5-T. 2,4,5-T was one of the ingredients in the infamous chemical substances, agent orange, which was used as a defoliant in the Vietnam war. 2,4,5-T was contaminated with dioxin and thus the use of the chemical contaminated the environment and people with dioxin.</p>
Type of incident(s)	<ul style="list-style-type: none"> - IWD buried waste that subsequently leached. - There was an explosion at the plant in 1972. - An equipment failure in the TCP plant in April 1985 released up to 735 mg of dioxin⁴. - The company incinerated dioxin contaminated waste in an urban area. - IWD produced dioxin-contaminated products. <p>Between 1975 and 1979, the company incinerated 6 kg of dioxin in liquid wastes⁵. 85 tonnes of sludges were incinerated between 1986 to 1990⁶. Phenoxy sludge was buried in drums at two separate sites. The majority of the drums⁷ were recovered from one site. The other site, Waireka farm, situated in a gully near the coast , was found to be leaching waste. The drums were recovered in 1985 and reburied a few hundred metres inland in a lined landfill.⁸ The old Waireka site was recently discovered to be leaching 2,4,5-T.</p> <p>In 1985 the company was reported as saying that in no instance has it been proven that dioxin is responsible for any permanent damage either to people or the environment⁹. Ironically according to a 1965 internal memo written by Dow's toxicology director, Dr. V.K. Rowe:</p> <p>"As you well know, we had a serious situation in our operating plants because of contamination with 2,4,5-trichlorophenol with impurities, the most active of which is 2,3,7,8-tetrachlorodibenzo-p-dioxin. The material is exceptionally toxic; it has tremendous potential for producing chloracne and systemic injury."</p> <p>Furthermore, according to a recent Reuters report, the US Air Force has found strong links between adult onset diabetes and Agent Orange. Vietnam veterans stated that they hoped that this would be added to the other nine diseases veterans were eligible for compensation for, including a range of cancers and chloracne.</p>

¹ The sole shareholder is DOWELANCO BV Aert Van Nesstraat, 3012 Ca Rotterdam, The Netherlands. Dowelanco is subsidiary of Dow Chemicals.

² A Report by a Working Party to the Environmental Council, Commission for the Environment for the Environmental Council, 1986, p25. This is based on the dioxin contamination was one part per million from 1948 to 1972 as derived from Dow information provided to the Working Party (p27).

³ Ibid., p11.

⁴ Ibid., 17. Samples taken after this event showed soil levels of 310 ppt – Department of Scientific and Industrial Research 18 April 1986, released under the Official Information Act 1982 on 20 May 1999.

⁵ Ibid, 25.

⁶ Ibid.

⁷ Approximately 30 drums of 230 were recovered from Omata. Ibid., p 17.

⁸ Ibid., p17.

⁹ „Official dioxin testing begins“. The Dominion, Tuesday March 5, 1985.

Type of damage	Dioxin contamination to air, land and water.
Range of damage, amount of loss	<p>There has been no acknowledgement or quantification of health effects on the community and workers who were in the area at the time of the 2,4,5-T manufacture. Two investigations took place in the 1980s, but some sectors of the community have not been satisfied with the outcome. The Minister of Health stated that officials "acknowledge that the analysis of 2,4,5-T, rather than dioxin (2,3,7,8-TCDD), that was carried out as part of the Ministerial Inquiry in 1986-87 was less than ideal and make the outcome, from a modern perspective, of somewhat limited value"¹⁰.</p> <p>A number of residents and former residents of the area are alleging health effects from the presence of the factory and its activities. Some people have told stories of multiple cancers in the family, skin disorders and other health problems. A recent claim of serious birth defects in the area from the time when IWD manufactured 2,4,5-T has also arisen in a recent publication.</p> <p>The New Zealand government is currently scoping an investigation into the health effects on residents. The scoping paper is expected to be finalised in or around May 2002.</p>
Who is responsible	<ol style="list-style-type: none"> 1. IWD, now Dow Agrosciences (NZ) Ltd. 2. Local authorities for the siting of a chemical factory in a residential area.
Legal and/or public action taken	The local community has undertaken a lot of public actions, which has resulted in the government proposing a blood serum study. The community is demanding that the study focus on key exposure groups, many of whom have since moved away. The community wants an independent in-depth epidemiological study with an appropriate testing regime and is calling for international peer review.
Subsequent behaviour of company	The company has not acknowledged that there are negative health effects from the production of 2,4,5-T.
Legal outcome	Not applicable
Final Greenpeace statement	There is no safe dose of dioxin, yet dioxin was released into the environment through waste disposal, the production and in the product itself from the IWD plant in a residential area. This case shows that there is a need for producers to prove that their products and processes are safe before being released to the market or production beginning. If a product or process subsequently is shown to be unsafe a liability instrument must exist so that exposed people can be acknowledged and assisted.

¹⁰ Letter to community member from Hon. Annette King, Minister of Health, 29 August 2000.

Chemical cases

AZF (Toulouse, France)

Company details	<p>AZF – GRANDE PAROISSE 143 route d'Espagne 31507 TOULOUSE Cedex 1 France (Address no longer exists)</p> <p>Head Office 12 place de l'Iris 92062 Paris - La Défense France</p> <p>Subsidiary of ATOFINA Head office: Cours Michelet 92091 Paris La Défense Cedex France</p> <p>Subsidiary of TOTAL FINA ELF SA 2 Place de la Coupole 92400 COURBEVOIE France Tel: +33-1-4744-4546</p> <p>Chairman of the board: Thierry Desmarest</p> <p>2001 Annual profit : EUR 7.5 thousand million (USD 6.5 thousand)</p>
Location of damage	<p>The AZF¹¹ complex was located three kilometres from the centre of Toulouse (pop. 400,000) located in Southwest France, lying under an aircraft flight path and bordered in the north by the Toulouse bypass. Within one kilometre of the site are the Mirail University, a household appliances warehouse, a psychiatric hospital, social housing, offices, schools, colleges and a nightclub.</p> <p>The neighbourhood included four other chemical plants, SNPE and subsidiaries TOLOCHIMIE and ISOCHEM, all involved in phosgene and phosgene-based chemistry (and also production of hydrazine for ARIANESPACE) and RAISIO FRANCE¹²</p>
Company Activity	<p>Chemical production:</p> <ul style="list-style-type: none"> - nitrogenous substances: ammonia, nitric acid, urea and ammonitrates as fertilisers and as raw material to produce explosives, - synthetic resins, cyanuric acid and chlorinated derivatives <p>Chemical use:</p> <ul style="list-style-type: none"> - natural gas, methanol, chlorine and phenols <p>Storage:</p> <ul style="list-style-type: none"> - up to 6,000 tons ammonia - 2 wagonloads of 56 tons chlorine, - Up to 15,000 tons NO₃NH₄ in bulk, another 15,000 tons in bags, and 1,200 tons in solution.
Type of incident	<p>Accident > Explosion</p>

¹¹ AZF was under the Seveso Directive as of major concern, under ISO 9001 and 14001 standards and member of the French "Responsible Care" ("Engagement de progrès de l'industrie chimie française").

¹² INFO CHIMIE Magazine, Spécial Usines Chimiques France 2001, #430 July-August, 2001

<p>Type of damage</p>	<p>The explosion took place in a storage area of NO_3NH_4 destined for reprocessing. Between 300 and 400 tons of the chemicals were in storage and it is estimated that the explosion was generated by 40 to 80 tonnes of the stored matter. The explosion, which occurred around 10 a.m., left a 7m deep and 40m wide crater, smashing windows in a radius of several kilometres¹³. The explosion destroyed the alarm and gas detection systems. Fortunately there was no domino effect.</p> <p>The causes are still unknown but different scenarios have been studied. Possible scenarios included terrorist attack (this scenario was quickly abandoned); decay of ammonitrates due to bad storage conditions (chemists are doubtful about this possibility); presence of misplaced chemicals (chlorinated wastes suspected); or an electrical accident or underground pipeline leakage. Due to "an individual mistake" was the last official statement.</p>
<p>Range of damage, amount of loss</p>	<p>Damage: The explosion totally destroyed the AZF plant and significantly damaged the other companies in the area. Public housing, public infrastructures and private buildings were either partially or totally destroyed including 118 schools and 27,000 flats. In all, more than 1500 companies were affected. Due to the subsequent slow insurance process hundreds of families went without windows during the winter. Thirty-one people lost their lives including 22 workers. 2,500 people were injured; tens of whom suffered serious injuries.</p> <p>Toxic releases The amount of toxic pollution remains unknown. Clouds of NO_x and ammonia went across Toulouse. Nitric acid and losses of NO_3 leaked into the Garonne. Intentional releases of 9 tonnes of ammonia (and possibly other chemicals) emptied into the river during the clean up of the site, along with an unknown amount of "controlled" degassing.</p> <p>The material damage is provisionally estimated at between EUR 1.5 and 2.3 billion (in February 2002, the total compensation requests reached EUR 1.8 billion). There were 100,000 demands for compensation including 55,000 from private individuals, 6,000 from private companies and 5,000 from co-owners. Additional expenses include EUR 4 million a month for loss in trade.</p>
<p>Who is responsible?</p>	<p>Company Totalfina, not being satisfied with financial results from AZF Grande Paroisse, made few investments in the company. Management of the site was poor and there was a quick turnaround of workers and subcontractors. The reprocessed ammonitrates storage building, in particular, was left in a bad condition.</p> <p>Local authorities From 1924, until the early 1990s, local authorities were unable to prevent the city from spreading into the industrial area¹⁴. Building permits were given until only recently. In the late nineties, INERIS, the French agency for risk assessment, defined safety areas around the plants, but these were totally unsatisfactory and displayed a total incompatibility between the industrial area and the city. No process to increase safety or to consider the future and sustainability of the area took place. The removal of the site was called for but economic reasons (costs, loss of income for Toulouse) made it impossible.</p>

¹³ Daily Toulouse Metropole, 26/27 September, 2001

Weekly TOUT TOULOUSE, #47 (26 September-2 October, 2001)

¹⁴ Le Monde 10 February, 2001 - "La croissance urbaine de Toulouse a négligé la protection industrielle" by Benoit Hopquin

	<p>National authorities The DRIREs (Regional Directorates for Industry, Research and Environment) are in charge at a regional level for regulating industry. DRIREs depend on both the Industry and the Environment Ministries and have traditionally accommodated the local industries. Up until the eighties, AZF was a public property providing the army with explosives and ammunitions. The entire Toulouse site lies on a 107 ha industrial fallow area "sheltering" tens of thousands of tons of gunpowder production residues from the First and Second World Wars. No cleanup was ever called for. In addition, AZF was recognised by the people of southern Toulouse as a harmful plant that continuously released odorous gasses.</p>
Legal and/or public action taken	<p>Court cases Investigations were made, but the case has not yet reached the court.</p> <p>Political action The government organised public debates in every French region and at a national level to stop the growing public concern. The debates ended up resembling a public relations campaign by the industry. Electoral concerns prevented the government from taking any decisions on the future of the site. The only proposal was to create public information tools. A parliamentary investigation committee held hearings with all stakeholders including NGOs.</p> <p>EU Parliament A resolution on Toulouse accident called for a risk removal approach.</p> <p>Groups campaigning on the corporation A citizen collective named "Plus Jamais ça!" was created to struggle against the reopening of the site, also including the other plants.</p> <p>Workers Major unions are opposed to the closure of the site due to job loss.</p>
Subsequent behaviour of company	<p>Totalfina has promised compensation. Of the total EUR 1.8 billion in damage, 850 million will be covered by insurance companies and 950 million will be charged to Grande Paroisse (net cost for TFE: EUR 600 million). Minor shareholders (holding 19.5% of Grandes Paroisse capital) have contested this latest decision, stating that TFE could have advanced the amount to its subsidiary.</p> <p>Totalfina shareholders eventually decided in mid-April not to re-open the destroyed AZF¹⁵. The other plants, which are state property, are supposed to re-open with some changes, producing and using the phosgene in a just-in-time process instead of storing it.</p>
Legal outcome	Awaiting judgement
Final Greenpeace Statement	<p>This case is a miracle! Nothing but luck prevented a domino effect, which, in the case of an explosion within the chlorine or phosgene store, could have meant tens of thousands of deaths in Toulouse. This case is also a scandal where both corporate and public authorities (at municipal, regional and national levels) for years perpetuated an irresponsible situation until the final tragedy occurred. The Toulouse disaster advocates new policies on high-risk industry regulation, for public participation, land-use planning and independence of controlling bodies. It also advocates a real step forward towards sustainability through clean production. We further see through this example that this movement has to be led by mandatory regulations because neither ISO 14000 standards or voluntary commitments (Engagement de Progrès) have dealt adequately with the reality of a poorly managed high-risk chemical plant.</p>

¹⁵ Le Monde - 5 February, 2002 "TotalfinaElf fait payer sa filiale Grande Paroisse"

Bayer S.A. (Brazil)

Company details	<p>Bayer AG Chairman of the Board of Management: Werner Wenning Werklewerkusen 51368 Leverkusen Germany Tel: +49-214-301</p> <p>Bayer S.A. (Brazil)</p> <p>CEO: Ian Paterson¹</p> <p>Facility involved in this case: Belford Roxo Estrada da Boa Esperança, 650 26110-100 – Belford Roxo – RJ Tel.: +55-21-2762-5700</p> <p>Other facilities: Porto Feliz Rodovia Marechal Rondon, km 139 18540-000 – Porto Feliz – SP Tel.: +55-15-262-3699</p> <p>Porto Alegre Rua Edu Chaves, 360 90240-620 – Porto Alegre – RS Tel.: +55-51-342-2777²</p> <p>Revenue in Brazil: USD 180 million in 2000</p>
Company activity	<p>The company currently manufactures polyurethane, varnishes, veterinary products and pesticide formulations³. The Belford Roxo plant has a hazardous waste incinerator and an industrial landfill.</p>
Type of incident	<p>Contamination of soil and water</p>
Type of damage	<p>In January 2001, Greenpeace released a report accusing Bayer of contaminating the Sarapuí river with PCBs and heavy metals, such as lead and mercury. The chemicals were released as a result of the incineration of chemical pollutants in its Belford Roxo plant. The samples analysed included solid wastes from the industrial landfill, industrial wastewater, and also sediments from the Sarapuí river, collected upstream and downstream of the facility. The analyses were performed by Greenpeace Research Laboratories, from the Department of Biological Sciences at the University of Exeter, UK.</p> <p>The effluent sample contained compounds such as halogenated benzenamine, benzene and benzamide. The sediment sample contained compounds such as chlorinated benzene, PCBs and DDT derivatives. A sediment sample from the industrial landfill was highly contaminated by heavy metals and contained a wide range of organic pollutants, such as PCBs, chlorinated benzenes and halogenated benzenamines. Another sample showed high levels of mercury⁴.</p> <p>Four years before, in 1997, FEEMA, the state environmental agency, had</p>

¹ Gazeta Mercantil, March 13th, 2002

² www.bayer.com.br

³ Greenpeace – Bayer General Information

⁴ Greenpeace – Metal and organic pollution associated with the Bayer facility in Belford Roxo, Rio de Janeiro, Brazil, December 2000

⁵ Letter IDC 61/01 from Feema and Greenpeace – Small Inventory of POPs in Brazil

	already detected mercury in sediment samples collected in the Sarapuí river, downstream from the facility. This analysis showed that mercury was present at 30 micrograms per gram of sediment, compared to 22 micrograms per gram detected by Greenpeace ⁵ .
Legal and/or public action taken	On 22 January, 2001, Greenpeace carried out a direct action at Bayer's facility in Belford Roxo. The state Public Prosecutor opened a public investigation about the claims against the company ⁶ . In the second half of 2001, he sent a delegation of technicians from the state environmental agency (FEEMA) to audit the Belford Roxo facility ⁷ . The results have yet to be released.
Subsequent behaviour of company	In response to Greenpeace's direct action, Bayer released a statement calling the accusations of contamination in the effluent unfounded and asserted that all their facilities in Brazil operate within "the current state and federal regulations" ⁸ . According to Bayer, the company carried out three series of effluent analysis in 2001 and 2002, after Greenpeace released the report. These analyses indicated contamination that was less than the legal limits for PCBs and heavy metals. They were carried out by Bayer's own laboratory and also by two independent laboratories, Tecma and Analytical Solutions. "As to PCBs, for example, the legislation allows up to 50 ppb in effluents and the test results showed only 0,1 ppb". Bayer also stated that the lead levels detected were five times below legal limits. For mercury, the levels found were 11 times below legal limits ⁹ . The company also questioned the methodology used by Greenpeace's laboratory ¹⁰ . It is important to note that Bayer's analyses were limited to effluents, disregarding sediment contamination. The contaminants that Greenpeace found in sediments are toxic, persistent and bioaccumulative. Thus they require further attention and must be linked to their source.
Legal outcome	The results of the analyses required by the Public Prosecutor have yet to be released.
Final Greenpeace statement	Bayer could not explain the source of the contamination. The company denies damage to the environment and does not accept responsibility for clean up and compensation. The Bayer incinerator is still operating and burning wastes from other companies.

⁶ Greenpeace – Letter to the Federal Police, March 2001

⁷ Information provided by Bayer's Press Officer

⁸ Gazeta Mercantil, January 23rd and 24th, 2001

⁹ Information provided by Bayer's Press Officer

¹⁰ Letter sent by Bayer to the Public Prosecutor of Rio de Janeiro, April, 10th 2001

Ebara Corporation (Japan)

Company details	<p>Ebara Corporation¹ (Japanese company) Environmental Engineering Enterprise (producing incinerators but also water pumps, sewage systems, etc.) (Headquartered in Japan) 11-1, Haneda Asahi-cho, Ohta-ku, Tokyo 144-8510, Japan Phone: 81-3-3743-6111 Fax: 81-3-3745-3356 Chairman and Representative Director: Hiroyuki Fujimura Paid-in Capital JPY 33,788 million Number of Employees 4,993</p> <p>(Pollution Site) Fujisawa Plant: 4-2-1 Hon-fujisawa Fujisawa City Kanagawa Prefecture Phone: +81-466-83-8110</p>
Location of Damage	<p>Hikiji River, Fujisawa City, Kanagawa Prefecture, Japan</p> <p>Kanagawa Prefecture is located south of Tokyo, facing the Pacific to the southeast. Fujisawa city, which has about 400,000 people, is one of the major cities in Kanagawa Prefecture.</p> <p>Hikiji river runs through the city from the north to the south, and the Ebara plant is located 5km from the mouth of the river on the Pacific Ocean.</p>
Company activity	<p>Incineration of Ebara Corporation's self generated industrial waste.</p>
Type of incident	<p>Dioxin contamination of the Hikiji river and surrounding area caused by discharges of dioxin-containing sludge over an 8 year period from a drainage pipe that is connected to the air pollution control system of the Ebara waste incineration facility.²</p>
Type of damage	<p>River pollution, marine pollution</p>
Range of damage, amount of loss	<p>Levels of dioxin contamination in the river water has been measured at levels of 3,000 to 8,000 times the environmental standard of 1 picogram per litre (pg/l) set by the Japanese government³. The contamination of the waste water, soot and sludge from the incinerator was found to range between 13,000 pg/l and 300,000 pg/l⁴. The total of dioxins released to the river is estimated to be 3.0g-TEQ, and the estimated release to the air from the incinerator is 1.4g-TEQ⁵.</p>
Who is responsible?	<p>Ebara Corporation for dumping dioxin to the Hikiji river and delayed action for recovery.</p> <p>State authorities for not immediately informing the public of the situation.</p>

¹ Ebara Corporation Web Site <http://www.ebara.co.jp/en/profile/index.html>

² Press releases about the accidents by Ebara Corporation <http://www.ebara.co.jp/dioxin/index.html>

³ "Survey of the dioxin levels in Hikiji River" Environmental Agency, Kanagawa Prefecture, and Fujisawa City, 2000
<http://www.city.fujisawa.kanagawa.jp/kankyok/hikiji.gif>

⁴ "Survey of the dioxin levels in Ebara Fujisawa Plant" Kanagawa Prefecture and Fujisawa City, 2000
<http://www.city.fujisawa.kanagawa.jp/kankyok/zu20-03.jpg>

⁵ "About the accident of dioxin contamination of Hikiji river"
Fujisawa City, 2000 <http://www.city.fujisawa.kanagawa.jp/kankyok/toppage20-2.htm>

Legal and/or public action taken	No legal action has been taken against the Ebara Corporation by the government as the government has insisted that the levels of dioxin pollution do not present a risk to human health. Local activist groups have been monitoring the dioxin levels.
Subsequent behaviour of company	Ebara Corporation shut down the incinerator responsible for the dioxin pollution and has rebuilt its facilities at the site which were contaminated as a result of the operation of the incinerator. The company has not demolished the incinerator, nor has Ebara conducted a clean up the river or the surrounding area. The government has not required Ebara to remediate the contamination and has continued to maintain that the levels of dioxin pollution in the river pose no risk to human health. Ebara Corporation continues to manufacture and sell its incinerators in Japan and to export them to other countries. The company insists that these incinerators are improved and safer than the incinerator that caused the extensive dioxin pollution of the Hikiji river.
Legal outcome	No legal action has taken place.
Final Greenpeace statement	Ebara corporation has not taken any action to clean up the river and marine environment. The mismanagement of Ebara corporation's own incineration facility demonstrates the environmental hazards of continued manufacture, use and export of incineration technology by Japan.

Haifa Chemicals Ltd (Israel)

Company details	<p>Haifa Chemicals Ltd, Haifa Owned by Trance Resource Inc (A US corporate owning other polluting industries like Vicksburg Chemical Company in Mississippi)</p> <p>Address of TRI: 375 Park Avenue, New York, NY 10152 9 West 57th Street, New York, NY 10019</p> <p>Chairman of the Board of TRI: Arie Genger Chairman of the Board of Haifa Chemicals: Avi D. Pelossof Managing Director of Haifa Chemicals: Gabi Politzer</p> <p>Revenue of Haifa Chemicals: USD 280 million (as of 2000)</p>
Location of damage	Kishon River and Haifa Bay, Israel
Company activity	Production of Chemical Fertilisers
Type of incident	Toxic contamination of soil and water due to toxic sludge dumping
Type of damage	<ul style="list-style-type: none"> - Pollution of Haifa Bay - Pollution of Kishon River and the soil below and around it - On going pollution - Toxic effluent pipes into the Kishon river - Toxic sludge that was dumped for years in Haifa Bay. After a Greenpeace campaign this sludge was reduced to 10% of its volume, and has now been taken for burial.
Range of damage, amount of loss	<p>Between 1986, and 1999, Haifa Chemical dumped an estimated 1,200,000 tons of toxic sludge in Haifa Bay. Between 1967 and 2001, the company discharged approximately 66 million m³ of toxic effluents into the Kishon. The Kishon river has been a dead river for close to 40 years. The cancer rates among affected communities is very high. Kishon fisherman, marine commandos who carried out diving training exercises in the river, and the workers who handled the toxic sludge are most affected ¹.</p> <p>The fisherman have cancer rate of close to 20% (39 ill or dead out of 200 fisherman), the cancer rates among the commandos are not established yet, since there are many types of training (those who spent a few days in the Kishon, or a few weeks, or a few years). But an expert opinion done by Dr. Benny Malenky in 2000², determined that the high rates of cancer found in the commandos were not random but linked to their diving. On this basis, Israel has set up a state-committee to check if there is a connection. The committee is due to give its conclusions in the first half of 2002.</p> <p>In Haifa the cancer rate is higher than the national average of 0.285%. For Haifa women it's 0.345% and for men it's 0.321%³</p>
Who is responsible?	<p>Haifa Chemicals managers have known that they were releasing toxic chemicals into the environment since they have begun operating in 1966. Yet still they do not take responsibility for the damage they cause or initiate any steps for eliminating the on-going pollution.</p> <p>State authorities are also responsible because they give the company dumping permits and legalise the pollution.</p>
Legal and/or public action taken	There are several court cases against Haifa Chemicals: three from the Kishon fishermen, one from the Rowing Club, one from IUED (an environmental law NGO). Greenpeace and other environmental organisations have been campaigning against the factory for 6 years

¹ personal communication S. Shemesh-Roz, expert opinion Dr. Benny Malenky

² Health Effects of Diving in the Kishon, Dr Benny Malenky, 2000,

³ Israel Ministry of Health - 1998 Official Statistic Report

Subsequent behaviour of company	The first lawsuit of IUED was settled out of court, with small amounts of compensation (USD 50,000 to boat owners) and an obligation to gradually reduce the toxic effluents. Other lawsuits are still in court. Due to the court agreement and to MOE pressure, some treatment facilities were installed and the amounts of effluents reduced from January 2002. The rest of the effluent is now proposed to be discharged directly into Haifa Bay via a pipe that would by-pass the river as a result of public pressure to stop the river pollution.
Legal outcome	Lawsuits have been successful to some extent, as described above, but only in reducing the pollution, not solving the problem at source. The damages paid so far are minimal – only USD50,000 to boat owners. No damages have been paid for health effects, loss of income, and no money allocated for the cleanup of the river.
Final Greenpeace statement:	Haifa Chemicals is an example of a company who consistently does all it can to shake off its responsibility for the ongoing damage its facilities have caused to the communities and the surrounding environment. It is part of a corporation that owns similar companies against which local communities are struggling to protect themselves. Such corporations should be singled out and made accountable for their actions.

ICI Argentina S.A.I.C. (Buenos Aires, Argentina) ¹

Company details	<p>ICI Argentina S.A.I.C. Av. Paseo Colón 221 5º piso C1063ACC Buenos Aires Argentina Tel: +54-11-4343-2010/24</p> <p>Location of the plant: ICI Argentina S.A.I.C. Ruta 11 Km 25 San Lorenzo 2200 Pcia. De Santa Fe Argentina Tel: +54-3476-422005/7 Fax: +54-3476-425332</p> <p>Headquarters: Imperial Chemical Industries PLC 20 Manchester Square London W1U 3AN United Kingdom Tel: +44-20-7009-5000 Fax: +44-20-7009-5001</p>
Location of damage	Estación Argentina, Santiago del Estero Province, Argentina.
Company activity	The company has several chemical manufacturing plants in Argentina. The plant in San Lorenzo currently produces sulphuric acid, sulphur derivatives, polyethylene, phthalic anhydride.
Type of incident	Around 30 tons of toxic waste were buried in Estación Argentina, a very isolated and poor area of Santiago del Estero province. The wastes were buried there in 1990 and discovered by an environmental NGO in 1994. Since then the wastes have remained buried, with no insulation from the environment where people transit, children play or animals feed.
Type of damage	Soil, ground water and drinking water are polluted. These wastes had been transported into the area by train and the information in the invoice described the shipment as containing gammexane. Those toxins are still buried by the railroad of an almost abandoned train station. The analysis done by several agencies and organisations show the presence of mainly gamma-HCH and other HCH isomers. Other chemicals in the dump include DDT, DDD, cis- and trans-chlordane, dieldrin, pentachlorobenzene, metoxichlor, heptachlor, aldrin, etc.
Range of damage, amount of loss	30 tons of toxic waste are reported to have been buried, however little is known about the degree of soil and groundwater pollution in the area. Several NGOs and the Secretary of the Environment show the toxic chemicals are in nearby soils as well as in the groundwater. However no economic quantification of the damage has yet been done.
Who is responsible?	<p>Ever since the dump was brought to public attention, various government levels have denied responsibility for cleaning up the site. However, in every sample taken the main chemical present is γHCH, which at the time of burial was being produced by ICI Duperial.</p> <p>As there are other chemicals that might have been produced by other big chemical companies Greenpeace is urging the Chemical Industry Chamber to take responsibility for the removal of the wastes, cleanup of the site and compensation to the local community.</p>

¹ "Argentina no es un basurero tóxico". "Argentina is not a toxic waste dump". Greenpeace report, www.greenpeace.org.ar

Legal and/or public action taken	<p>The community and several NGOs have publicly urged for toxic waste removal and cleanup of the site.</p> <p>Although several legal actions have been put forward since 1994, the legal investigation has made little progress. In the year 2000, the judge decided to take a few testimonies from former and current ICI representatives.</p>
Subsequent behaviour of company	<p>The company stated that the case was still under investigation and denied responsibility, saying that the former ICI Businesses involved with agrochemicals during the 1980s had split from ICI into Zeneca in 1993.</p>
Legal outcome	<p>The legal actions are under the Federal Court of Santiago del Estero and the legal process has not yet finished.</p>
Final statement:	<p>Manufacturers such as ICI should be obliged by governments to quickly remediate the damage caused by the lifecycle of the chemicals they produce.</p> <p>Companies should be made liable for this kind of damage in order to prevent new accidents.</p>

Orica Botany (formerly ICI) (Australia)

Company details	<p>Formerly ICI, now Orica Botany : Botany, Sydney, Australia</p> <p>Orica is a publicly-owned Australian chemical company employing around 9,000 staff across approximately 35 countries and with a revenue of AUD 4 billion annually. Orica has controlled entities in Argentina, Australia, Brazil, Canada, Chile, China, Dominican Republic, Estonia, Fiji, France, Germany, Guyana, Hong Kong, Indonesia, Ireland, Kazakhstan, Malaysia, Mexico, New Zealand, Peru, the Philippines, Papua New Guinea, Puerto Rico, Singapore, Spain, Thailand, Turkey, the United Kingdom, the USA and Venezuela. Orica also has a presence in India and the United Arab Emirates through investments in associates.</p> <p>Managing Director and CEO: Malcolm Broomhead</p> <p>Address: ORICA 1 Nicholson Street, Melbourne, 3000, Australia</p>
Company activity	<p>Chemical production: ICI began manufacturing chlorine in 1944. The site was further expanded in the 1960s, 70s and 80s to become a major petrochemical operation. The core activities of the site since the 1950s have included the production of chlorine and the intermediaries for polyvinyl chloride (PVC) plastic, ethylene dichloride (EDC) and vinyl chloride monomer (VCM). Currently produces chlorine, sodium hydroxide, polyethylene and polypropylene.</p>
Type of incident	<p>For over 50 years a range of extremely hazardous and toxic chlorinated chemicals (including substances that have now been banned) have been manufactured at the ICI/Orica Botany site. This has led to some serious long-term waste and pollution problems. A 1990 report for ICI identified widespread soil contamination on the site and that some pollution was moving offsite via aquatic life in Botany Bay – in some instances above the recommended environmental standards.¹</p> <p>These problems can be divided into three categories:</p> <p>Waste stockpiles:</p> <ul style="list-style-type: none"> - 8,300 tonnes of hexachlorobenzene (HCB) crystalline solid waste from solvent manufacture in 200 steel drums held above ground in on-site dry storage facilities; - 1,000 tonnes of HCB contaminated waste derived from EDC manufacture is stored in 25m³ concrete tanks in what is referred to as the vinyl factory. <p>Contaminated soil and groundwater:</p> <ul style="list-style-type: none"> - 45,000m³ of soil, ash and peat contaminated with HCB, carbon tetrachloride and chlorinated hydrocarbons is stored in a plastic-lined disposal cell under the ICI car park. Environmental contamination of Botany Bay

¹ AG Environmental Engineers (1990): ICI Botany Environmental Survey: Stage 1 Preliminary Investigations. A report for the NSW State Pollution Control Commission, May 1990.

Type of damage	Contaminated Soil and Groundwater ² : For many years, ICI dumped their waste, in 200 litre metal drums, into the South Pacific Ocean, near Sydney. Many of the dumped materials will eventually find their way into the environment.
Range of damage, amount of loss	Soil contamination: The highest level of mercury was detected near the solvent plant and near the heavy ends drum store. Chlorinated hydrocarbons were also detected in four other general locations. Shallow water contamination: Chlorinated hydrocarbons (CHC) contamination is entering the environment around the ICI Botany site due to the discharge of contaminated groundwater that has been taking place for many years. Deep water contamination: Sampling of deep groundwater (10-25meters) found that it is contaminated with chlorinated hydrocarbons, mostly trichloroethylene and an intermediate of PVC manufacture, ethylene dichloride. Aquatic animals (biota) in Penrhyn Estuary: The aquatic life in Springvale Drain appears to be severely affected by contaminated seepage from the Southland area. Mercury was detected in biological samples in December 1989, which exceeded the recommended National Health and Medical Research Council (NHMRC) guidelines for shellfish for human consumption. Samples of crab taken in December 1989, exceeded the NHMRC guidelines for hexachlorobenzene in seafood for human consumption. ³ Dioxin contamination: In 1990 a study was undertaken on dioxin and furan contamination. The levels were relatively low, however there were some relatively high concentrations of 2,3,7,8 TCDF in sediment and some evidence of biota accumulation. ⁴
Who is responsible?	ICI Australia and Orica.
Legal and/or public action taken	Presently, there is a Commission of Inquiry into a proposal by Orica to use Geomelt technology to treat about 10,000 tonnes of HCB. The Commission of Inquiry is a function of NSW Planning legislation. In this case the Minister for Planning called for a Commission of Inquiry into the HCB destruction proposal.
Subsequent behaviour of company	ICI Australia set aside about AUD 70- AUD 80 million for a cleanup. (Approx. USD 30 million).
Legal outcome	No results yet
Final Greenpeace statement	Orica budgeted about AUD 70 million to destroy a huge stockpile of HCB on their property. This amount will not be enough to complete the task safely. There are additional contaminants on site.

² In 1989, at the direction of the then NSW State Pollution Control Commission (now the EPA), ICI carried out the Botany Groundwater Survey Stage 1. The final report was released in May 1990.

³ AG Environmental Engineers (1990): see ref. 2, p xvii

⁴ Ibid.

Rhodia S.A. (Brazil)

Company details	<p>Rhodia S.A.</p> <p>CEO Walter Cirillo</p> <p>Facility involved in this case: Cubatão Unit Estrada Dom Domênico Rangoni Km 4 s/n – Bairro Industrial – CEP 11.500-000 Cubatão SP Brazil</p> <p>Since Rhône-Poulenc (former owner of Rhodia) merged with Hoechst Marion Roussel, the facility now belongs to Aventis.</p> <p>Aventis Crop Science Aventis SA 16 avenue de l'Europe 67300 Strasbourg France Tel +33-3-88-99-11-00 Fax +33-3-88-99-11-01</p> <p>Other Facilities: Rhodia Group have facilities in three different Brazilian states: São Paulo (in Santo André, São Bernardo do Campo, Jacareí, Paulínia and Indaiatuba); Minas Gerais (in Poços de Caldas); and Pernambuco (in Cabo do Santo Agostinho).</p> <p>Administrative Unit: Centro Empresarial Av. Maria Coelho Aguiar, 215, Bloco B, 1. andar, Jardim São Luiz - CEP 05804-902 São Paulo – SP</p> <p>Revenues in Latin America: USD 1.15 billion in 2000 Revenues in Brazil: USD 226 million in the first semester of 2001</p>
Company activity	<p>Rhodia (Cubatão City) manufactured chemicals used for wood treatment, such as pentachlorophenol, sodium pentachlorophenate, tetrachloroethylene and carbon tetrachloride. The principal chemical waste compounds from the manufacture of these chemicals were hexachlorobenzene, hexachloroethene and hexachlorobutadiene.</p>
Type of incident	<ul style="list-style-type: none"> - Failure to remediate existing toxic waste and toxic waste dumping. - Use of inadequate destruction technology for disposal of wastes.
Type of damage	<p>In 1976, when Rhodia bought Clorogil, a company that manufactured chemicals used for wood treatment, they inherited one of the greatest environmental liabilities ever in Brazil¹. In 1984, it was reported that the company had 11 illegal waste dumps that contained organochlorine wastes discharged by the plant. Inside the plant, which was part of the Pólo Industrial de Cubatão, in São Paulo, there were also illegal deposits of industrial toxic waste².</p> <p>In January 1999, Greenpeace released the results of analyses of environmental samples collected near the Cubatão plant. The Greenpeace laboratory at the University of Exeter in the UK carried out the analyses.</p>

¹ Gazeta Mercantil, 24/2/00

² Depoimento de João Carlos Gomes, diretor de Comunicação da ACPO

³ Greenpeace- casos de contaminação Brasil-Resumo

⁴ www.rhodia.com.br

	<p>The results showed that chemicals stored in the plant were contaminating the Cubatão and Perequê rivers and were also detected in nearby vegetation³.</p>
<p>Range of damage, amount of loss</p>	<p>In 1986, the company built an incinerator to destroy contaminated wastes and soils, and started operations in December 1987. According to the company, 67 thousand tons of material were burned in this incinerator over the following 7 years⁴.</p> <p>According to the Associação de Consciência à Prevenção Ocupacional (ACPO, Movement for the Awareness for Occupational Prevention), a group of at least 150 employees who worked at the Cubatão plant until its closure in 1993, were contaminated by hexachlorobenzene, a highly carcinogenic substance. There is at least one confirmed case of thyroid cancer, as well as cases of neurobehavioral dysfunction, liver and kidney failure, infertility and immunologic depression⁵.</p> <p>One of these cases is the worker Paulo Sérgio Thomaz, aged 44, who has 9.8 µg of HCB/dL blood. A production assistant at Rhodia since 1976, he developed constant headaches, insomnia and irritation⁶.</p> <p>There are also indications that children who eat fish from the city have incorporated organochlorines and heavy metals into their bodies. In 1993, a team co-ordinated by the physician Eládio Santos Filho investigated the contamination suffered by children as old as 10 years, who lived by the rivers in Cubatão. An average concentration of 9.08 µg Hg/L blood was found in 224 out of 251 children evaluated. At least one organochlorine pesticide – DDT, HCH or HCB – was found in the blood of 242 children. The investigators noted that contamination increased with fish consumption⁷.</p>
<p>Legal and/or public action taken</p>	<p>In 1993, the Public Prosecutor obtained an injunction that forced the company to halt their activities at the Cubatão facility and shut down their industrial incinerator. Action was taken due to the contamination of soil and groundwater with the organochlorines pentachlorophenol and hexachlorobenzene (HCB). Most of the company's illegal landfills are located near populated areas, rivers and mangrove forests.</p> <p>On 5 April, 2002, a Public Hearing at Santo Vicente's City Council was held to discuss the company's liability in the contamination case. At the hearing were representatives of the Public Prosecutor, from the executive office, from the Movimento Metropolitano Contra Resíduos Tóxicos (MMRT, Metropolitan Movement Against Toxic Waste) and from the communities from the Baixada Santista region⁸.</p>
<p>Subsequent behaviour of company</p>	<p>The company still maintains that the levels of HCB found in the blood of the workers do not pose risk and that there is no clinical evidence showing that the irregular organochlorine deposits have caused any harm to the workers. According to Rhodia, the levels of HCB found in fish in the region are not high enough to prevent human consumption.</p>

5 www.webagua.com.br e Depoimento de João Carlos Gomes, diretor de Comunicação da ACPO

6 revista Veja, 5/6/1996

7 Concentrações sanguíneas de metais pesados e praguicidas organoclorados em crianças de 1 a 10 anos, Eladio Santos Filho et al., Revista de Saúde Pública, 27(1), 1993

8 Gazeta Mercantil, 5/4/2002

Legal outcome	<p>In 1993, the company, the Public Prosecutor and the workers made a deal that guaranteed that the workers would have job stability for an initial period of four years and that they would have lifelong health care⁹. The company was also forced to treat their groundwater and monitor the illegal landfills. These actions have cost Rhodia 20 million USD¹⁰.</p> <p>Only two workers from Rhodia have been compensated after filing legal suits, both for having been contaminated in the 1970's, when the company still worked with pentachlorophenol. In one of the cases, the compensation has been paid to the widow in the last 5 years¹¹.</p> <p>Four legal suits were filed against Rhodia in the Baixada Santista region, one of them in Itanhaém, another in São Vicente and the other two in Cubatão¹². To this date, there is still activity on the legal front.</p>
Final Greenpeace statement	<p>The company has shown a complete lack of responsibility towards the community, workers and environment. Rhodia has not been made liable for a great part of the damage caused to the environment and to the people. The company has not offered any compensation or health assistance to the community. There are people still living in some of the contaminated areas.</p>

⁹ Greenpeace- casos de contaminação Brasil-Resumo

¹⁰ Depoimento de Plínio Carvalho, consultor e porta-voz da Rhodia

¹¹ Depoimento de João Carlos Gomes, diretor de Comunicação da ACPO

¹² Depoimento de João Carlos Gomes, diretor de Comunicação da ACPO

Shell Brasil S.A. (Paulínia, Brazil)

<p>Company details</p>	<p>Royal Dutch Shell Group (Dutch-Anglo TNC)</p> <p>Chairman of the Committee of Managing Directors: Philip Watts</p> <p>Carel van Bylandtlaan 30 2596 The Hague The Netherlands Tel: +31-70-377-9111</p> <p>Shell Centre York Road London WE1 7NA United Kingdom Tel: +44-207-934-1234</p> <p>Shell Brasil S.A.</p> <p>Central Office Avenida das Nações Unidas, 17.891 – 3º andar 04795-100 São Paulo – SP Tel: +55-11-5514-8600 Fax: +55-11-5514-8700</p> <p>Paulínia Facility Avenida Roberto Simonsen, 1.500, Paulínia 13140-000 Tel: +55-19-874-7200</p> <p>Facility in São Paulo Av. Presidente Wilson Vila Carioca São Paulo – SP</p> <p>Revenue in 1998: BRL 80.5 million¹</p>
<p>Company activity</p>	<p>Shell Chemicals manufactured pesticides in Paulínia, rural São Paulo, from 1975 to 1993.</p>
<p>Type of incident (description of the case)</p>	<ul style="list-style-type: none"> - Contamination of soil and groundwater - Failure to take the necessary measures to protect human health and the environment
<p>Type of damage</p>	<p>While in operation the plant contaminated groundwater near the Atibaia river with the organochlorines aldrin, endrin and dieldrin. Three leakages of these compounds were officially reported during the period of manufacture².</p> <p>The sale of these pesticides was stopped in Brazil in 1985, by means of the Ministry of Agriculture Administrative Rule No. 329 (2 September, 1985), while ant and termite baits made of aldrin for use in reforestation were still allowed. However, the manufacture for export continued until 1990.</p> <p>Today, the “drins” are also banned by the United Nations (UN) because they’re associated with the incidence of cancer and reproductive, endocrine and immune system dysfunctions.</p>

¹ Guia da Indústria Química Brasileira – Abiquim – 1999/2000

² Greenpeace Cyber Shell – texto apoio

	<p>In 1995, before selling the plant to Cyanamid Chemicals, an evaluation of Shell's environmental liability in the area was required before the transaction could be completed³. This evaluation discovered a crack in a hazardous waste pool that had resulted in contamination of the groundwater. The company filed a self-indictment at the Public Prosecutor's Office, which led to a Conduct Adjustment Term. As a result, Shell was forced to build a treatment station to process all the groundwater below the plant⁴. However, Shell refused to acknowledge the contamination with "drins" and the leakages outside their property.</p> <p>In December 2001, the new owner of the facility, Cyanamid, sold the plant to the German chemical company BASF. It was only much later that Shell, forced by authorities and pressured by the local community, started to act on the problem. In 1996, Shell ordered two technical reports on the contamination of the groundwater outside the company's property, which were carried out by the Adolfo Lutz Institute from São Paulo, and by the Lancaster Laboratory from the United States. The Brazilian laboratory did not detect the presence of contaminants, whereas the American laboratory confirmed that "drins" were present in the water. Shell kept Lancaster's results secrets until March 2000, claiming the results were "false-positive".</p> <p>At the time, the state environmental agency, CETESB, collected, for the first time, samples from wells and cisterns from the neighbourhood, which were analysed by CETESB's own laboratory and paid for by Shell, and also by the laboratory Tasqa, paid for by Paulínia's city government. The results showed that dieldrin was present in the water.</p> <p>In December 2000, new samples were collected by CETESB, the Adolfo Lutz Institute and the laboratory Ceimic. The analyses showed contamination in the well water with levels of up to 11 times above those allowed by Brazilian legislation. Confronted with these results, Shell admitted for the first time being the source of contamination of the nearby farms⁵.</p>
<p>Range of damage, amount of loss</p>	<p>The community in the vicinity of the plant underwent a series of medical exams. Paulínia's city government requested that the Universidade Estadual Paulista (Unesp) carry out blood tests. The results, released in August 2001, revealed that 156 people (86% of the population in the neighbourhood) had at least one type of toxic chemical in their body. Of these, 88 had chronic contamination, 59 had liver and thyroid tumours and 72 were contaminated with "drins". From the 50 children under the age of 15 who were evaluated, 27 showed chronic contamination. The company disagreed with the results, claiming they were inconsistent and incomplete⁶. A second report, ordered by Shell, concluded that there were no contamination cases in the neighbourhood. The company also denied that they had manipulated heavy metals in Paulínia's plant⁷.</p>
<p>Legal and/or public action taken</p>	<p>In February 2001, approximately 100 community members carried out a vigil in front of the plant that lasted for several days⁸. In April, the Chamber of Deputies promoted a public hearing in Brasília to discuss the issue and created a committee to follow the case. At the same time, a former worker from the company confirmed the existence of four illegal landfills inside the factory, where Shell used to store the ashes of the incinerator and industrial wastes⁹. CETESB admitted they were wrong in not requiring an evaluation</p>

³ Greenpeace Cyber Shell – texto apoio

⁴ Gazeta Mercantil 26/6/2000

⁵ Greenpeace, linha do tempo ii

⁶ EPTV (1ª edição), 02/01/2002, GloboNews.com, 08/11/2001 e Reuters, 20/12/2001

⁷ Agência Estado, 20/12/2001

⁸ Greenpeace Cyber Shell – revisado

⁹ Greenpeace, linha do tempo ii

¹⁰ Folha de S. Paulo, 12/4/2001

	<p>of the soil and water conditions in the Recanto dos Pássaros neighbourhood¹⁰.</p> <p>Paulínia's city government, the Public Prosecutor and the association of the people who live in the neighbourhood are suing the company and CETESB¹¹.</p>
Subsequent behaviour of company	<p>Shell is suing the physicians responsible for the medical exam in the Regional Medical Council (Conselho Regional de Medicina, CRM)¹².</p> <p>In September 2001, Greenpeace sent a report on the case to the directors of FTSE4Good, an index series for socially responsible investment, which lists companies with an ethical behaviour. Soon after this Shell began to buy properties of those members of the community who were willing to sell their land. The company has already bought 32 of the 66 ranches. 166 people have already left the neighbourhood, including people who lived in the houses and those who took care of them. According to the company, Shell bought the ranches only because their administration decided to do so, since there was no environmental study showing the need to remove the families¹³.</p> <p>Maria Lúcia Braz Pinheiro, vice-president of Shell Chemicals for Latin America, stated in December 2001, that the company still believed that "the [city government's] report cannot serve as a basis for anything, since it lacks basic parts and information"¹⁴.</p>
Legal outcome	<p>In December 2001, Paulínia's Justice department demanded that Shell remove the population who lived in the 66 ranches from the Recanto dos Pássaros neighbourhood. Shell was also forced to provide the necessary medical treatments. Shell appealed the justice decision in March 2002, but the Judge maintained the initial demand.</p>
Final Greenpeace statement	<p>The case shows that transnational corporations such as Shell should be accountable and liable for the cleanup and compensation of the victims of contamination caused by their pollution. The refusal of Shell Brazil to negotiate a solution with the local community and authorities is a clear indication that justice needs to be sought also at the corporation's headquarters in UK/The Netherlands.</p>

¹¹ Jornal do Comércio, 01/01/2002 e Reuters, 20/12/2001

¹² Agência Estado, 14/9/2001

¹³ Informação prestada por Mônica Baldani, da Assessoria de Imprensa da Divisão Química da Shell Brasil - Divisão Química

¹⁴ Reuters, 20/12/2001

Solvay Indupa do Brazil (Santo André, Brazil)

Company details	<p>Solvay S.A.</p> <p>Chairman of the board of directors Baron Daniel Janssen</p> <p>Corporate headquarters 33 Rue du Prince Albert B-1050 Brussels Belgium Tel: +32-2-509-6111 Fax: +32-2-509-6617</p> <p>Solvay Indupa do Brasil</p> <p>Administrative Unit Rua Urussuí, 300, Itaim Bibi CEP: 04542-903 São Paulo – SP Brazil Tel: +55-11-3046.5000</p> <p>Facility in Santo André Estrada de Ferro Santos Jundiaí Km 38 s/n - Vila Elclor CEP: 09211-970 Santo André – SP Brazil</p> <p>Revenues in Brazil: USD 500 million</p>
Company activity	<p>Production of chlorine, caustic soda, hydrochloric acid, iron chloride, PVC plastic, compounds made of PVC and polyethylene</p>
Type of incident	<ul style="list-style-type: none"> - Failure to treat dioxin-contaminated waste - Knowingly selling contaminated cattle feed and food products world-wide
Type of damage	<p>The Belgian multinational Solvay has over one million tons of lime that are contaminated by dioxins at its Santo André facility, located in the Greater São Paulo area. This contaminated lime is one of the greatest concentrations of persistent organic pollutants in Latin America and was the by-product of PVC manufacture, an operation now discontinued by the plant.</p> <p>The contamination came to public attention after Greenpeace denounced the company, in March 1999, and was immediately confirmed by the Brazilian Department of Agriculture. The lime, discharged by Solvay in Santo André, had been marketed since 1986, by a broker, Carbotex Ind e Com de Cal Ltda. The contaminated lime was used for making citrus pulp pellets, which were exported to Germany and other European countries where they served as cattle feed.</p>
Range of damage, amount of loss	<p>In March 1998, high levels of dioxin were found in the milk produced in the German state of Baden-Wurttemberg, resulting in its removal from the market. After the discovery, German authorities investigated the source of contamination and concluded that cattle feed was tainted with high levels of dioxins. Six components of the feed were analysed separately and the citrus pulp pellets from Brazil were isolated as being the source. In April 1998, after the halt in the use of Brazilian citrus pulp pellets by Germany, the European Economic Community banned the import of the Brazilian product.</p>

	<p>In order to evaluate the loss that this ban caused to Brazil, one should remember that in 1997 alone over 1.3 million tons of citrus pulp were shipped from the Santos Harbour. At the time of the ban, there were 94,900 tons of citrus pulp and 11 000 tons of feed containing Brazilian pellets in Europe¹.</p> <p>Because of the ban, Brazilian producers lost at least BRL 100 million (USD 40 million), according to the Brazilian Association of Citrus Exporters (Abecitrus, Associação Brasileira de Exportadores de Cítricos). They weren't the only ones who suffered economic loss-- 40 thousand tons of contaminated pulp stored in the Netherlands were destroyed at a cost of USD 6 million.</p>
<p>Legal and/or public action taken</p>	<p>In 1998, as it reconsidered importing Brazilian pulp, the European Commission required a complete investigation on the origin of the contamination and a guarantee that such contamination would be eliminated. The investigation, carried out by the Department of Agriculture, Abecitrus and European scientists indicated Solvay's storage site in Santo André as the origin of the contamination.</p> <p>Four months before the lime deposit was discovered, Greenpeace had addressed the same Solvay facility for containing organochlorines. In December 1998, Greenpeace said there were mercury and organochlorines in the Rio Grande river, which crosses the Santo André facility. This accusation, which was rejected by CETESB (State Environmental Agency), is being investigated by the Public Prosecutor². The 3rd Consumers Police Department of São Paulo has opened a criminal investigation of the two cases.</p> <p>There has been no investigation into the possibility that other areas in Brazil are contaminated by the dioxin-tainted lime marketed by the Carbotex and by Minercal, another company that collected wastes from the Santo André storage site³.</p> <p>In April 2002, over 200 local community members and students from the ABC Paulista region participated in a parade against the contamination by the company.</p>
<p>Subsequent behaviour of company</p>	<p>When Greenpeace brought the case to public attention, Solvay stated that they would do everything required by CETESB as soon as they were notified of the contamination and that they had already interrupted the sales of their lime in the middle of 1998. Rogério Fragale, industrial director of Solvay, also stated that there was no proof that the pulp exported to Europe had been contaminated by Solvay's lime.</p> <p>In July 1999, the company signed an agreement with CETESB and the São Paulo Public Prosecutor, agreeing to share the necessary information in order to clarify the reasons for the contamination of the lime deposit. The company admits that dioxins are present in 10% of the deposit, but denies the presence of 2,3,7,8-TCDD (type of dioxin associated with cancer in rats). Greenpeace disagrees with this claim⁴.</p> <p>In December 1999, Solvay signed an agreement with the Public Prosecutor, CETESB and Greenpeace, in which they agreed to decontaminate the Rio Grande riverbed and their lime deposit within two years. They also committed to building an emergency barrier to contain the leakage of toxic material to the environment. The possibility of incinerating the material was</p>

¹ Greenpeace, Solvay/Brasil

² Gazeta Mercantil, 26/3/1999

³ Greenpeace – Solvay/Brasil

⁴ Gazeta Mercantil, 13/7/1999

	<p>rejected due to the volume of accumulated material. Solvay also agreed that they would not market or distribute lime from their storage site⁵.</p> <p>In 2000 the company presented a study proposing to build only a barrier for hydraulic confinement of the wastes, a technology that was criticised by Greenpeace. The matter is still being discussed in São Paulo's Public Prosecutor's Office⁶. After more than 2 years of discussions Solvay has not agreed to implement destruction technologies to clean up the contaminated area.</p>
Legal outcome	Solvay has not fulfilled the agreement amongst the parties to contain the contaminated site and decontaminate the critical areas. Nor has Solvay been further investigated for selling contaminated lime.
Final Greenpeace statement	Solvay is avoiding responsibility for clean up and compensation. Governments should ensure that Solvay is held liable in Brazil as well as at its headquarters in Europe.

⁵ Gazeta Mercantil, 23/12/1999

⁶ Greenpeace (informação dada pela Karen)

Spolana (Neratovice, Czech Republic)

Company details	<p>SPOLANA a.s. Neratovice ul. Práce 657 CZ - 277 11 Neratovice Czech Republic tel.: +420.206.661111 fax: +420.206.682821 e-mail: spolana@spolana.cz internet: www.spolana.cz/english/index_en.htm</p> <p>CEO: Ing. Radomír Věk tel.: +420.206.662209, +420.206.662942 fax: +420.206.665001 e-mail: rvek@spolana.cz</p> <p>Current owner: UNIPETROL</p> <p>UNIPETROL owned by: Fond Narodniho Majetku (FNM) – National Property Fund of the Czech Republic (Czech State).</p> <p>After change of ownership: Agrofert Holding a.s. Rohacova 1101/89, 130 00 Praha 3, Czech Republic tel.: +420 - 2 - 721 921 11 fax: +420 - 2 - 227 206 27 e-mail: agrofert@agrofert.cz internet (updated to 31.12.2001): www.agrofert.cz</p> <p>Agrofert is half owned by its president – Ing. Andrej Babis, and half by Ameropa A.G., Switzerland. (www.ameropa.com). Agrofert is Ameropa's representative in the Czech Republic.</p>
Company activity	<p>Chemical production including:</p> <ul style="list-style-type: none"> - PVC (production monopoly in the Czech Republic) - basic chemicals (chlorine, sodium hydroxide, ammonium sulphate, etc.) - Caprolactam - linear alfa olefins - pharmaceutical products
Type of incident	<p>Abandoned site of 2,4,5-T production for Agent Orange (1966 – 1968)</p>
Type of damage	<p>Dioxin pollution. Production waste contains up to 24,000 ng TEQ of dioxins/g. Dioxin concentrations in the air around the buildings are up to 51.9 pg/m³.</p> <p>In 1998, one of the buildings was emptied of chemicals and put into a concrete sarcophagus. There are no further plans for long-term maintenance of this site. Two other buildings are still open and fenced off. Inside these buildings are production wastes, machinery and high dioxin concentrations in dust, air and groundwater. They are awaiting further decontamination ¹.</p> <p>2,4,5-T production at this location was stopped because around 80 Czech employees suffered severe health effects, 14 of whom still survive. Besides these are an unknown number of Bulgarian and Angolan victims.² The actual number of victims related to Spolana's 2,4,5-T is unknown. The</p>

¹ Aquatest: Spolana a.s. Neratovice - *Contamination of the objects A 1420 and A 1030 with dioxins – Risk analysis – final report*, January 2001 (Kontaminace objektu A 1420 a A 1030 dioxiny - Analýza rizika - závěrečná zpráva)

² Oral information from Czech victims – partly on video recordings in possession of Greenpeace in the Czech Republic

	<p>number of victims that had been in contact with the polluted site (work, air, and water) are also unknown. No epidemiological data is available. The buildings are situated in an area that can be flooded by the Elbe. One building was protected by a barrier after pressure by Greenpeace. The buildings continue to emit dioxins into the surrounding atmosphere³.</p> <p>Other pollution: There is extensive pollution of ground water, soil and air from mercury⁴ and the vinyl chloride monomer production. Ground water and soil have been reported to be polluted with DDT, DDE, endrin, diendrin, lindane, benzene, 2,4,5-T, heptachlor, chloroform, HCB, HCH, etc.</p> <p>There is runoff into a local brook, and into ground water. Ground water flows towards a nature preserve. At least one village draws drinking water from an area at risk. Surface and ground water flow into the Elbe River.</p>
Range of damage, amount of loss	<p>Dioxin pollution: approximately 80 Czech employees have been poisoned by 2,4,5-T production, of which 56 have been followed medically. Fourteen of the eighty still survive. Financial compensation in the early 1970s was in the magnitude of several hundreds to thousands of Czech crowns per person. [i.e. between ten to a few hundred USD at currency exchange rates valid at the time].</p> <p>An unknown amount of Bulgarian and Angolan employees have also been reported to be contaminated and repatriated without financial compensation. There is no epidemiological estimation of other victims among employees and surrounding inhabitants, nor of second and further generation damages.</p> <p>Costs for dioxin decontamination are estimated from one to a few billions of Czech crowns [i.e. around 300 million USD].⁵</p>
Who is responsible?	<p>First of all the State is responsible because most of the damage took place before 1989, when the company was state owned. The National Property Fund has reserved CZK 4.5 Billion (EUR 150 million) in total for decontamination operations in Spolana. This seems to be the liability limit that the state is willing to accept.^{6,7} Agrofert is partly legally responsible for the company after the change of ownership.</p>
Legal and/or public action taken	<p>Victims – Victims of the Agent Orange affair are in the process of setting up their own civil initiative which is planned to begin in early May 2002.⁸ Greenpeace is following the proposals for decontamination critically and is urging immediate action on acute risks, but with only moderate success.</p>
Subsequent behaviour of company	<p>Until the beginning of 2002, the company completely denied the existing problems, stating that the plan for the decontamination of dioxins was in its start-up phase and that money was in place. Spolana avoided any comment on other issues, except for making soothing statements within the EIA procedure on mercury contamination. Liability was never addressed, not even towards the 2,4,5-T victims. The company tried to address the problem of flooding by commissioning a new dynamic flooding model to disprove any danger.</p> <p>In February/March 2002 the main director was moved to the board of the firm and of Agrofert and a new general director was installed. Also the</p>

³ Aquatest: Spolana a.s. Neratovice - *Contamination of the objects A 1420 and A 1030 with dioxins – Risk analysis – final report*, January 2001 (Kontaminace objektu A 1420 a A 1030 dioxiny - Analýza rizika - závěrečná zpráva)

⁴ Ekosystem: *Documentation on the assessment of building activities on the environment (EIA), Building activities – decontamination of the old amalgam electrolysis structures*, Prague, April 2001 (Ekosystem: Dokumentace o hodnocení vlivu stavby na životní prostředí (EIA), Stavba - sanace staré amalgamové elektrolyzy)

⁵ Oral information from Czech victims – partly on video recordings in possession of Greenpeace in the Czech Republic

⁶ Czech press on 8.4.2002 to 16.4.2002 – for instance Právo (střední Čechy) 14.4.02 page 17; ČTK press agency 8.4.02, Na jare 2003 začne ve Spolane likvidace objektu zamorených rtuti

⁷ SOURCE: amongst many others: Český deník, střední Čechy, 4.4.2002, page 7 – BBC Česka redakce, 13.3.2002, 07:00 Dobré ráno s BBC)

⁸ Oral information from Czech victims – partly on video recordings in possession of Greenpeace in the Czech Republic

	<p>press spokesperson was replaced. The new strategy is one of mock-openness; sudden press conferences have been called on the dioxin and mercury decontamination and the firm has decided to build a flood barrier.</p> <p>The reason for this change is that Greenpeace had drawn the attention of Czech, Saxony and German environmental ministers to the issue. Additionally, a direct friend of Spolana management, the regional government leader Mr. Bendl (the ODS opposition party), changed his view on the acute problems that Spolana faces. His strategy was to divert attention from Spolana management to the government-led (Christian Social Democrats) National Property Fund.</p>
Legal outcome	No courts have been involved to date. The legal system in the Czech Republic is extremely slow, especially in liability cases.
Final Greenpeace statement	The company including the owners, state and private, have so far avoided addressing the question of liability towards direct and indirect victims, as well as a holistic approach to contamination of the Spolana premises. There is not even a clear picture of who have become victims of the operations of this plant. The present management and owners are continuing to avoid the issue at the expense of current victims.

Unilever (Kodaikanal, India)

Company details	<p>Unilever, Netherlands/London.</p> <p>Hindustan Lever Ltd M.S. Banga Backbay Reclamation Mumbai India</p> <p>Unilever PLC London Unilever House Blackfriars London EC4P 4BQ United Kingdom Tel: +44-207-822-5252 Fax: +44-207-822-5951</p> <p>Unilever NV Rotterdam Weena 455 3013 AL Rotterdam The Netherlands Tel: +31-10-217-4000 Fax: +31-10-217-4798</p> <p>Revenue: Hindustan Lever Limited (HLL) registered a Profit Before Tax (PBT) of INR 1,665 crores¹ and Profit After Tax (PAT) of INR 1,310 crores for 2000, a growth of 20% and 22.4% respectively. Net sales for the year were INR 10,604 crores registering a growth of 4.5%².</p>
Location of damage	Kodaikanal, Tamilnadu, India
Company activity	Production of mercury thermometers
Type of incident	<p>- Toxic emissions (vapour and effluent)</p> <p>Not cleaning waste before shipment for recycling</p>
Type of damage	<p>The company exported 100 tons of mercury-bearing waste glass to unsuspecting recycling merchants across south India, resulting in emissions of 20-40 tons of mercury as vapour and in effluent³. Kodaikanal, at 2,000m altitude and with sensitive high altitude forest sanctuary on one side of the factory and Kodaikanal lake on the other, has been permanently polluted.</p> <p>About 1,000 workers and contract workers and unknown number of townspeople were exposed to mercury. The mercury in the soil outside the factory building is up to 600 times permissible limits⁴. Preliminary examination of some workers indicates symptoms of mercury damage (bleeding gums, falling teeth, renal problems, skin patches, tremors, fatigue etc)⁵.</p>
Range of damage, amount of loss	<p>There is contaminated soil and water runoff into the forest and river. The extent of damage to the forest and river has not been evaluated. The contamination of Kodaikanal lake makes the lake unusable for the town's future water supply and affects downstream villages who depend on river water. Workers have not been compensated for health, loss of quality of life or remediation. Environmental damage has not been adequately assessed.</p>

¹ One hundred *laks* i.e. 10,000,000

² Unilever annual report (2000-01)

³ Summary Report Environmental Site Assessment and Preliminary Risk Assessment for Mercury, Kodaikanal Thermometer Factory, Timal Nadu, URS Environmental and Engineering Professional Services, prepared for Hindustan Lever, 24 May 2001

⁴ Summary Report Environmental Site Assessment and Preliminary Risk Assessment for Mercury, Kodaikanal Thermometer Factory, Timal Nadu, URS Environmental and Engineering Professional Services, prepared for Hindustan Lever, 24 May 2001.

⁵ Dr Praveen and Dr Mohan Isaac, Preliminary assessment of persons exposed to mercury in Kodaikanal, Community Health Cell, Bangalore. September 2001.

Who is responsible?	Unilever, the majority stake holder of the Indian company, Hindustan Lever Ltd. is first responsible. The state relies on the integrity of the company to report correctly on emissions. This has not been the case.
Legal and/or public action taken	No legal action yet.
Subsequent behaviour of company	<p>First Hindustan Lever lied and denied that waste had left the factory. Then it fabricated figures of the amount of contaminated waste sent out. It has refused to conduct an independent health or environmental survey.</p> <p>The company has refused to give ex-workers health records that are in its possession and that would enable affected people to seek remediation. The factory has cleaned up the dumpsite but has not made the contamination data of the factory site available.</p>
Legal outcome	No court action has been sought yet.
Final Greenpeace statement	Multinationals acquire the image and semblance of responsible governance through initiatives like the Global Compact for ethical business, but this case proves that they exercise none of their obligations. Affected communities need to have the scientific, technical, legal and social rights established to pursue discovery, cleanup and remediation liabilities from corporate entities.

US Ministry of Defense (Tanapag, Saipan, USA)

Company details	Formerly Used Defence Site (FUDS) – US Department of Defence. Tanapag, Saipan, Commonwealth of the Northern Mariana Islands (CNMI).
Company activity	<p>In the 1960s, an unknown number of PCB-containing transformers were brought to the CNMI from various US-controlled locations in the Pacific. The Commissioner of Tanapag Village asked to use the transformers as barricades and boundary makers for the baseball pitch in the village. A typhoon scattered the transformers in the 1970s and the residents of Tanapag moved them to various locations around the village. They used the transformers to erect roadblocks, as boundary markers, windbreaks for barbecue sites and as headstones. Some of the transformers were broken open and their inner phenolic linings used to decorate rooftops and headstones in the village.</p> <p>Apart from the PCB legacy of the US military, the community of Tanapag is concerned about a military dump, which is close to the ravine. Cars, planes and large number of drums with unknown chemicals were dumped here. The Department of Defense has yet to accept responsibility for this site. Evident on some private properties are old oil tankers once used by the US military, the contents of which are leaking into the ground water.</p>
Type of incident	<p>In 1988 the Division of Environmental Quality (DEQ) was notified about the presence of transformers scattered throughout Tanapag. With the assistance of the Guam Environmental Protection Agency, DEQ tests of their contents revealed 100% PCB oil and removed 53 capacitors. In 1992 the Department of Defense accepted responsibility for the Tanapag site and set about remediating the sites in accordance with the Toxic Substance Control Act and the Comprehensive Environmental Response Compensation and Liability Acts (CERCLAs)¹.</p> <p>Initial US Government site surveys revealed widespread PCB contamination throughout Tanapag. The Army Corp of Engineers remediated residential sites to 10ppm^{2,3}.</p> <p>Some of the capacitors had been used in burn pits, which resulted in dioxin contamination. According to a consultant's report (Environmental Chemical Corporation) three sites were contaminated with dioxin (74 tons of dioxin contaminated soil). Contaminated soil was shipped to a Waste Management Facility in Texas for incineration.</p>
Type of damage	PCB, dioxin contamination
Range of damage, amount of loss	Highly contaminated PCB soil remains in the village – 25,000ppm in a sensitive location, less than 200 meters away from the lagoon, wetland, residential and industrial sites. The contaminated soil which was stored under a weathered tarpaulin was recently transferred into underground

¹ Woodward Clyde Consultants. (1991) "Plans and Specifications for the Excavation, Transportation, and Disposal of PCB contaminated Soil, Tanapag Village and Department of Public Works, Lower Base Yard, Saipan, CNMI". Prepared for US. Army Corp of Engineers

² DEQ press release. "Background information on PCB contamination in Tanapag". (not dated)

³ "Information Paper - Northern Mariana Islands (CNMI). Defence Environmental Restoration Programs - Formerly Used Defence Sites (DERP - FUDS), Corps of Engineers, Honolulu District.

⁴ <http://www.atsdr.cdc.gov/NEWS/2001-08-22qb.html> Health Consultation Exposure Investigation Tanapag Village, Saipan [(a/k/a Saipan Capacitors)] Commonwealth of the Northern Mariana Islands EPA Facility ID: CMD982524506 July 1, 2001 Prepared by: Exposure Investigation and Consultation Branch Division of Health Assessment and Consultation Agency for Toxic Substances and Disease Registry

⁵ Usha K. Prasad. (1997) "Human Health Evaluation of PCB Contamination Tanapag Village, Saipan Commonwealth of the Northern Mariana Islands. For - US Corps of Engineers, Pacific Ocean Division Fort Shafter, Hawaii.

⁶ <http://www.atsdr.cdc.gov/NEWS/2001-08-22qb.html> Health Consultation Exposure Investigation Tanapag Village, Saipan [(a/k/a Saipan Capacitors)] Commonwealth of the Northern Mariana Islands

	<p>storage cells awaiting final remediation using indirect thermal desorption technology.</p> <p>Biota contamination: Testing of land crabs were undertaken by the Agency for Toxic Substance and Disease Registry in 2001 for PCBs and heavy metals. Findings included presence of PCBs and heavy metals were below levels of health concern. Nonetheless villagers have been warned not to eat land crabs caught in the vicinity⁴.</p> <p>Human health problems: High incidence of cancers, leukaemia, chromosomal changes and reproductive disorders are emerging from this tiny island. Blood tests have since been conducted for villagers (2001). Results indicate a few (15 out of 1059) individuals with high levels of PCBs^{5,6}.</p>
Who is responsible?	US Department of Defence – Army Corps of Engineers
Legal and/or public action taken	Since the discovery of PCB transformers in Tanapag, members of the community have been actively lobbying the relevant agencies to address their concerns regarding clean up, and the issue of compensation for damage to property and human health. Senior members of Government and responsible local authorities have weighed in on the issue ⁷ .
Subsequent behaviour of company	<p>Transformers have been removed. However there remains a large quantity of contaminated soil in the cemetery. The soil was collected from around the village after the tests were conducted to determine the level of PCBs in residential area.</p> <p>12 years after the discovery of the transformers, millions of dollars in remediation activities have been performed by the Department of Defence using incorrect clean up standards. The USDOD and the USEPA have procedures to address these types of situations but they have not been followed. There has been a lack of consultation between the relevant Federal Agencies. The risk to the community and environment was never assessed. However sporadic efforts have meant that 20 years later 10,000 tons of contaminated soil awaits disposal using indirect thermal desorption technology. Remediation work had started in 2001 but has since been stopped awaiting internal investigation into the death of a worker on site.</p>
Legal outcome	It has been extremely difficult for the community to get any justice. Far removed from the responsible authorities and the US, the community has had to rely on key allies within the CNMI government and a special representative in the US to raise their concerns about the contamination.
Final Greenpeace statement	This case study depicts how one of the world's most powerful organisations (US military) deliberately and knowingly dumped PCB transformers in a community and failed to take effective and appropriate measures many years later when the problem was identified. 12 years after the discovery of the transformers, efforts to clean up, remediate the site and compensate the people of Tanapag have been dismal. The unfortunate cost continues to be paid by the environment and people of Tanapag.