The Migration of Industrial Hazards

BARRY I. CASTLEMAN, SCD*

Multinational corporations are dominant in the manufacturing and marketing of chemicals and other products where occupational safety and health hazards are known to exist. Fortunately, these corporations have long experience in managing to control such hazards, and they have developed large staffs and procedures for this purpose. With the trend toward ever more "free-trade" agreements, the dominance of the multinational corporations (MNCs) is expected to expand, with a corresponding decline in the scale of state-owned industries and privately owned industries within nations. It is thus appropriate to consider the proper role of the MNCs as industries are expanded all over the world, particularly in countries in which the resources so far made available for worker and environmental protection have been minimal.

The MNCs have historically been centrally involved in the migration of industrial hazards. An analysis of this is necessary in arriving at an understanding of what can and should be done by the big companies in taking responsibility for promoting a worldwide shift to safer technologies.

The first topic is the role of business interests in influencing standards adopted for worker exposure to toxic substances around the world. Workplace limits tend to be viewed as maximum limits for human exposure to toxic substances, and are frequently referred to in assessing the human health hazards posed by environmental air pollution as well. It is now widely recognized that these limits are based on insufficient data and analysis, and that they have been largely shaped by financially interested parties in a manner long undisclosed to the scientific community.

THE EXPORT OF HAZARDOUS THINKING—WHAT'S GOOD ENOUGH FOR US IS GOOD ENOUGH FOR YOU

In addition to the usual subjects included in the export of hazards to developing countries (export of hazardous products, industries, and wastes), there is the export of so-called health standards. Unlike many other classes of hazardous exports, this case involves the export to the poor countries of the same standards that were adopted in the United States and many other industrial countries.

Occupational exposure limits (OELs) are limits for concentrations of workplace air contaminants. The best-known OELs are the threshold limit values (TLVs), issued and revised annually since 1946 by a private group called the American Conference of Governmental Industrial Hygienists (ACGIH). Countries all over the world have relied on the TLVs in setting allowable limits of occupational exposure to industrial air contaminants. A partial list of countries that have used the TLVs in setting occupational exposure limits are the United States, Belgium, Germany, Austria, Italy, The Netherlands, Portugal, Denmark, Sweden, Finland, Norway, Spain, Switzerland, the United Kingdom, South Africa, and Japan. Although many countries have now adopted procedures for setting OELs independently, many of the limits on their OEL lists are holdovers from earlier years that have not been subjected to review.

The TLVs have been severely criticized in recent years both for scientific inadequacies and for the undisclosed influence of chemical manufacturers. The international use of the TLVs to set standards, and the idea that safe thresholds for working populations can be inferred from scant databases, is a case of the export of hazardous thinking.

In the "documentation" of TLVs published in 1986, over 100 of fewer than 600 substance TLVs were critically based on unpublished corporate communications.1 Efforts to obtain primary documentation were mostly unsuccessful, and some documents that were located contained opinions without supporting data. The ACGIH has since rewritten the "documentation," removing unpublished and "lost" references—without re-evaluating the TLVs that were based on the old references.2 This amounts to concealing the influence of financially interested parties rather than eliminating it.

Review of the minutes of the TLV committee (1970–1988) shows that corporate representatives listed as "consultants" were, in fact, assigned primary responsi-

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bility for drafting the documentary information on which new TLVs would be based. These chemical assignments included many high-volume products of the employers of the “consultants.” About 40 products of Dow were assigned to toxicologists from Dow; 20 DuPont products were assigned to DuPont employee “consultants” on the TLV committee; and the ten chemicals assigned to a toxicologist from the large German firm, Bayer, were all Bayer products (Table 1). Over 120 substances evaluated by the TLV committee were assigned to corporate representatives. The “draft documentation” prepared by the corporate representatives were then discussed and adopted by the unpaid volunteers on the TLV committee officially listed as the voting members.

### Table 1: Assignments of responsibility for chemical threshold limit values (TLVs) to corporate representatives

<table>
<thead>
<tr>
<th>Substance</th>
<th>Person Assigned (Company)</th>
<th>Substance</th>
<th>Person Assigned (Company)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylamide</td>
<td>T. Torkelson Dow†</td>
<td>Fibrous glass</td>
<td>P. G. (Insulation manufacturing association†)</td>
</tr>
<tr>
<td>Acrylonitrile</td>
<td>T. T. (Dow), J. Morgan (DuPont†)</td>
<td>Formamide</td>
<td>J. M., G. L. Kennedy (DuPont†)</td>
</tr>
<tr>
<td>Amitrole</td>
<td>T. T. (Dow), G. Kimmerle (Bayert)</td>
<td>Gasoline</td>
<td>J. Hamm (Exxon†)</td>
</tr>
<tr>
<td>Asbestos</td>
<td>P. Gross (asbestos companies†)</td>
<td>Hexafluoroacetone</td>
<td>J. M. (DuPont†)</td>
</tr>
<tr>
<td>Bromacil (“Hyvar X”)</td>
<td>J. M. (DuPont†)</td>
<td>Hexamethyl phosphoramide</td>
<td>J. M. (DuPont†)</td>
</tr>
<tr>
<td>Bromochloromethane</td>
<td>T. T. (Dowt)</td>
<td>n-Hexane</td>
<td>J. H. (Exxon†)</td>
</tr>
<tr>
<td>Caprolactam</td>
<td>T. T. (Dowt)</td>
<td>Hydrogen cyanide</td>
<td>J. M. (DuPont†)</td>
</tr>
<tr>
<td>Carbon tetrachloride</td>
<td>T. T. (Dowt)</td>
<td>Uliquified petroleum</td>
<td>J. H. (Exxon†)</td>
</tr>
<tr>
<td>Chlorine</td>
<td>T. T. (Dowt)</td>
<td>Methoxyl (“Lannate”)</td>
<td>J. M. (DuPont†)</td>
</tr>
<tr>
<td>Chloroacetic acid</td>
<td>T. T. (Dowt)</td>
<td>Methyl bromide</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Chloroacetyl chloride</td>
<td>T. T. (Dowt)</td>
<td>Methyl chloride</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Chlorodifluoromethane</td>
<td>J. M. (DuPont†)</td>
<td>4,4’-Methylene bis (2-chloroaniline)</td>
<td>J. M. (DuPont†)</td>
</tr>
<tr>
<td>Chloroform</td>
<td>T. T. (Dowt)</td>
<td>Methylene chloride</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Chloropentafluoroethane</td>
<td>J. M. (DuPont†)</td>
<td>4,4’-Methylene dianiline</td>
<td>T. T. (Dowt) (subcommittee)</td>
</tr>
<tr>
<td>Chloroprene</td>
<td>J. M. (DuPont†)</td>
<td>Methylbizon (“Senor”)</td>
<td>G. K. (Bayert)</td>
</tr>
<tr>
<td>2-Chloropropionic acid</td>
<td>T. T. (Dowt)</td>
<td>Naphtha, VM &amp; P</td>
<td>J. H. (Exxon†)</td>
</tr>
<tr>
<td>2-Chloro-6-trimethyl pyridine</td>
<td>T. T. (Dowt)</td>
<td>p-Nitrochlorobenzene</td>
<td>G. L. K. (DuPont†)</td>
</tr>
<tr>
<td>(“N-Serve”)</td>
<td>T. T. (Dowt)</td>
<td>Perchloroethylene</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Chlorpyrifos (“Dursban”)</td>
<td>T. T. (Dowt)</td>
<td>Perchloromethyl mercaptan</td>
<td>G. K. (Bayert)</td>
</tr>
<tr>
<td>Chromates</td>
<td>P. G. (insulation manufacturing association†)</td>
<td>Phenylamine</td>
<td>G. K. (Bayert)</td>
</tr>
<tr>
<td>Clopidol (“Coyden”)</td>
<td>T. T. (Dowt)</td>
<td>Phosgene</td>
<td>J. M. (DuPont†)</td>
</tr>
<tr>
<td>Cyanide</td>
<td>T. T. (Dowt)</td>
<td>Propylene glycol methyl ether (“Dowanol PM”)</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Cyanuric acid</td>
<td>T. T. (Dowt)</td>
<td>Stoddard solvent</td>
<td>J. H. (Exxon†)</td>
</tr>
<tr>
<td>Cyanuric acid</td>
<td>T. T. (Dowt)</td>
<td>Styrene</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Cyclohexanol</td>
<td>J. M. (DuPont†)</td>
<td>Sulprofos (“Boistar”)</td>
<td>G. K. (Bayert)</td>
</tr>
<tr>
<td>Diene</td>
<td>T. T. (Dowt)</td>
<td>2,4,5-T</td>
<td>V. K. Rowe (Dow†)</td>
</tr>
<tr>
<td>Dioxin</td>
<td>T. T. (Dowt)</td>
<td>Thiram</td>
<td>G. K. (Bayert)</td>
</tr>
<tr>
<td>Dipropylene glycol methyl ether (“Dowanol DPM”)</td>
<td>T. T. (Dowt)</td>
<td>m-Toluene diamine</td>
<td>J. M. (DuPont†)</td>
</tr>
<tr>
<td>Disulfide</td>
<td>T. T. (Dowt)</td>
<td>0-Toluidine</td>
<td>G. K. (Bayert)</td>
</tr>
<tr>
<td>Diclofenac</td>
<td>T. T. (Dowt)</td>
<td>1,2,4-Trichlorobenzene</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>“Telone”</td>
<td>T. T. (Dowt)</td>
<td>1,1,1-Trichloroethane</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Dimethvl formamide</td>
<td>J. M. (DuPont†)</td>
<td>1,1,2-Trichloroethane</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Dimethyl sulfate</td>
<td>J. M. (DuPont†)</td>
<td>Trichloroethylene</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>3,5 Dinitrro-o-toluamide</td>
<td>J. M. (DuPont†)</td>
<td>1,2,3-Trichloropropene</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>(“Zoene”)</td>
<td>T. T. (Dowt)</td>
<td>Trichlorotrifluoroethane</td>
<td>J. M. (DuPont†)</td>
</tr>
<tr>
<td>Diethylene glycol</td>
<td>T. T. (Dowt)</td>
<td>Tricyclohexyltin hydroxide</td>
<td>(“Plictron,” cybexan)</td>
</tr>
<tr>
<td>Dioxane</td>
<td>T. T. (Dowt)</td>
<td>Vinyl chloride</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Dioxin</td>
<td>T. T. (Dowt)</td>
<td>Vinylidene chloride</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Ethylene diamine</td>
<td>T. T. (Dowt)</td>
<td>Xyline</td>
<td>G. K. (Bayert)</td>
</tr>
<tr>
<td>Ethylene dibromide</td>
<td>T. T. (Dowt)</td>
<td>Vinylidene chloride</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>(1,2 dibromomethane)</td>
<td>T. T. (Dowt)</td>
<td>Vinylidene chloride</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Ethylene dichloride</td>
<td>T. T. (Dowt)</td>
<td>Vinylidene chloride</td>
<td>T. T. (Dowt)</td>
</tr>
<tr>
<td>Ethylene glycol</td>
<td>T. T. (Dowt)</td>
<td>Xyline</td>
<td>G. K. (Bayert)</td>
</tr>
<tr>
<td>Fenamiphos (“Nemacur”)</td>
<td>G. K. (Bayert)</td>
<td>Xyline</td>
<td>G. K. (Bayert)</td>
</tr>
</tbody>
</table>


*Product of the company of or before the time that the TLV documentation was assigned.

*Product of the company after the time that TLV documentation was assigned.
Others have criticized a pattern of inaccurate citations to original references listed as support for the TLVs. The cited references consistently show adverse human health effects at exposure levels below the TLVs. The TLVs for 98 substances were criticized as insufficiently protective by the U.S. National Institute for Occupational Safety and Health in its review of a workplace air-contaminants standard considered in 1988. Despite all this criticism, ACGIH has refused to weaken its assurances that the TLVs are "based on the best available information" and are safe for "nearly all workers." The ACGIH has also refused to develop a conflict-of-interest policy or public-disclosure requirements for business income of TLV committee members, some of whom are university faculty members who do corporate consulting. This is in contrast to disclosures required of members of scientific advisory committees to the U.S. government.

Before leaving the export of hazardous thinking, consider the idea of having a list of recognized, compensable occupational diseases. At a gathering of doctors from major industries in the Hanoi area, a foreign visitor was asked, "What is your country's list of occupational diseases?" The response was that there was no list. Any disease that is medically more likely than not to have been caused by occupation is covered, without the need to await revision of the law each time science advances. It would be a sad irony if Vietnam were to adopt the old schedule-of-diseases compensation model while shifting its economy toward private ownership.

The system of limiting compensation to the government's last revised list of diseases is practiced with a mean twist in Germany. There, if a company produces air-monitoring data showing the worker's exposure to the toxic agent of concern was below the MAK (maximum workplace concentration), the employer may even avoid liability for recognized medical conditions. Not surprisingly, the MAKs bear a striking resemblance to the TLVs, both in the numbers themselves and in the involvement of industry employees and consultants in deriving them. German industry has certainly not suffered economic disadvantage from having occupational limits more stringent than the TLVs.

At least one company doctor on the MAK Commission claims to have two personalities. Most of the time he is a loyal employee of a giant corporation, but when he comes to MAK meetings and even when preparing for them, he says he is a pure scientist. He dismisses any concern that his knowledge of his employer's products, for example, would in any way affect his recommendations for occupational exposure limits for them.

Will schizophrenic, corporate medicine men be authoritatively received in many countries? Or will they be regarded as curiosities among hazardous exports, modern-day Professor Panglosses traveling first class, blind to the overwhelming presence of corporate power and human frailty in our world?

**DOUBLE STANDARDS**

The combination of information, regulation, and compensation has raised the costs of using toxic substances in some countries. Companies have on occasion moved entire plants and exported banned products to developing countries, but more often the export of hazards is less obvious unless one is able to make quantitative international comparisons.

There have been many examples where MNCs have not been as thorough in controlling industrial hazards in developing countries as they were in their "home" countries. The most numerous reports of this "double standard" have arisen in connection with asbestos and other ultra-hazardous materials, where substantial control of the hazards would represent a major share of overall costs of production and reduce sales in other ways. The cases described in the 1970s and early 1980s involved firms based in West Germany, the United States, the United Kingdom, Switzerland, Italy, Austria, and Japan. Examples illustrating the types of double standards are shown in Table 2.

The best-examined case of this double standard involved the Union Carbide pesticide-manufacturing plant that caused thousands of deaths and permanent health impairment to many thousands of people in Bhopal, India, in 1984. Comparison of the Bhopal plant with a similar plant operated by Union Carbide in the United States showed numerous double standards in plant design and operation, safety auditing, worker training, staffing of hazardous jobs, plant maintenance, and management accountability. Additional relevant factors were the relative lack of government regulation and civil liability in India, compared with the United States.

The settlement of the Bhopal victims' case was a disturbing measure of what the Indian government was willing to accept, to keep from antagonizing big business. The payment accepted for damages, $470 million, was not even enough to pay for health care and monitoring of the gas-exposed population. The settlement was so favorable to Union Carbide that the company's stock price rose $2 a share on the New York Stock Exchange the day it was announced. Though challenged by a subsequent Indian government under V. P. Singh, the settlement was upheld in 1991 by the Indian Supreme Court. Even so, it was not lost on industry that a disaster of this scale in some countries would also be fatal to a multi-billion-dollar company responsible for it.

The Bhopal disaster focused world attention on the policies and practices of MNCs for safeguarding worker health and safety and the environment. Many giant manufacturing companies suddenly realized that they were running excessive, reducible risks, and moved to reduce the amounts of highly toxic compressed gases they were storing and transporting. Transport of large cylinders of phosgene gas, for example, went from be-
<table>
<thead>
<tr>
<th>Industry</th>
<th>Location</th>
<th>Type of Hazard Reported</th>
<th>Multinational Affiliation</th>
<th>Type of Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos milling</td>
<td>South Africa</td>
<td>Children with severe asbestos</td>
<td>Cape Asbestos</td>
<td>Subsidiary mining operation</td>
</tr>
<tr>
<td>Alpha-naphthylamine manufacture</td>
<td>Outside the UK</td>
<td>Bladder cancer</td>
<td>Imperial Chemical Industries (UK)</td>
<td>Not known</td>
</tr>
<tr>
<td>Benzidine dye manufacture</td>
<td>Outside the UK</td>
<td>Bladder cancer</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Asbestos textile manufacture</td>
<td>Aguascalientes and Juarez, Mexico</td>
<td>Not informing workers, not providing clothes change, neighborhood pollution</td>
<td>Amotex (US)</td>
<td>Subsidiary</td>
</tr>
<tr>
<td>Trichlorophenol manufacture</td>
<td>Seveso, Italy</td>
<td>Workplace and air pollution with dioxins, failure to inform workers, inadequate safety controls in plant design</td>
<td>Givaudan of Hoffmann-LaRoche (Switzerland)</td>
<td>Subsidiary</td>
</tr>
<tr>
<td>Asbestos Insulation manufacture</td>
<td>Brazil</td>
<td>Failure to affix product warning, failure to reformulate products to eliminate asbestos</td>
<td>Johns-Manville (US) Owens-Corning (US)</td>
<td>Subsidiary</td>
</tr>
<tr>
<td>Asbestos friction product and textile manufacture</td>
<td>Bombay, India</td>
<td>Numerous workplace hazards uncontrolled, failure to inform workers and tell them of medical exam findings</td>
<td>Turner &amp; Newall, Ltd (UK)</td>
<td>74% ownership</td>
</tr>
<tr>
<td>Asbestos</td>
<td>Countries without labeling requirements</td>
<td>Failure to affix warning labels</td>
<td>Entire asbestos industry (Asbestos International Association)</td>
<td>—</td>
</tr>
<tr>
<td>Asbestos cement manufacture</td>
<td>Ahmedabad, India</td>
<td>Water pollution, solid waste dumping, no warnings on products</td>
<td>Johns-Manville (US)</td>
<td>Minority ownership, exclusive marketing of exports, raw material sales, plant design and construction supervision</td>
</tr>
<tr>
<td>Asbestos brake lining manufacture</td>
<td>Madras, India</td>
<td>Solid waste dumping</td>
<td>Cape Industries (UK)</td>
<td>25% ownership</td>
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<tr>
<td>Asbestos brake shoe manufacture</td>
<td>South Korea</td>
<td>Substandard working conditions</td>
<td>Not known</td>
<td>—</td>
</tr>
<tr>
<td>Asbestos textiles</td>
<td>Republic of South Africa</td>
<td>Hazardous process relocated from Germany</td>
<td>German Investors</td>
<td>Subsidiary</td>
</tr>
<tr>
<td>Asbestos milling</td>
<td>Quebec, Canada</td>
<td>Lack of workplace dust controls</td>
<td>Asbestos Corp. Ltd of General Dynamics (US)</td>
<td>Subsidiary</td>
</tr>
<tr>
<td>Asbestos brake shoes</td>
<td>Cork, Ireland</td>
<td>Newly built brake shoe manufacturing plant utilizing asbestos as raw material</td>
<td>Raybestos-Manhattan (US)</td>
<td>Subsidiary</td>
</tr>
<tr>
<td>Battery manufacture</td>
<td>Indonesia</td>
<td>Hundreds or workers with kidney disease, pollution of drinking water with mercury</td>
<td>Union Carbide (US)</td>
<td>Subsidiary</td>
</tr>
<tr>
<td>Epoxy spraying</td>
<td>Shipyards outside Denmark</td>
<td>Eczema, cancer (?)</td>
<td>Not known</td>
<td>—</td>
</tr>
<tr>
<td>Chromate and dichromate manufacture</td>
<td>Lecheria, Mexico</td>
<td>Waste dumping, workplace exposures producing nasal septum perforation</td>
<td>Bayer (W. Germany)</td>
<td>Partial ownership</td>
</tr>
<tr>
<td>Dye manufacture</td>
<td>Bombay, India</td>
<td>Water pollution</td>
<td>Montedison (Italy)</td>
<td>Partial ownership</td>
</tr>
</tbody>
</table>
Table 2 Double-standard cases* (continued)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Location</th>
<th>Type of Hazard Reported</th>
<th>Multinational Affiliation</th>
<th>Type of Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury cell chlorine plant</td>
<td>Managua, Nicaragua</td>
<td>Mercury poisoning, water pollution</td>
<td>Pennwait Corp. (US)</td>
<td>40% ownership and management of the plant</td>
</tr>
<tr>
<td>Steelmaking</td>
<td>Malaysia</td>
<td>Air pollution, workplace hazards</td>
<td>Nippon Steel (Japan)</td>
<td>Minority ownership and plant design</td>
</tr>
<tr>
<td>Polyvinylchloride manufacture</td>
<td>Malaysia</td>
<td>High worker exposure to (carcinogen) vinyl chloride</td>
<td><em>Japanese companies</em></td>
<td>Partial ownership</td>
</tr>
<tr>
<td>Arsenical pesticide manufacture</td>
<td>Malaysia</td>
<td>Arsenic poisoning symptoms in workers, no monitoring of exposure</td>
<td>Diamond Shamrock (US)</td>
<td>Subsidiary</td>
</tr>
<tr>
<td>Polychlorinated biphenyls and other chemical wastes</td>
<td>Zacatecas, Mexico</td>
<td>Waste dumping</td>
<td>Diamond Shamrock, B. F. Goodrich, and Monochem (all US)</td>
<td>Waste disposal agent for large US firms</td>
</tr>
<tr>
<td>Trichlorobenzene wastes contaminated with dioxin compounds</td>
<td>Belgium</td>
<td>Disposal of improperly labeled toxic wastes</td>
<td>Chemie Linz (Austria)</td>
<td>Wastes from producer</td>
</tr>
<tr>
<td>Pesticide manufacture</td>
<td>Bhopal, India</td>
<td>Unsafe plant operation and design. History of injurious exposures preceding catastrophic gas release in 1984</td>
<td>Union Carbide (US)</td>
<td>51% ownership</td>
</tr>
</tbody>
</table>

*Source: Castlesman and Navarro.5

...ing a common practice in the United States to being completely avoided. Such changes were in no small part due to the fact that insurance for the consequences of chemical releases into communities became virtually unavailable. But above and beyond purely economic considerations, the ethics and morality of the conduct of the MNCs was subjected to unprecedented scrutiny.

Obviously, lower standards of worker and environmental protection can confer at least short-term savings on factory owners. The temptation to increase profits by cutting costs is especially great where there is virtually no governmental regulation, public awareness, union pressure, or liability for damages when something does go wrong. The Bhopal case showed that when profit levels are low in third-world-country operations, there is an added pressure on management to reduce operating costs by methods whose immediate costs are slight but whose long-term risks may be catastrophic. The structure of MNCs seemed ideal, moreover, for insulating top management from bearing any personal responsibility for the consequences of "complying with local standards" around the world.

The ILO investigation, Safety and Health Practices of Multinational Enterprises, found that, "In comparing the health and safety performance of home-based (MNCs) with that of the subsidiaries, it could generally be said, that the home country operations were better than those of the subsidiaries in the developing countries."7 A United Nations Center on Transnational Corporations report urged examination of MNC policies with regard to occupational health and safety in their global operations. The report concluded that there were "numerous examples of a 'double standard' in which worker and community health protection measures by transnational corporations are far weaker in the developing countries than in the transnational corporations' home nations." Examples of this were found in the vinyl chloride, pesticide, chromate, steel, chlorine, and asbestos industries.8

The responses of the very largest chemical MNCs based in the United States and the United Kingdom were to deny that it was company policy to have different standards for protecting people in different countries from the same industrial hazards. However, these sentiments have been expressed in different ways, some of which entail greater commitment than others. Moreover, many remain skeptical, believing that a wide gulf remains between corporate policy statements and the reality of double standards in corporate conduct.

**BAYER—AHEAD OF THE SCHEDULE OF OCCUPATIONAL DISEASES**

Bayer's manufacture of chromates is a tale of double standards. Lung cancer was added to the list of compensable occupational diseases for chromate workers in Germany
in 1936. German compensation authorities, who are not at all regarded as sympathetic to claimants, consider any worker with more than three months of chromate work eligible for compensation if lung cancer develops subsequently. Bayer experts have been publishing articles about lung cancer from chromates since 1989.

Bayer ran a chromate plant in Mexico that in 1976 attracted the attention of Amnesty International and Excelsior, a major newspaper in Mexico City. Inside the plant, 46% of the workers were reported to have perforated nasal septa, a classic sign of massive exposure to chromates. There were huge mounds of chromate ore and waste around the plant. For 15 years or more the wastes had been dumped and used to fill potholes in the rough streets of the industrial zone called Lecheria.

Alfred Badillo Sosa explained to a reporter from a Mexican weekly magazine how he had become crippled after just five days of employment shovelling wastes at Cromatos de Mexico. His feet had been so destroyed by the corrosive chromium wastes that he was forced to move around on his knees. It is doubtful that this man or any other disabled and dead workers received compensation.

Air pollution and contamination of underground drinking water sources caused deep, painful sores to develop on about 50 children who lived there. Falling rainwater turned yellow from the chromates all over the ground in a place a U.S. visitor described as “Dante’s Inferno.” The plant was repeatedly closed as a health hazard by Mexican authorities and finally ceased operations in 1979.

Bayer still owns Chrome Chemicals in South Africa, which it has owned at least as far back as 1968. A 1976 South African government report said 46% of the employees at the company’s Durban chromate plant had perforated nasal septa: “These findings are extremely disturbing and would appear to indicate a lack of concern regarding the physical welfare of the workers.” Union concern in 1990 led to the discovery that several workers had developed lung cancer but none had been told by the company doctor that their work might be the cause. Management refused union requests to inspect the plant’s industrial hygiene records. In 1991, amid mounting publicity, Chrome Chemicals closed most of its processing operations and laid off most (216) of its workers. Unfortunately, lung cancer was not added to the list of compensable occupational diseases in South Africa until 1994, and cases occurring before then are not eligible for compensation.

Bayer is well aware of the plight of its former workers, most of whom are black. Dr. Mark Colvin confronted the directors at an annual Bayer stockholders meeting, telling the audience about his disabled, unemployed, and dead patients from Chrome Chemicals. Dr. Colvin said his university health unit joined the union in asking that Bayer set up a trust fund to trace ex-workers and their families and provide “suitable compensation.” Bayer has so far refused to offer compensation even to the growing number of former employees of its South African subsidiary with lung cancer.

The company did, however, approach the President of the University of Natal, where Dr. Colvin works, to discipline the doctor for not seeking the university administration’s approval prior to his journey to the stockholders’ meeting. Bayer, a financial contributor to many social organizations wherever it does business, had given funds to the University of Natal, and evidently regarded Dr. Colvin’s visit to Germany as a sort of breach of contract.

Bayer’s long statutory absence of liability to chromate workers with lung cancer in South Africa could lead Chrome Chemicals victims to sue Bayer in Germany. A German court would then have to decide whether to hold Bayer responsible for the acts of its wholly-owned subsidiary or dismiss the case on the basis of corporate veil technicalities only lawyers could take seriously.

Environmental racism has been charged against other companies for less than what Bayer has done in Mexico and South Africa. Some will recall Bayer’s post-War propensity for employing as directors criminal Nazi executives who had run the notorious chemical combine, I. G. Farben. One can’t help but wonder if some of the bad old thinking persists in the corporate boardroom, under portraits of Fritz ter Meer and Wilhelm Mann, amid lamps and immaculate furniture from the early 1940s. It is no less shocking to try to grasp how such things may be done out of simple venality, which says, “We do it because we can get away with it and make a fast million dollars. But we’re businessmen, not racists.”

GLOBAL CORPORATE POLICIES

DuPont’s retiring chairman said in 1986 that “we have found that safety is fully transferable across cultures if you have the patience, tact, and will to insist upon it.” His successor in 1989 said that “industry needs to maintain the same high environmental standards regardless of the country of operation.” When further clarification was requested in 1993, the chairman’s designated respondent wrote, “We have never said that we apply U.S. standards wherever we operate in the world... We have said that we apply local laws or company policies, whichever are more strict, in all our operations worldwide.”

The chairman of Dow Chemical has repeatedly issued assurances that Dow intends to meet U.S. environmental and safety standards worldwide; in public statements since 1990. W. R. Grace claims to do the same. Imperial Chemical Industries’ chairman stated in 1990 that all new plants “will be built to standards that will meet the regulations we can reasonably anticipate in the most environmentally demanding country in which we operate that process.”

BASF and Bayer say it is their policy to meet German standards around the world, for the protection of workers and the environment. Henkel’s spokesman told the Hamburg Environmental Institute that would be too
great a burden on profitability. Despite some company claims to the effect that they observe home-county standards worldwide, none of the companies scored high in the Hamburg institute’s "double-standards" category. Overall, the Hamburg group found that the environmental performances of the world’s largest 50 chemical and pharmaceutical companies were “depressing for the entire industry.”

The European Chemical Industry Council (CEFIC), in its CEFIC Guidelines on Transfer of Technology (Safety, Health, and Environment Aspects), says transferred technology should achieve a degree of safety, health protection, and protection of the environment equal to that of the technology supplier from which it is derived, and "equivalent to that achieved in the home facilities of the technology supplier." This would seem especially applicable to the worldwide subsidiary operations of the MNCs.

The United Nations Environment Program’s Code of Ethics on the International Trade in Chemicals takes a step backward in stating that manufacturers should meet the requirements of host countries as well as those of the parent or contracting company. This code is a form of official excuse for MNCs that provide weaker safeguards in developing countries than they are required to in their home countries. It also favors the more rapacious competitors whose parent company standards are least protective, least well applied, or both. On the other hand, the UNEP code does direct industry to "ensure that workers and others are not punished for monitoring and reporting its performance." This would seem applicable to the harassment of a farmer, a scientist, a newspaper editor, and a reporter, by Hoechst, in its ultimately futile campaign of legal actions and threatening tactics to overturn the Philippine government's ban on the pesticide endosulfan.11

There are great variations between the major companies in putting forth a global plan, let alone implementing one. MNCs based in many countries, including Japan, Switzerland, Germany, France, and Taiwan, seem to have faced little scrutiny of their global policies, and the industry trade magazines say little about their corporate policy positions and implementation practices.

SOME OTHER TYPES OF DOUBLE STANDARDS

The problem of double standards raises a number of challenges to corporate policymakers. Toxic Release Inventory data on each pollutant released into the air, into water, and on land from each plant has been required in the United States since 1988. Although major chemical MNCs based in the United States and elsewhere operate plants and comply with this requirement in the United States, it does not seem to have generally become corporate policy to publicly release similar data on plants around the world. In 1993, a DuPont spokesman said the company was acquiring such data on non-U.S. plants “and will release it to the affected publics near our facilities as soon as it is available.”

Public disclosure in the United States now includes Process Hazards Analysis. A typical analysis identifies potential hazards and the likely consequences if safety systems fail, and makes recommendations for reducing and eliminating hazards. In 1994, the first hazard assessments of the most dangerous processes were required to be provided to workers. Community groups have also asked industry for copies of these reports, with the confidential business information removed. It is a challenge to companies facing this requirement in the United States to show equal candor in honoring requests for similar information on worst-case accident scenarios in other countries.

Many countries, including some with the most rapidly growing chemical industries, have little or no capacity for state-of-the-art disposal of hazardous wastes. Given that the creation of hazardous wastes is a design feature of many plants operated by MNCs in the developing countries, a double standard in hazardous-waste disposal results unless the companies involved assure the construction of the facilities necessary for disposing of these wastes in a manner that would meet the standards they face in Europe and North America.

Specific worker protection and environmental standards in the United States and other countries have often been opposed as excessively strict by companies and trade associations, who have challenged the standards in court. When it is the legal position of a company that a control limit is unnecessarily strict, does the company comply with such a limit outside the country where the standard is in effect but being challenged in court? If the United States or another country bans a pesticide for uses the company says should have been permitted, will the company go on selling the product elsewhere in the world for the uses that were banned? If a company “voluntarily” withdraws a pesticide for certain uses as it is facing evaluation by a United States regulatory agency, does that mean it will be similarly withdrawn worldwide?

The willingness of MNCs to publicly disclose health- and environment-related information is easily exceeded when requests are made for: a list of all the company’s plants and the products made by each one; copies of corporate safety and occupational health guidelines; corporate environmental guidelines; copies of plant environmental and safety audits; information on the frequency of occupational health and safety and environmental audits; corporate occupational exposure limits for chemicals, including substances for which there are no corresponding governmental limits; health-and-safety-impact analyses for proposed new plants, including expected exposure to toxic substances; environmental-impact analyses for proposed new plants; corporate health, safety, and environment criteria for deciding whether to market new pesticides; and imple-
mentation guidelines for corporate policy statements on health, safety, and the environment. It has been the policy of major environmental groups and unions that information regarding toxic substances released into the workplace and the environment, such as the above items, should be made publicly available.

"Product stewardship" presents additional ethical challenges to MNCs. This term refers to a seller's responsibility for preventing harm arising from products marketed, throughout the life cycle of product use and disposal. It includes the responsibility of assuring that a company buying the seller's chemical product does not use it in a hazardous manner; at least one U.S. firm, Dow Chemical, has long expressed a policy of refusing to sell chemicals to such customers. In 1992, the Chemical Manufacturers Association member companies in the United States adopted a code that contemplates termination of sales to customers who do not correct "improper practices" in the use of chemicals they sell.

An active stewardship role with chemical companies' customers would be a definite public health advance compared with the traditional relation between sellers and buyers in much of the world. But the details of implementing this role are crucial in assuring that improper uses of chemical products are actually identified and corrected. In a meeting with executives of DuPont in 1991, representatives of Greenpeace were told that the company had people frequently visiting customer plants worldwide, who could be relied upon to identify hazards needing correction. But it turned out that these putative product stewards were the sales representatives from the company. Obviously, salespeople have neither the training nor the incentive to critically evaluate industrial hygiene and pollution-control measures of their customers. The executive conveying this information seemed unaware himself that a salesman might become a corporate vice-president before anyone using the products he sold contracted occupational cancer. This illustrates the difference between merely proclaiming a corporate policy and making the commitment to properly carry it out.

DuPont overcame more than a decade of community resistance to start building a nylon-6/6 plant in the Indian state of Goa. In drafting the terms of DuPont's participation, company lawyers were careful to include clauses to absolve DuPont from all liability in case of an accident. The indemnity agreement also sought to arrange for any adjudication of liability by arbitration in the United Kingdom, thereby avoiding judgment under U.S. or Indian law. In January 1995, environmentalists, local farmers, and villagers clashed with security forces, and one person was killed. The Indian Environmental Ministry then asked Thapar DuPont to halt construction until further studies of the plant's environmental impact could be done.

Examples of the need for product stewardship by pesticide producers abound. Repackaging of pesticides in food containers and the use of pesticide drums to store drinking water are causes of widespread death and disease. Small farmers' use and storage of pesticides and pesticide containers reflect a general lack of training that manufacturers could provide. For highly toxic pesticides, product stewardship means withdrawing the product from the market in countries where it is too hot to wear the proper protective clothing.

Rhône-Pouilenc has begun to make some pesticides in gel formulations, packed in small, water-soluble, polyvinyl alcohol bags. The bags can be dumped opened into mixing tanks used by farmers, avoiding direct worker exposure and container disposal problems. It remains to be seen how quickly this approach will be adapted to markets outside North America by Rhône-Pouilenc and others, including Hoechst.

In the Dominican Republic's Costanza Valley, defoliation from overuse of pesticides has caused the area to be called The Valley of Death. As the area gained media attention in 1991, Ciba-Geigy introduced a program to teach small farmers something about agronomy, integrated pest management, and safety. It was recognized that pesticide use in the valley had to be reduced. Community response to Ciba's effort to "prove the economic and social benefits of a sustainable market" was reported in the trade press to be encouraging. Ciba operates similar small-farmer programs in Colombia, the Philippines, Indonesia, Pakistan, Mali, Mozambique, and Nigeria. The Pesticide Action Network is skeptical of corporate versions of "integrated pest management" that stress the "best mix" of pesticides instead of training people in techniques whereby pesticide use is seen as a last resort.

The overuse and misuse of pesticides must be very widespread indeed, for pesticide producers now publicly anticipate a continuing reduction in the amount of pesticides used worldwide. In view of this, it is disingenuous for giant pesticide manufacturers to turn a blind eye toward pesticide-marketing abuses, blaming local dealers and saying, "We were just filling orders." This is ridiculed as the Eichmann defense against capital punishment, in compensation circles.

An important aspect of product stewardship is educational outreach to workers and the public using the product, through warning labels, brochures, and customer training programs. For certain hazardous products and containers in which they are sold, product stewardship entails retrieving materials that customers would otherwise use improperly or dispose of as hazardous wastes.

In US courts, product stewardship is strongly encouraged by the existence of liability for damages caused by hazardous products and pollution. Individuals harmed by products whose dangers were not always expressed in warnings by manufacturers have been awarded substantial compensation for economic loss, pain, and suffering, and in some cases punitive damages in addition. Manufacturers have withdrawn from the U.S. market
products shown in animal experiments to cause reproductive abnormalities—rather than risk multimillion-dollar lawsuits from children of workers using the agent who have been born with birth defects. These same products have sometimes continued to be marketed by the same companies in other countries, where product liability is not a factor.

Liability and regulation have thus imposed a duty on manufacturers in some countries to develop less toxic processes and products. But in the absence of public awareness, liability, and regulation, there is the possibility that the discredited, more hazardous technologies will remain economically competitive, and there may even be a "market" for the older technology that can be exploited in many countries. Thus, despite the advances being made by MNCs in development of "clean technology," there is no reason to expect that these improvements will promptly be transmitted to Africa, Asia, Latin America, and Central and Eastern Europe. It is very possible that some of the newly built industry in these regions will be made with used, imported equipment. This poses an ethical challenge to the MNCs that own equipment that is being replaced in Europe and North America.

A number of advances have occurred in recent years, which would unquestionably contribute to the protection of public health and the environment wherever they take root. Examples include: the replacement of glycol ethers, chlorinated solvents, and chlorofluorocarbon solvents as cleaning agents in microelectronics processing; replacement of organic solvents by water-based solvents in adhesives and sealants; reduction of volatile, organic solvents in many paints, in favor of water-based paints, spray-painting technology using supercritical carbon dioxide, and powder coatings; replacement of cadmium and lead in pigments; elimination of nitrous oxide air pollution in making adipic acid (used to make nylon, polyester, and polyurethane); replacement of acrylamide and N-methylethylacrylamide in grout compounds; replacement of chlorine bleaching in making paper; conversion of phosgene, arsine, and other toxic gases to less toxic intermediates that can be handled instead in industrial processes, thus avoiding the need to store and transport large quantities of highly toxic, compressed gases; replacement of the phosgene process for making polycarbonates with a dimethylcarbonate process; synthesis of aliphatic isocyanates from amines and carbon dioxide instead of processes using phosgene; replacement of hydrofluoric acid with sulfuric acid or, better still, with solid catalysts, in oil-refinery gasoline-alkylation units; use of zeolite catalysts in cumene production, replacing phosphoric acid or aluminum chloride catalysts and eliminating problems of acid waste disposal and the handling of corrosive materials.

Industrial research chemists, whose goal has traditionally been the maximization of product yield, with little concern about toxicity of products and byproducts, now discuss developments in less toxic technology at symposia on "green chemistry," or "industrial ecology." The big chemical companies have a responsibility to promote these advances everywhere they do business, not just in countries where changes are dictated by liability and regulation.

The worldwide promotion of less toxic technologies can be carried on both by individual MNCs and through collective bodies. The Industry Cooperative for Ozone Layer Protection is one vehicle major firms have used to promote environmentally superior technology. Through this organization, with additional support by the World Bank, IBM has tried to help companies in Asia and Latin America to switch to water-based cleaning and drying of circuit boards and disk components.

GOVERNMENT

Industrial expansion is taking place in many countries, and in considering applications for new industrial projects, governments have the opportunity and the responsibility to evaluate health and safety hazards of the imported technology. The host country should seek to assure that new operations will achieve high standards of performance. The project applicant should make the commitment to achieve specific levels of pollutant release that will not be exceeded during plant operations, and limits of worker exposure to toxic substances that will be attained. The applicant should be willing to pay for the government to obtain the necessary monitoring equipment to assure that these limits are observed in practice, and to allow immediate access to government inspectors at any time.

Special attention should be directed towards getting project applicants to describe their past experiences with the technology involved and its hazards. The host government has every reason and right to know what workplace hazards and pollution levels exist at similar factories operated by the project applicants. Similarly, it is important to know what laws, regulations, and standards for public health protection are honored by the applicants at similar facilities in other countries.

The host government application process should include critical evaluation from the standpoint, "Do we really need this?" And if the answer is yes, follow-up analysis should proceed along the lines of trying to assure that the technology is designed to produce the least hazardous processes and products to provide whatever needs are served. This procedure comports with the stated policies of leading MNCs. The fulfillment of ethical duties by governments and corporations can best assure that public-health–related advances in technology are transmitted rapidly around the world.

Major new projects in developing countries usually involve participation of foreign-investor MNCs. The guidelines listed in the appendix have been published
by Greenpeace and Third World Network (Malaysia),
detailing information governments can request from
foreign investors. To the extent that information
about the technology and its hazards is not submitted by
the prospective foreign investors, governments can and
should take steps to obtain such information independ-
ently.

Industrial hazards are not the only reason countries
have for wanting to do environmental impact reviews,
and industrial projects are not the only ones warranting
such scrutiny. The importation and widespread use of
energy-inefficient technology for manufacture of re-
frigerators, electric motors, and lighting has caused
tremendous problems. In many countries, generation
of electrical power could hardly keep up with demand
even if energy efficiency were a criterion in evaluation
of new technology and the design of commercial build-
ings. Energy inefficiency poses major problems in de-
velopment, including the cost of building and operat-
ing excessive power-generation capacity, pollution, and
the disincentives to expansion caused by unreliable
power supplies and breakdowns. Energy efficiency and
greater use of renewable resources for power genera-
tion could free tremendous resources for meeting basic
needs instead of building and operating unneeded
power plants.

The industrial countries have some responsibility to
deter MNCs from exporting recognized hazards and
discredited technologies to the poorer countries. This
can be done through information, regulation, and com-
ensation processes. Compensation is an area ignored
by the chemical industry in its “Responsible Care” pro-
gram, and many developing countries do not have the
judicial infrastructures or the intrepidity to process
damage suits against global corporations. A U.S. law
(Comprehensive Environmental Response, Compensa-
tion, and Liability Act) appropriately includes a provi-
sion for parties in other countries to sue U.S. companies
for creating toxic waste sites, though to date no such
case has been filed.

A few international claims have been filed against
manufacturers and fruit companies by victims of toxic
chemicals in developing countries. Dow and Shell were
sued by about 800 Costa Rican banana plantation work-
ers in a Texas court, leading to a $20 million settlement
in 1992. Workers in many Central American countries
were sterilized by handling the nematicide dibro-
mochloropropane (DBCP), even after DBCP was re-
stricted and later, in 1979, banned but still exported
from the United States. In 1994, a class-action suit was
filed in Texas, listing as plaintiffs 16,000 farm workers in
12 countries, against Dow, Shell, Standard Fruit, and
Chiquita Brands.

Governments can also be supported by the acts of in-
ternational bodies, especially on matters of emerging
technologies. Developing countries lacking biosafety
regulations fear being used as testing grounds by MNCs
for living, modified organisms. Joined by some Nordic
countries, developing countries unanimously urged the
establishment of international, legally binding require-
ments at a 1994 Biodiversity Convention meeting in
Nairobi. MNCs are being pressed to apply the same re-
strictions in field testing biotechnology that they would
face in the country of origin of the living, modified or-
ganisms.

WORKER ORGANIZATIONS

Chemical workers’ unions in many countries have been
concerned about the double standards of leading com-
panies. International union efforts were given greater
impetus after the Bhopal disaster. Workers in both in-
dustrialized and developing countries have recognized
that they have a common interest in preventing the use
of poor countries as “free-fire zones” for pollution,
workplace hazards, and discredited technologies. There
has been growing communication among unions
around the world about industrial hazards and corpo-
rate histories.

In Germany, where the chemical workers’ union
tends to avoid criticizing the industry, rebel employee
groups have emerged in a number of companies. The
Bayer employees’ group in Wuppertal regularly circu-
lates a newsletter criticizing the company for interna-
tional double standards, and these German Bayer em-
ployees have developed links with Bayer workers and
unions in other countries, including Brazil. Employee
groups within the large German companies have an in-
teresting opportunity to serve as “consciences” for their
employers and take direct action to raise corporate stan-
dards of performance around the world.

CONCLUSION

Multinational corporations are in the most powerful
role in determining what types of technology will be
transferred to countries in Asia, Africa, Latin Amer-
ica, and Central and Eastern Europe. The big com-
panies have an ethical and moral obligation to promptly implement global policies to eliminate
double standards with respect to public health and the
environment. The lives of present and future genera-
tions will be vitally affected by the rate of transfer of
improved, less hazardous technologies throughout
the world.

Governments have the ethical duty to independently
and critically screen industrial and commercial projects.
This role is best fulfilled by conducting searching analy-
ses of the technologies and companies involved. The
credibility and effectiveness of the screening process
will depend greatly upon public openness of the process
and public participation in it.
Appendix

Information from Foreign Investors for Environmental Review*

A. The foreign investor shall provide an Environmental Impact Analysis of the proposed project, including:

1. list of all raw materials, intermediates, products, and wastes (with flow diagram);
2. list of all occupational health and safety standards and environmental standards (wastewater effluent releases, atmospheric emission rates for all air pollutants, detailed description and rate of generation of solid wastes or other wastes to be disposed of on land or by incineration);
3. plan for control of all occupational health and safety hazards in plant operation, storage, and transport of potentially hazardous raw materials, products, and wastes;
4. copy of corporation guidelines of the foreign investor for conducting environmental and occupational health and safety impact analyses for new projects;
5. manufacturer's safety data sheets on all substances involved.

B. The foreign investor shall provide complete information on locations, ages, and performance of existing plants and plants closed within the past 5 years in which the foreign investor has partial or full ownership, where similar processes and products are used, including:

1. list of all applicable occupational health and safety standards and environmental standards, including both legal requirements (standards, laws, regulations) and corporate voluntary standards and practices for the control of occupational and environmental hazards of all kinds;
2. description of all cases of permanent and/or total disability sustained or allegedly sustained by workers, including workers' compensation claims;
3. explanation of all fines, penalties, citations, violations, regulatory agreements, and civil damage claims involving environmental, and occupational health and safety matters as well as hazards from or harm attributed to the marketing and transport of the products of such enterprises;
4. description of the foreign investor's percentage of ownership and technology involvement in each plant location, and similar information for other equity partners and providers of technology;
5. names and addresses of governmental authorities who regulate or oversee environmental and occupational health and safety for each plant location;
6. explanation of cases where any plant's environmental impact has been the subject of controversy within the local community or with regulatory authorities, including description of the practices criticized and how criticism was resolved in each case;
7. copies, with summary, of all corporate occupational health and safety and environmental audits and inspection reports for each location, including such audits and reports by consultants;
8. copies of safety reports, reports of hazard assessment, and risk analysis reports carried out with similar technology by the foreign investor and its consultants;
9. copies of toxic release forms that have been submitted to governmental bodies (e.g., the U.S. Environmental Protection Agency or similar agencies in other countries) within the past 5 years, for all plant locations;
10. any information considered relevant by the foreign investor.

AGREEMENTS ON POLICY

C. The foreign investor shall submit a statement of corporate policy on health, safety, and environmental performance of worldwide operations. This must include the corporate policy on laws, regulations, standards, guidelines, and practices for new industrial projects and production facilities. The foreign investor shall explain how its global policy is implemented: describing the staff responsible for carrying out this policy, its authority and responsibilities, and its position in the foreign investor corporate structure. Such descriptions will also include the name, address, and telephone number of senior corporate management officials in charge of this staff function. The foreign investor shall state whether it follows the same standards worldwide for worker and environmental protection in all new projects; and if not, explain why not.

D. The foreign investor shall agree to provide the developing country immediate access to the proposed industrial facility at any time during its operation to conduct inspections, monitor exposure of workers to hazards, and sample for pollution releases.

E. The foreign investor shall agree to fully train all employees exposed to potential occupational hazards, including potential health effects of all exposures and the most effective control measures.

F. The foreign investor shall agree to provide the developing country with equipment to analyze workplace exposures and pollutant generation, including but not limited to all limits specified in A.2 above, for the lifetime of the proposed project. The foreign investor shall agree that the proposed project will pay the cost to the developing country government for all medical and exposure monitoring during the lifetime of the proposed project.

G. The foreign investor shall agree that the proposed project will fully compensate any person whose health, earning capacity, or property is harmed as a result of the project's occupational hazards and environmental impacts, as determined by the government of the developing country.

H. The foreign investor shall follow marketing safeguards as restrictive as those it applies anywhere in the world, to assure that workers and members of the public are not harmed as a result of the use of its products.

I. If the foreign investor becomes aware of a substantial risk of injury to health or the environment from a substance it manufactures or sells in the developing country, a risk not known and disclosed at the time of this application, the foreign investor agrees to notify the environmental protection agency of the government of the developing country immediately of such risk. (This is similar to requirements under section 8e of the Toxic Substances Control Act of the U.S.A.)

*Source: Bruno.15

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J. The foreign investor shall provide the names, titles, addresses, phone, and fax numbers of its senior corporate officials charged with implementing environmental and occupational safety and health policies including plant design and operations, corporate inspections and reviews of plant performance, and product stewardship.

References


Sources: Corporate statements are based on corporate policy documents, published accounts in the chemical industry trade press, and personal communications to the author. Breakthroughs in less toxic technology are regularly featured in the chemical industry trade magazines and Chemicals in Progress Bulletin, a free publication of the Office of Pollution Prevention and Toxics, Environmental Protection Agency, Washington, DC 20460, U.S.A. Double standards in industrial hazards are frequently covered in: Third World Resurgence, published monthly by Third World Network, 228 Macalister Road, 10400 Penang, Malaysia; and Toxic Trade Update, from Greenpeace, 1436 U Street, NW, Washington, DC 20009, U.S.A.