

Introduction

No human being should have contact with this thing [chemical waste], the place where it was disposed can not be cleaned up, nobody should harvest anything there, nobody should drink water there either.

Manager of Rhodia in *Cubatão*, interviewed by the German magazine *GEO*, July 1992 [1]

INTRODUCTION

In 1966, the French Progil Société Anonyme and the Brazilian Carbocloro S/A jointly created Clorogil S/A, in Cubatão, state of São Paulo, to produce fungicides (wood preservatives) such as sodium pentachlorophenolate—also known in Brazil as “China dust”—in a plant known as “penta.” The production of the fungicides uses chlorine, phenol, and caustic soda and generates toxic persistent organic pollutants, such as hexachlorobenzene (HCB), polychlorinated biphenyls (PCBs), and dibenzodioxins, in the waste stream. In 1974, Rhodia, the Brazilian subsidiary of the French multinational Rhône-Poulenc, joined Clorogil to operate an adjacent new plant, also known by the workers as the “pentatetrapaper” plant, to produce carbon tetrachloride and tetrachloroethylene (also known as perc). The “pentatetrapaper” plant also generated highly toxic hazardous wastes, such as hexachlorobenzene, tetrachlorobenzene, and trichloroethylene.

For over a decade the workers in these plants handled these toxic and lethal chemicals without any information on the hazards they posed. The death of two workers from acute poisoning caused by pentachlorophenolate in 1975 precipitated enough pressure from workers and activists to close the “penta” plant down in 1978, after inspections by the County Council to Protect the Environment of Cubatão revealed extremely poor work-environment conditions. Many of the other thirty “penta” employees had chloracne, the malodorous skin eruptions caused by exposure to PCBs, and liver disorders. They were transferred to the “pentatetrapaper” plant after the “penta” plant closed, despite the existing signs and symptoms of occupational diseases. After many years of struggle to have their health conditions recognized as work-related, Rhodia’s sick and disabled workers created in 1994 the “Associação dos Contaminados Profissionalmente por Organoclorados” (ACPO, Association of Workers Occupationally Contaminated

by Organochlorines) to organize and strengthen their struggle against Rhodia and for just compensation for their diseases and disabilities.

Since the 1970s, both plants disposed of millions of tons of untreated chlorinated hazardous wastes either on-site or into rivers and soil around the “Baixada Santista,” creating numerous hazardous waste sites. The people who lived near the plants and the waste sites were deliberately misinformed about the dangers these chemicals posed. The company at one point even donated the waste to poor neighboring communities as fertilizer! Uncontrolled population growth and increases in the volume of hazardous wastes as well as the area contaminated by them created arguably the worst environmental disaster in Brazil: Houses were built over highly contaminated soils, with contaminated sand, and located in an environment where the drinking water was also highly polluted with hazardous chemicals.

The combination of work environment and environmental pollution produced by the two plants set in motion a chain of occupational and environmental health incidents. In 1998 “the tetra-per” plant was finally closed, but the remediation of the hazardous waste sites it generated is still ongoing. Almost all of the plant’s former employees show signs and symptoms of diseases associated with exposure to polychlorinated chemicals [2]. The saga of these workers has become a tragic example of the human health impacts of polluting technologies exported to developing countries by multinationals.

Since the 1970s developed countries have often exported hazards, in the form of toxic substances, products, polluting technologies, factories, or hazardous wastes to developing nations. Numerous horror stories in the press and scientific studies of occupational health practices of multinational companies conducted by American and European researchers have created a strong body of evidence that indicates the widespread existence of double standards between developed and developing countries regarding workplace and environmental health and safety protections.

The international literature on the export or migration of hazards from developed to developing countries has for the most part focused on the perspectives of exporting countries. Serious concerns have been raised by observers in developed countries about the export of hazards, and remedies have been proposed that, on the one hand, emphasize home-country control of multinationals and, on the other, the development of international standards.

This book complements this body of literature and adds to the debate by focusing on the role of national actors in the importation of hazards, based on the experience of late-1970s developments in the petrochemical industry in Bahia, Brazil. Based on initial evidence that indicated long-term cooperation between the waste management company of the Camaçari Petrochemical Complex (Cetrel), located in the state of Bahia, Brazil, and the Gulf Coast Waste Disposal Authority (GCA), the waste management company for the Gulf Coast area of Texas, three case studies were conducted, describing and analyzing the process of importation.

The first is a case study of two benzene-related occupational and environmental health crises that affected the complex in the eighties; the second is a case study of the environmental policies adopted by the Brazilian company; and the third is a case study of the environmental policies carried out by the parallel waste management authority in Texas.

Two of these studies center around social struggles and the process of importation of technological hazards and controls in Bahia, resulting from cooperation among the Brazilian state, private Brazilian funds, and foreign capital. The cases address the historical and structural developments in the “Pólo Petroquímico de Camaçari,” and Cetrel. The latter has a microlevel focus, while the former has a mesolevel focus. The third, the Gulf Coast Waste Disposal Authority (GCWDA or GCA) case study, is similar to what epidemiologists would call a “control” or referent to Cetrel’s case.

The Brazilian company has been operating under pollution control standards and technologies for protecting the environment and workers that are quite similar to GCA’s. This did not depend heavily on government-initiated regulation, but, in the case of worker health and safety protections, did rely on a young and militant trade union in the complex, which successfully pushed for government intervention and regulation by the end of the 1980s. Similarly, community concerns about environmental damage contributed substantially to the efforts by the Texan waste management authority to deal more effectively with pollution control. These similar pollution control trends are characterized in the book as “dependent convergence” between developing and developed countries. That is, the Brazilian authorities sought to copy control measures employed in the United States—indeed, they perceived that they had surpassed American conditions and looked to a petrochemical complex owned by BASF in Germany as a more advanced model.

The Brazilian cases indicate that social struggles and/or interaction among actors in developing and developed nations determine to what extent hazardous technologies are imported without environmental controls and to what extent their hazardous effects are controlled by these nations. “Dependent convergence” suggests that the future development of a more inclusive theory of export-import of hazardous technologies and products should take into account the dialectical relationships established between social actors, such as unions, businesses, and governments, that are present in the societies of exporting and importing countries. The development of this broader theory requires cooperation and solidarity between researchers and activists in both developed and developing countries, which is happening in the last few years, for example, in the struggle to ban asbestos from the world economy. The rapid formation and expansion of international networks—both “virtual” and “real”—to control the worldwide production and use of toxic substances and polluting technologies seem to suggest that the time for this theory has come and that it is very feasible to embark in such an endeavor.

Chapter 1 develops the theoretical approaches to analyze the case studies by discussing four major arguments: the export of hazards, the dependency perspectives, the theory of class formation, and the political economy of occupational diseases.

Chapter 2 offers background information on some of the main characteristics of the petrochemical industry, then situates the geographic, historic, and political-economic context of the Bayport and Camaçari complexes, as well as GCWDA and Cetrel.

Chapter 3 starts with an overview of the Brazilian national political context throughout the twenty-year history of the Camaçari complex, and then moves to a political-economic analysis of the history of the complex, emphasizing the evolution of the environmental management policies. It frames the twenty-year period in three different phases according to critical events that shaped the changes in environmental—and occupational—health policies. The unit of analysis for this chapter is the complex as a whole.

Chapter 4 is a case study of the two benzene crises that shook the complex—the major occupational health problem in its history—and how they affected national legislation for controlling benzene exposures.

Chapter 5 is a case study that examines the evolution of environmental—and, to a lesser extent, occupational—health policies in Cetrel, documenting how this company dealt with the air, solid, and liquid hazardous wastes generated in the complex throughout the twenty years.

Chapter 6 is a case study that reviews the critical steps in the evolution of GCA's environmental control policies, with particular attention to the evolution of the Bayport complex. It is a case study of the American counterpart to Cetrel, serving as a cross-national reference for comparisons. It does not cover, however, the evolution of GCA's policies in the same depth as the Brazilian case, because of limited time and resources [3].

Chapter 7 is a cross-national comparative discussion of the two case-studies. It offers a cross-country actor analysis, a comparative analysis of the policy outcomes described in the two cases, and a summary of the lessons learned through the comparison of the two case studies. It ends with the main conclusions of the book, under the umbrella of what I call “dependent convergence” between Cetrel and GCA. Appendix 1 describes the research design used for this study.

ENDNOTES

1. Sindicato dos Trabalhadores Químicos de São Paulo, ABC e Campinas, (São Paulo, ABC and Campinas Chemical Workers Union), “*Dossiê Caso Rhodia*,” Maio de 1995 (*The Rhodia Dossier*, May 1995).
2. *The Rhodia Dossier* provides solid evidence of the high levels of pollution found in the soils and water in different hazardous waste sites in the area. The state environmental agency, CETESB, the University of Campinas, the Pan American Health Organization

(PAHO), and environmental consulting companies have conducted numerous tests and clinical exams to measure chemical contamination and human health effects. For example, in 1991, CETESB found hexachlorobenzene levels 3,000 times over the levels accepted by the German Chemical Industry Federation. See [1], p. 26.

3. To compensate for these limitations, comparative perspectives with the United States were underlying factors throughout the whole research, giving it a comparative flavor from start to finish.