

**Successful Public Sector Enforcement of Environmental Standards
in the Toritama Jeans Industry in Pernambuco, Brazil**

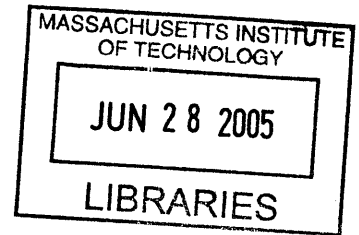
By

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Submitted to the Department of Urban Studies and Planning in Partial Fulfillment of the
Requirements for the Degree of

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at the
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Abstract:

Non-observance of environmental standards among small firms in traditional industries such as garment, footwear, furniture and tanneries have caused major environmental degradation in many places throughout the world. Because these firms provide significant employment and income in poor regions and often work under financial and technical constraints, the public sector and donors alike often exempt them from environmental, tax, and labor legislation. I chose to study a case in which the outcome was different, in which small firms in a highly informal garment industry to improve environmental conditions.

This paper explores why and how did public agencies begin to enforce environmental and worker safety standards in 2001 among small firms that have largely been exempted from such standards for many years? I argue that: 1.) the local residents' complaints to **both** the Public Ministry and CPRH aligned with these two agencies' current interests of actively enforcing environmental legislation throughout the state of Pernambuco; 2.) the Public Ministry bolstered CPRH's presence through legal pressure using the Terms of Conduct Adjustment (TAC) to elicit firm support and compliance and CPRH provided important technical assistance; and lastly 3.) the Public Ministry and CPRH elicited key support from the private sector to convince other firms by working with one of the largest firms and offering financial and technical assistance to help firms comply with rigid requirements.

Key words: environmental compliance, Ministério Público, APL, small firms, garment industry

Thesis Supervisor: Judith Tendler
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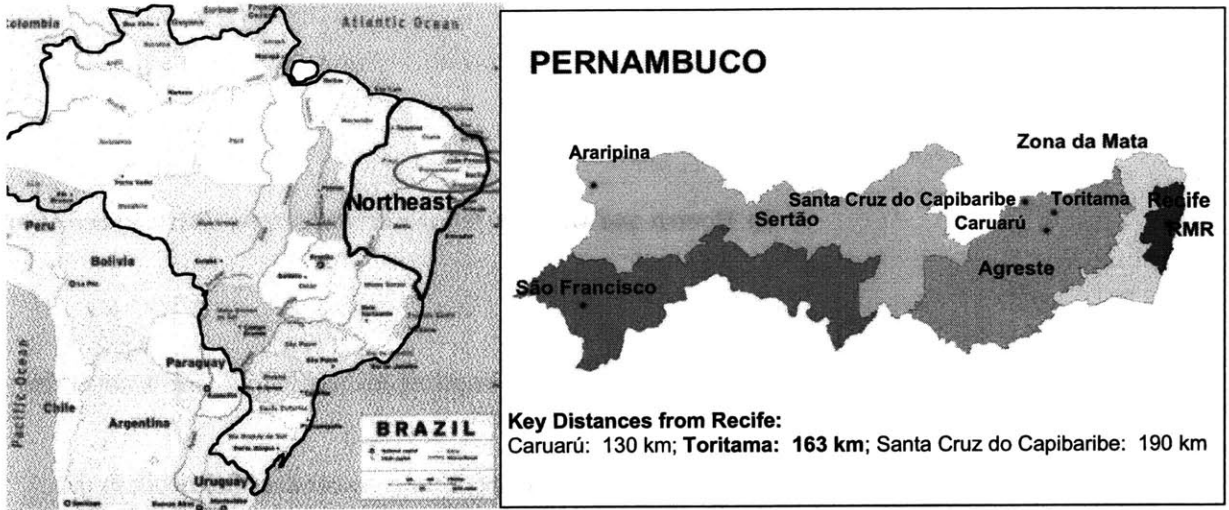
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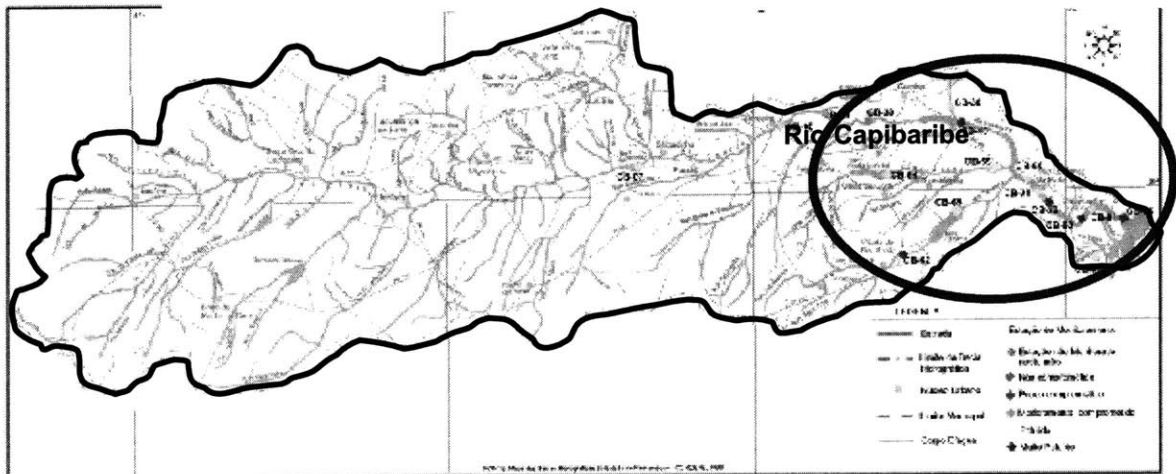
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Finally, to my family in California and the Philippines: This is me – Filipino-American with a Brazilian flavor.



Map of Pernambuco's River Basins



Map Sources: Pernambuco State Government website (www.pe.gov.br) and CPRH

Introduction

Non-observance of environmental standards by small firms in traditional industries such as garment, footwear, furniture, and tannery industries run rampant in both in the industrialized and the developing world. Because these firms provide significant employment and income in poor regions and often function under financial and technical constraints, politicians and policymakers often exempt them from environmental, tax, and labor legislation. For this reason, I was drawn to the case of the Toritama laundry firms sector in Northeast Brazil where, beginning in 2001, public sector agencies intervened to enforce strict environmental standards and small firms complied.

Toritama, a small city of 22,000 people with an area of 34.8 square kilometers, in the semi-arid region of Pernambuco, provides a fascinating case study for several reasons: The roughly 2000 garment firms contribute to the local jeans production of 24 million pairs of jeans a year, equivalent to 12% of the Brazil's domestic jeans production of 200 million.¹ The 50 small- and medium-sized laundry firms “process” (wash, dye, soften) an estimated 14.4 million pairs of jeans a year amounting to 7% of Brazil's domestic production. This is quite an impressive feat for a town with precarious public infrastructure and chronic drought and water supply problems. Second, it makes up the tri-city *Sulanca* garment industry which includes the neighboring municipalities *Caruarú* and *Santa Cruz do Capibaribe* (see map) and developed in spite of a historical lack of attention and support from either private actors or the public sector, such as the state garment association.² Thus, Toritama and its *Sulanca* market counterparts developed quietly for several decades, largely undisturbed by environmental and labor inspectors and tax collectors.

¹ I took the estimates from data collected from local laundry firm owners by the state environmental agency, CPRH, in 2003 for Toritama production figures. For the Brazilian national production, I used figures from the Brazilian Textile Industry Association, ABIT, quoted by various magazine articles. Brazil is the second largest producer of jeans in the world, producing 200 million pairs a year. It is second only to the United States, which produces 800 million pairs of jeans a year.

² For more information on the Agreste garment cluster and its relationship with public sector and business support agencies such as SENAI (Brazil's national Technical and Vocational School with presence in all 26 states) and Sebrae (Brazilian Agency for Small and Medium Enterprises with presence in all 26 states), see

But this situation changed in 2001 when the State Public Ministry and the state environmental agency, *Agência do Meio Ambiente e Recursos Hídricos* (CPRH), along with other public agencies and private actors intervened to improve environmental conditions in Toritama. The Public Ministry and CPRH worked with local laundry firms to promote compliance with environmental legislation through a combination of incentives (environmental awareness efforts, technical and financial assistance to local laundry firms) and disincentives (threats of punishment through fines and firm closures). The environmental legislation encompasses a comprehensive set of requirements such as effluent treatment, sewage treatment, and solid waste management. By 2004, all firms have signed a legal document known as a *Termo de Ajustamento de Conduta* (TAC) agreeing to comply with environmental as well as workplace health and safety standards. The standards stipulated in the agreement include the following areas:

- ❖ *Industrial Effluent Treatment*
- ❖ *Occupational Health and Safety*
- ❖ *Sewage Treatment*
- ❖ *Solid Waste Management*
- ❖ *Air Pollution Treatment (gas filters)*

So why and how these two public agencies intervened to require local firms to adopt measures to reduce pollution and improve workplace conditions in Toritama, a city they had previously ignored and a place where most firms have thrived throughout the years without complying with environmental, labor and tax legislation?

Much of the literature on increased compliance with environmental standards provides us with examples of cases in which firms are inserted in a global value chain³ where large, economically powerful global buyers, or buyer countries, demand compliance on certain labor and/or environmental standards and where non-compliance may pose a serious economic threat to

Dohnert, 1998. Interview and research data provided by Dohnert paint a picture of a regional garment industry ignored by the public sector and private actors such as the state garment producers' association. I will also explore this theme further in the next chapter.

the exporting country or region.⁴ In these cases, the government has a strong incentive to become involved in pushing for enforcement of standards to avoid or lessen the economic consequences of a possible ban from the importing country, such as the Indian leather tanning industry case and the German government's ban of leather goods containing PCP or Azo dyes in the 1990s, as documented by Tewari and Pillai. But Toritama, like dozens of small firm agglomerations or *Arranjos Produtivos Locais* (APLs) in Brazil, cater to the domestic and not the export market. Eighty-four percent of Toritama's garment production supplies the low-end Northeast Brazil regional market, with a population largely indifferent to labor and environmental strict standards.⁵ Even if these firms catered to a more international market, it does not guarantee higher compliance with environmental standards, as Navas-Alemán and Bazan found in their study of quality, labor and environmental upgrading in the footwear industry. They mentioned that there is a general lack of interest in "process environmental standards" from global buyers.⁶ More importantly, the authors learned that the "real pressure for implementing environmental standards comes from the local government," citing the role of FEPAM, the state environmental agency in *Rio Grande do Sul* in enforcing rigid regulations regarding industrial effluents from tanneries.⁷ Yet oftentimes, environmental agencies may lack the political will and capacity to pressure local firms to comply with such standards because of political economic consequences. This raises the need for a potentially powerful enforcement ally, the legal system.⁸

⁴ See Nadvi, 1999; Tewari and Pillai, 2004; Damiani, 2001.

⁵ It is interesting to note that the Northeast Brazilian market has 47.7 million potential customers, over half (58%) of Germany's population, which is roughly 82 million people. More interesting perhaps is the stark contrast between the two markets: while the German market is presumably educated and at least middle income, the Northeast Brazilian market served by Toritama's firms largely consists of a population with generally low education levels and weak purchasing power.

⁶ "Process" environmental standards refer to the use of environmentally friendly products and materials during the production process of leather or garments. Navas-Alemán and Bazan, 2003.

⁷ Ibid, p. 19.

⁸ See Tendler, 2002 and her discussion of the "devil's deal". This deal basically consists of politicians and policymakers exempting small firms from labor, environmental and tax legislation in return for political

The legal system (i.e. judicial rulings and court orders) can be an effective method of state intervention in enforcing environmental and workplace standards. For instance, the building of common effluent treatment plants by firms in India's Palar Valley tanning industry in the state of Tamil Nadu started only after the Supreme Court ordered closure of non-compliant firms in 1999.⁹ In fact, in Brazil there is a legal entity independent from the three other branches of government (legislative, executive, and judicial) wholly dedicated to defending individual and collective interests of the population, including the environment, known as the *Ministério Público* (MP) or Public Ministry.¹⁰

However, a few challenges come with regards to the potential of the Public Ministry in enforcing environmental standards. First, the Public Ministry generally works by demand from the population or from other government agencies. In places such as Toritama, the local population's low level of environmental awareness and lack of interest in pushing for improving environmental conditions help to sideline environmental concerns relative to other priorities. Even more important is the fact that the Public Ministry did not gain its legal responsibility to deal with environmental issues until the 1980s. Perhaps as a consequence, a recent poll about the image of the Public Ministry suggests that only 10% of the respondents think that the Public Ministry can help them with environmental issues.¹¹ This lack of awareness of the population on

support. While seemingly advantageous for both parties in the short run, Tendler argues that it is not sustainable in the long run because environmental, workplace and social conditions worsen as a result of these exemptions and the lack of public investment in infrastructure which partly stem from low tax collection rates.

⁹ Kennedy, 1999.

¹⁰ A federal institution dating back to the 1800s, the Public Ministry has branches in each of the 26 states and local level presence represented by *Promotor de Justiça* or district attorneys in Brazil's 5560 municipalities. It has the legal mandate and autonomy from other branches of government to defend the environment.

¹¹ De Mio, 2005. The opinion poll was conducted by IBOPE (*Instituto Brasileiro de Opinião Popular e Estatísticas*), a national polling organization similar to Gallup in the U.S. The results of the poll have a 95% degree of confidence and IBOPE interviewed 2000 interviewees in 145 municipalities and 5 regions in Brazil. In addition, the Public Ministry commissioned the study to learn more about its image among the Brazilian population that it aims to serve.

environmental issues and the role of the Public Ministry in resolving such issues poses a considerable challenge. Second, competing job priorities, a lack of environmental consciousness and technical knowledge, and/or experience dealing with complex environmental cases affect whether or not a particular ‘*Promotor*’ (district attorney) will take on an environmental case and whether he will succeed.¹² For instance, the Public Ministry may act too hastily and rigidly, at times, provoking a strong backlash among non-compliant firms. The district attorney could order the closure of firms or impose requirements too quickly, such as was the case of the laundry firms in the Jaraguá jeans industry in the Central-Eastern state of Goiás, Brazil.¹³ In 2000, the Jaraguá district attorney received complaints about the laundry firms and in the same year he gave the firms six months to comply, but only a few did. The non-compliant behavior by firms caused the Public Ministry to reinstate the pollution case as an *Ação Civil Pública* and send it to the Judicial Branch for a judicial sentence, which could take many years to resolve or end with no resolution.¹⁴ In contrast, the district attorney in Toritama, in partnership with the state environmental agency, negotiated compliance with polluter firms through a sustained dialogue with local laundry firms which took over two years before each firm finally signed a legal instrument called the *Termo de Ajustamento de Conduta* (TAC or Terms of Conduct Adjustment) with legally binding terms of agreement for all parties. Third, the huge drawback deriving from the Public Ministry’s lack of monitoring capacity and technical knowledge and experience for

¹² I base this claim on conversations with state-level Public Ministry and environmental agency managers in Pernambuco. This claim is corroborated by recent findings drawn from a quantitative and qualitative study of the effectiveness the Public Ministry’s use of two legal instruments, the *Inquérito Civil* and the *Termo de Ajustamento de Conduta*, in resolving environmental conflicts in the city of São Carlos, São Paulo from 2001-2004.

¹³ I obtained details regarding this case from electronic communication with Mansueto Almeida, a senior researcher at the Brazilian Ministry of Planning’s applied economic research institute, IPEA (Instituto de Pesquisa de Econômica Aplicada). He also conducted research on environmental compliance of laundry firms in both Toritama and Jaraguá. See Almeida, forthcoming.

¹⁴ I will address this point in Chapter 2.

understanding complex environmental issues creates a need for a strong partnership and collaboration with an environmental agency that can fill these gaps.

This paper explores why and how did public agencies begin to enforce environmental standards in 2001 among small firms that have largely been exempted from such standards for many years? Since these two agencies, the Public Ministry and state environmental agencies exist in the 26 Brazilian states with jurisdiction in its 5,560 municipalities, why had the Public Ministry of Pernambuco and the state environmental agency, CPRH, intervened in this case and not in others? I argue that the following factors answer these questions: 1) the local residents' complaints to *both* the Public Ministry and CPRH aligned with the agencies' current interests of actively enforcing environmental legislation throughout the state of Pernambuco, 2.) the Public Ministry bolstered CPRH's presence through legal pressure using the Terms of Conduct Adjustment (TAC) to elicit firm support and compliance while the CPRH provided important technical assistance, and lastly 3.) the Public Ministry and CPRH elicited key support from the private sector by successfully working with one of the largest firms and by offering financial and technical assistance to help other firms comply with the rigid requirements.

Driven both by local population demands against laundry firms in Toritama and the mission to improve environmental conditions along the river basins of the entire state of Pernambuco, the public agencies intervened through the enforcement of environmental legislation. Concerned with profits, fearful of firm closures, and led by environmentally aware young entrepreneurs, the private sector agreed to comply with the public agencies.

Research Methodology and Limitation

I base my case study findings in this paper from fieldwork conducted in Recife and the Agreste garment APL in Pernambuco, Brazil in August 2004 and January 2005 for a total of six weeks.¹⁵ My research methods included the following: personal interviews with local and state

¹⁵ I thank Professor Richard Locke for funding and sponsoring the field work conducted in August 2004, as part of a larger study on institutional cooperation and development in Brazilian clusters or APLs (*Arranjos*

level public and private actors, participatory observation, and field visits (to factories, stores, markets and training schools), documents research, and survey data. I conducted a total of 40 open-ended, in-depth interviews with public agencies, research institutions, business associations, and firms in Recife, Toritama, Caruarú and Santa Cruz do Capibaribe. In addition, I attended events and planning meetings sponsored by the state garment association, Sindinvest in Caruarú. I also conducted participant observation in several occasions such as: 1.) a meeting in Toritama with all the laundry firms, the Public Ministry, CPRH, ITEP, private firms providing solid waste management services, and banks, 2.) a planning workshop with garment firms organized by Sindinvest and FIEP in Caruarú, and 3.) one afternoon outside the district attorney's office where dozens of people lined up complaining about lack of water. During my February 2005 visit, I had the opportunity to accompany a team of labor health and safety inspectors from the state Secretary of Health's inspection agency, Vigilância Sanitária. I joined the inspectors on visits to several small laundry firms in Toritama, giving me the chance to briefly speak with workers, get acquainted with workplace conditions and firm violations as well as see a variety of firm sizes. I supplemented my fieldwork data with email communication with people I interviewed in Pernambuco as well as with other researchers and professionals with deep knowledge of Toritama and the Public Ministry. I visited university libraries in Recife and the local Secretary of Education in Toritama to obtain more data on Toritama and the Agreste region (e.g. history, maps).

This remainder of this paper consists of the following:

Chapter 1 discusses the development of the regional cluster in which the Toritama jeans industry is inserted. It argues this economic growth is a double-edged sword: it brought more jobs and firms to Toritama but also generated a series of environmental problems.

Produtivos Locais). The August 2004 interviews were also conducted with my colleague and friend, Monica Romis.

Chapter 2 examines the explanations behind the Public Ministry and CPRH's keen interest in enforcing environmental legislation in Toritama beginning 2001. I argue that the prior patterns of cooperation between CPRH and the Public Ministry allowed these agencies to work well together in successfully signing the Terms of Conduct Adjustment with local firms.

Chapter 3 provides an analysis as to why the private sector collaborated with the public agencies to comply with environmental standards.

Chapter 4 highlights the main findings and provides some recommendations and future areas for research.

Chapter 1: Economic Success in Toritama: A Double-Edged Sword

This chapter provides the background and context – the precursors for the environmental upgrading process in Toritama. First, I trace the evolution and development of the Toritama jeans industry that gave rise to the laundry firms sector. Despite the frequent droughts and water supply problems which plague Toritama and neighboring cities in the region, laundry firms flourished along with the jeans industry with limited public knowledge, partly due to size, location and undisclosed water consumption. I argue that this economic growth became a double-edged sword: it brought benefits in terms of more jobs and firms to Toritama but also posed challenges in terms of high water prices which hurt firm owners' pockets, water and air pollution.

1.1 The Toritama Jeans Cluster

Located in a semi-arid region 173 km from Recife, capital of the Northeastern state of Pernambuco, Toritama produces approximately 15% of the jeans sold in the Brazilian national market.¹⁶ On any given day – except for market days when as many as 60 buses bring an estimated 10,000 (roughly 50% of Toritama's total population) visitors weekly from other Northeastern states such as Paraíba and Bahia – a visitor or passer-by might never know the importance of Toritama as a high-volume producer of jeans in the country¹⁷. This might be due to the physical appearance and location of the city – a small, dusty town sprawled on both sides of the federal highway BR-104. Diverse business establishments line the main drag on both margins of the federal highway, from the regional bus company *Caruarense*, to pharmacies, to stores selling sewing machines and spare parts.

¹⁶ Data came from Sindivest, the state garment association based on the FADE/Sebrae-PE 2003 report. I checked with Brazil's total clothing production provided by the Brazilian Textile Association and this figure was closer to 12%, using the estimates from the same report.

¹⁷ The estimates regarding the number of buses and visitors came from various sources such as newspaper articles from state papers such as *Jornal do Comércio* and author's interviews with local actors. Given that many buses and buyers visit other markets in the region such as that in Caruarú and Santa Cruz do Capibaribe, this figure can increase to about 83,000 a month in all three cities, with an annual estimated number of buyers reaching 1,000,000 people.

However, when one walks through the city's largely unpaved streets, he/she discovers a place on the verge of an industrial revolution, or perhaps it is already undergoing such transformation. Wheelbarrows and cars transport jeans from point to another. Remnants of varying shades of denim grace the sidewalk and front steps of most houses. The constant buzz of modern sewing machines fills the otherwise tranquil atmosphere. At lunchtime, one can observe workers in shorts and t-shirts napping under a tree or beside a three-foot pile of jeans waiting to be washed and transported to the dozens of clothing stores which line the main streets of this city of 21,800 people. Of these 21,800 people, around 15,000, 90% of the economically active population, are supposedly employed in the garment sector. Average worker wages exceed the national monthly minimum salary of \$106 by about 50% as the high demand in labor pushes wages up to \$160 per month. Its income per capita of \$156 is 5% higher than that of the Northeast region and Pernambuco, which is \$148. Consequently, Toritama and the two other main cities in the *Agreste* garment cluster have some of the lowest poverty rates in the Northeast region and the highest incomes per capita -- a considerable achievement for a small-sized town in the interior.¹⁸

Despite the booming jeans industry, the town does not have a bus station. The gas station along the highway functions as a drop off point for buses and local passenger jeeps (4x4 vehicles), which transport passengers and their merchandise to and from Toritama and the other two cities in the *Agreste* cluster, Caruarú and Santa Cruz do Capibaribe. Because Toritama grew without planning or organization, like many other interior towns in the developing world, the *Fórum*, a one-story government building, sits on the old town plaza. Only recently in late 2004

¹⁸ Toritama and Santa Cruz do Capibaribe have poverty rates of 21.3% and 24.5%, respectively. IBGE Census, 2000. Poverty rate is measured by the percentage of the population earning 50% or lower of the minimum salary of \$106 a month. The Northeast region encompasses 9 states with over 45 million inhabitants. To give some perspective, though, Pernambuco has long been considered the industrial capital of the Northeast by Brazilians and non-Brazilians alike, so perhaps it is not too surprising that two of the least poor cities are in Pernambuco. On the other hand, visiting these cities and seeing the precarious public infrastructure and simple houses gives the impression that it is not as "economically successful" as Census data show.

did it acquire its first bank, a Banco do Brasil automated teller located in Parque das Feiras (Shopping Park).¹⁹

1.1.1 The Rise of Toritama as the Jeans Capital

When I first told my friends in Recife about my research in the Agreste region of Pernambuco in July 2004, they immediately mentioned the jeans of Toritama and the shopping center there that they had been wanting to visit, referring to the recently built *Parque das Feiras*. *Parque das Feiras* greatly contributed to Toritama's recent fame as a major jeans manufacturer. Spread over nine hectares of land along the federal highway BR-104, *Parque das Feiras* is a huge, concrete shopping center filled with 110 stores and 500 stands selling the wide array of clothing products found in the three cities – surf-wear, street-wear, undergarments, jeans, women's blouses, and men's shirts.²⁰ Built in 2001 by local private developers, the commercial complex is partly responsible for the fame that Toritama enjoys today as a major jeans producer. As the president of the Local Merchants' Association (CDL) pointed out, Toritama's fame in the media did not begin until 2001, when the *Parque das Feiras* first opened. According to him the whole Northeast of Brazil came to know Toritama through newspapers, television, and radios. Part of the news coverage came from the now annual event called Festival do Jeans, also sponsored by private businessmen who built the shopping center.²¹ After 2001, "whatever information there was about Toritama came out in the media", Hibernon claimed.²² By 2003,

¹⁹ In Portuguese, *feira* means market. In many cases, it refers to popular market, open air stall type markets associated with low-quality, low-end products, such as the *Feira da Sulanca* or the Sulanca Market.

²⁰ Each store occupies an average area of 25 square meters and each stand or "boxe" occupies an area of around 3 square meters. It has nine restaurants and snack bar, four bathrooms and 2,000 parking spots. When I visited it during my fieldwork both in August 2004 and January 2005, private developers have added an additional building behind the main one, with an additional 110 stores. Aside from additional stores, the new shopping complex will house 1,518 mini-stands in an attempt to organize the open-air market and provide some structure to an otherwise chaotic event.

²¹ I tried to meet with the investor and businessman who built the shopping center but our schedules did not match up. He is a Caruarú businessman who owns a car dealer and other business.

²² Personal Interview with CDL President, January 2005.

state papers such as *Diario de Pernambuco* and *Jornal do Comércio* had published various articles about this shopping center, hailing it as an important attraction and shopping center in the Agreste.²³

In addition, the project known as the Garment Pole of the Pernambucan Agreste (*Pólo de Confecções de Agreste Pernambuco*) funded and managed by Sindinvest, the state garment association, and the state branch of the federal business support agency (SEBRAE), took Toritama's silent success to great heights.²⁴ While Toritama has been producing millions of jeans per year since the 1980's, its fame and popularity among middle class consumers in the capital did not seem to set off until the shopping center and Sebrae and Sindinvest's close attention to the region, which began at the end of the 1990s. A main component of this project involved a diagnostic study of the garment industry, including both informal and formal firms. These two organizations published the results of this study and with their access to the media in the capital, state newspapers published numerous stories detailing the number of firms and jobs generated by the garment industry. What was formerly known as the Sulanca garment industry, in the eyes of state actors such as Sebrae, Sindinvest, and policymakers, has slowly become the Agreste garment pole in 2001. Sindinvest's strong links with the media helped put Toritama and the rest of the Sulanca garment industry in the limelight.²⁵ While news articles still mention Sulanca, the

²³ See various articles from *Diario de Pernambuco* and *Jornal do Comércio* in 2003 such as "Parque destaque no Agreste" from October 20, 2003. ²³ See news articles from *Folha de Pernambuco*, November 9, 2003 and May 2005. Also, see *Diario de Pernambuco*, January 22, 2004.

²⁴ As I will explain more in Chapter 3, Sindinvest's attention turned to the Agreste region in 1997 when it signed a technical cooperation agreement with the German nonprofit training agency, Bfz. Sindinvest then began working with Sebrae in Pernambuco. Together they invested roughly R\$ 2.9 million in 2001 (or \$1.1 in 2005 dollar terms) for the development of the Agreste garment industry. The relationship between Sindinvest and Sebrae and how these two organizations finally began paying more attention to the Agreste firms after 1997 warrant further research.

²⁵ I witnessed Sindinvest's media savvy tactics when my colleague Monica Romis and I first met with its President, Fred Maia, and he immediately called Sindinvest's press contact to conduct a phone interview with us discussing our research project on the garment industry. In a day or so, our names appeared on one of the state papers, *Jornal do Comercio*, August 2, 2004. By the time we arrived in the Agreste region a week later, people such as firmowners and state/local actors (Sebrae, Senai, etc) already knew that we were visiting, referring to the news clipping describing our project.

prominent news headlines describe the Sulanca markets as the “Agreste garment pole”.

1.1.2 Toritama’s Roots: Insertion into the Agreste Regional Economy

However, Sindivest and state policymakers and business support service providers such as Sebrae did not begin to pay close attention to the Agreste region until around 2001. With minimum public support, the small firms in the cities Santa Cruz do Capibaribe, Caruarú, and Toritama have thrived for decades, mainly through low-cost, low-quality products geared towards local and regional markets in the Northeastern region of Brazil. Presently, there exist an estimated number of 12,000 formal and informal firms employing 76,7000 people in the three cities. This small firm agglomeration or APL boasts of roughly \$700,000 in annual sales, more than sugar industry and the state’s much-lauded high tech initiative, Porto Digital.²⁶ Intense inter firm competition impeded the kinds of local firm associations oftentimes necessary to lobby for government support to form.²⁷ Lack of knowledge of the actual size and importance of the Agreste garment industry by policymakers and Sindivest prevented them from seeing the potential of the region’s garment sector.

Located in the semi-arid hinterland, in an area characterized by very little rainfall and land hardly apt for agricultural activities, these towns overcame such adverse circumstances through petty trade and small-scale manufacturing as early as the 1940’s. Part of the public and private sector bias against firms in this region perhaps stems from the somewhat pejorative term of *Sulanca*, which had become synonymous with low-end, low-quality garments produced by peasants and petty traders from the countryside for Northeast Brazilian market. Starting out in the

²⁶ I obtained this data from the FADE/UFPE/Sebrae-PE report, 2003 and comparisons made by Sindivest to these other two state industries.

²⁷ For more information on successful forms of firm associations lobbying the government for financial and technical support, see Dohnert, 1998 on Ceará garment firms; Criscuolo, 1999 on Southern Italy firms led by the powerful trade association, the CNA; Tewari and Pillai, 2004 on India’s leather and tanning industry associations in the state of Tamil Nadu; Damiani, 1999 on Brazil’s agricultural industry in Pernambuco’s Petrolina-Juazeiro agricultural region.

town of *Santa Cruz do Capibaribe*, located 190 km from the capital of Recife, local merchants would go to Recife to sell chicken, cheese, '*carvão vegetal*' and bring back leftover pieces of cloth, from which they would make clothes and blankets for household use at the end of the 1940's and beginning of the 1950's.²⁸ By the 1970's almost every household owned one or two sewing machines. Petty traders and truck drivers brought back remnant cloth, called *helanca*, from the south (*sul*) and turned it into simple garments which sold in what came to be known as *Feira da Sulanca* or the Sulanca Market. By the end of the 1970's, Santa Cruz became known throughout the Northeast as a place to buy low-cost, low-quality garments. Sales and production grew so that local producers started a market strictly for selling clothing on Thursdays. Thus in 1979, the famous Feira da Sulanca was born. Despite minimum public support, the success of this small-scale manufacturing activity quickly spread to the nearby town of Caruarú, which already hosted the famous *Feira de Caruarú*, a diversified open-air marketplace that sold basic food products, household goods and of course, garments. By the 1980s, the garment production fever had also reached Toritama.

One reason why Sindivest and other state actors had not paid much attention to the region until 1997 was that most of the firms in the Agreste region had mostly been associated with low-quality, low-end products bought by "sacoleiros" from other cities in Pernambuco and the other Northeastern states of Bahia, Paraíba. The term, *sacoleiros*, refers to buyers, mostly of working class origins, who walk through the maze of market stalls with a huge sack to fill with clothes that they can resell in other open air markets or stores in their cities. I was fascinated to see with my own eyes what the Sulanca market looked like after reading and hearing about it before I finally visited in August 2004.²⁹ People still use huge burlap sacks or similar bags to carry the clothes they purchase over a thousand similar looking stalls and stands offering underwear for \$0.40,

²⁸ See Campello, 1983; Bezerra, 2000; *Diário de Pernambuco Especial Toritama 50 anos*, 2004.

²⁹ See Campello, 1983 and Dohnert, 1998.

skirts for \$2, and jeans for \$5. The Sulanca market frenzy and organized confusion reminded me of a Moroccan medina or Rio's popular market called Feira São Cristovão that sells Northeastern goods, where only the locals or seasoned visitors can easily locate the particular product they want to buy.³⁰ The informal, disorganized nature of the Sulanca market does not reflect the reality of the whole Agreste garment industry, as Sindivest/Sebrae discovered.

Another reason why Sindivest had not paid attention to the Agreste garment industry can be attributed to its lack of administrative capacity, a fact which changed when it received a technical cooperation grant from the German non-profit training organization, Bfz in 1997. Before, Sindivest did not have an office or staff to recruit and work with Agreste firms. Its staff in its Recife office consists of two administrative positions, one financial director and the president. In 1997, it hired one person to do outreach to firms in the Agreste and by 2004, it had expanded to hire three more full-time consultants to work with the three cities in the Agreste garment pole. The increased administrative capacity, funding to create and implement a project focusing on development of the Agreste firms' and its partnership with Pernambuco's Sebrae resulted in the diagnostic study which painted a surprising portrait of the Toritama's garment industry: 2020 of 2190 micro and small firms, about a 92% rate of informality. While the high degree of informality was a known fact, what surprised Sindivest the most was the number of formal firms in Toritama that differ markedly from the traditional view of the Sulanca firms. Eight percent of all the firms (170) cater to a more discerning customer base outside of the informal weekly Sulanca market. These formal firms largely cater to stores in Pernambuco and

³⁰ In a Moroccan medina, one finds different "souqs" or markets for products ranging from pots and pans, spices, ceramics, slippers/shoes, fruits, etc. Rio's open air market Feira São Cristovão, held each Friday and Saturday of every week, consists of hundreds of market stalls selling sweets, delicacies, cachaça or Brazilian sugar cane rum, carne do sol (spiced dried meat, a staple of the Northeast), etc. This market actually has more organization than the Sulanca market since local vendors began working with the Municipality of Rio de Janeiro to organize the market and turn them into formal firms several years ago. It was interesting that one of my interviewees in Santa Cruz do Capibaribe mentioned Rio's famous market's organization as an example of what the Sulanca could be.

other states, selling 60% of their garments produced, outside the Sulanca markets.³¹ In contrast, informal firms sell over 80% of their production in these weekly low-end markets. These new facts are significant because they show that the Sulanca garment industry has two segments (informal and formal) that cater to different markets and more importantly, they show how much potential for growth and development the industry has because it has already tapped into markets outside the Sulanca.³² As the president of the state garment association, Sindivest, told me in an interview, the association had always seen the Agreste garment industry as mostly informal and thus represented little potential. However, the diagnostic study of Agreste firms implemented by Sebrae and conducted by a state university, Federal University of Pernambuco (UFPE) in 2003, Sindivest and Sebrae showed numbers that left them and the rest of the policymakers in Pernambuco and elsewhere astounded.

1.1.3 Toritama: From Hammock to Shoes to Jeans

While Santa Cruz and Caruarú engaged in small-scale garment production, Toritama relied first on hammock production in the 1950's, then leather shoe manufacturing in the 1960's and 1970's. Because of increased globalization that brought other types of shoes to the Northeast and increased preference for plastic and rubber shoes, Toritama's leather shoe industry collapsed.³³ Today only several shoe manufacturers remain in the city. By the 1980', jeans manufacturers had slowly replaced the shoemakers.

Perhaps it was the expansion of the Santa Cruz weekly garment market and the pavement of the federal highway BR-104 that connects Santa Cruz to other cities, or the presence of entrepreneurs, that spurred local residents to bring the first sewing machines from Santa Cruz to

³¹ FADE/UFPE/Sebrae-PE, 2003 report.

³² See Bezerra, 2004 and Lucena, 2005 for more information on how garment firms in Santa Cruz do Capibaribe have reached other markets.

³³ Interview with local actors.

Toritama.³⁴ In 1979, shoemaker Eudinho, or Eudes Florentino da Silva, originally from Caruarú, brought the first overlock machines in Toritama and began manufacturing jeans. In an interview with a state paper last year, Mr. da Silva claimed that he taught 3,000 people to work with jeans.³⁵ Now the garment industry employs around 15,000 (roughly 92% of the economically active population) and a majority of them work in with jeans.³⁶ Toritama started to specialize in jeans production so as not to compete with the other two cities Santa Cruz do Capibaribe and Caruarú, which were already producing knitwear, surf-wear and lingerie. As a local entrepreneur informed me, jeans never go out of fashion and have relatively simple design guidelines, making it a market that has low barriers to entry. Such low barriers to entry allowed the jeans industry to grow considerably throughout the years. Most of the firms, however, began and remained in the informal sector, evading tax, environmental and labor legislation. Stiff competition thus characterized the jeans manufacturing industry. Most of the small firms sold their products in local and regional open-air markets. But some did manage to cater to larger domestic markets in the richer, Southern regions of Brazil.

To compete in other markets and differentiate their products, jeans firms had to upgrade and one significant way to achieve this was through variation in the tones and colors of the jeans, through an intensive laundering process. By the late 1980's early 1990's, local jeans producers began laundry businesses to wash the jeans using strong pollutants, such as chemical products, detergents and fabric softeners, to produce the right shades, tones and fabric 'feel'.³⁷

³⁴ For a discussion on the origins and history of Santa Cruz do Capibaribe's garment industry and the culture of entrepreneurship which spurred its growth, see Bezerra, 2004.

³⁵ *Diario de Pernambuco*, 22 January 2004, "Especial Toritama 50 Anos". Taken from the article, "De calçadista a Rei dos Jeans" ("From Shoemaker to King of Jeans"), p. E14.

³⁶ I took the percentage figure from the FADE/Sebrae-PE report and the economically active population data from IBGE, 2000 which gave me an estimate of 15,000.

³⁷ For more details about the services that laundry firms offer and the process in which a pair goes through before they reach the stores, visit the website of Lavanderia Mamute: www.lavanderiamamute.com.br

1.2 The Laundry Firm Sub-Sector

Around 50 firms exist in Toritama, processing 1.1 million pairs of jeans per month, an incredible number considering the city's lack of water supply.³⁸ Although these 50 firms represent only 2% of the estimated total number of firms, they provide a value-added service to jeans manufacturers by producing varying tones, shades and "fabric feel" of the otherwise standard blue jeans fabric through a highly polluting chemical process using detergents and fabric softeners. The laundry firms process (wash, dye, soften) an estimated 14.4 million pairs of jeans a year, amounting to 7% of annual Brazilian national jeans production of 200 million.³⁹ To wash this staggering number of jeans they consume 81.8 million liters of water (an equivalent of 4 million 20-liter water containers or 21.6 million gallons of water) and release industrial effluents along with dark blue laundry water into the local Capibaribe River.

Most of the firms actually pertain to the small firm category if physical size of firm is the criteria: 93% (52 out of 56) are situated in areas under 1,000 square meters and only 7% (4 out of 56) are located in areas between 1,001-8,000 square meters.⁴⁰ During my fieldwork, I visited a few laundry firms that ranged in size – from a tiny 25 square meter firm located in the basement

³⁸ These figures are estimates from the state environmental agency, CPRH, which conducted a diagnostic assessment of all the laundry firms in Toritama in 2003. The estimated production figure of over a million pieces came from the author's calculation based on entrepreneur data which CPRH collected in the 2003 assessment. While not yet available in public or online, CPRH furnished a copy to the author in Pernambuco in January 2005.

³⁹ I took the estimates from data collected from local laundry firm owners by the state environmental agency, CPRH, in 2003 for Toritama production figures. For the Brazilian national production, I used figures from the Brazilian Textile Industry Association, ABIT, quoted by various magazine articles. Brazil is the second largest producer of jeans in the world, producing 200 million pairs a year. It is second only to the United States, which produces 800 million pairs of jeans a year.

⁴⁰ Although the size of firms can mean many things, I use two variables such as physical size and amount of water used, used by public agencies such as the state environmental agency, CPRH and the public research and technology institute of Pernambuco, ITEP, both part of the Secretary of Science, Technology and the Environment. This makes sense because amount of water used in the laundering process provides a fairly accurate indicator of how many pairs of jeans a laundry firm washes per day. The physical size of each becomes important later in terms of building an effluent treatment plant because in some cases, the firms operate in such cramped quarters as a tiny basement of a house that there was no room for installing any more equipment such as pollution abatement tanks.

of a two-story house a large 8,000 square meter modern laundry facility. Many firms existed behind people's residences and in basements, hidden from public view. The small size of most firms and the limited water supply in the region deceive the naked eye, as well as that of the public agencies who did not know the size of the industry the surveyed firms in 2002. Below is a table with employment, water consumption figures in Toritama:

Table 1: Laundry Firms in Toritama – Employment, Water Use, and Production

Size of Firm	# Firms (% Firms)	% Employment (# workers)	% Total Water Used (liters of water used)	% Production (# Jeans Processed)
<i>Small</i> ≤100,000 liters/day)	31	25% (250)	14% (11.5 million)	19% (228,000)
<i>Medium</i> (100,001- 200,000 liters/day)	6	21% (210)	20% (16.4 million)	31% (115,320)
<i>Large</i> (>200,001 liters/day)	9	54% (540)	60% (49.2 million)	50% (600,000)
Total	46	100% (1000)	100%	100%

Note: Author's calculations, based on CPRH 2003 data and does not include all laundry firms because they could not be reached or visited at the time of CPRH fieldwork. I also checked these estimates with data I gathered about laundry firms from local and state actors – both firms and government workers.

How did these laundries flourish given the adverse circumstances surrounding the water supply in the region? Because Compesa, the state water company, provides limited and intermittent service, these firms resort to alternative ways of obtaining water. They rely on three main water sources: the Capibaribe river, privately dug shallow wells and water trucks. Ninety-three percent of the water used in the laundering process came from water trucks bought from private suppliers from Toritama and other neighboring towns such as Vertentes. In some cases, firms bought the truck themselves and obtained the water from their own private farms located in nearby towns, or sometimes farms as far as 25 kilometers away. During peak season when there was high demand, such as in the months of June-December or when there was drought such as in 1999, water prices peaked from \$10 a truck to about \$30 per truck, increasing the operating costs of laundry firms to as high as 50% of total costs.

As the industry grew in the last few years, the increased water consumption and high water prices became a salient issue, as the owner of one of the largest laundry firms informed me. Even if water prices fluctuated depending on demand, the staggering amount of water used in washing the jeans became an issue especially for large medium and laundry firms – those that consume over 200,000 liters of water per day, an equivalent of at least 20 water trucks per day per laundry firm. The extremely high water consumption and prices paid by these laundry firms made the technology for water recycling a great alternative to buying expensive water from water trucks. As I explain in Chapter 3, the potential for cost-savings for water recycling appealed to the large laundry firms – a great source of support for the public agencies during the Toritama enforcement process.

1.3 The Blue River Problem –Industrial Effluents From Laundry Firms

Most of this water flowed to the river with an added effect, a dark blue coloring due to the highly pollutant detergents used in the jeans laundering process. This dark blue laundry water generates a biological oxygen demand (BOD) level of up to 1,600 milligrams per liter of water, five times the BOD of raw sewage.⁴¹ Another negative externality generated by laundry firms comes from the raw sewage of the firms' lavatories. In comparison, Brazilian federal legislation established by CONAMA Federal Regulation 20/86 allows a maximum BOD level of only 50 milligrams per liter of water.

Along with river pollution from industrial effluents and raw sewage, the laundry firms caused other environmental, occupational health and safety problems. The environmental concerns include air pollution from high temperature furnaces used to generate power for the laundry machines and solid waste from plastic containers in which the detergents and fabric softeners are stored. While the laundry firms have existed since the late 1980's, they never had to

⁴¹ Biological Oxygen Demand or BOD is a measure of the oxygen used by microorganisms to decompose organic waste. If there is a large quantity of organic waste in the water supply, there will also be a lot of bacteria present working to decompose this waste. In this case, the demand for oxygen will be high (due to all the bacteria) so the BOD level will be high.

build effluent treatment plants or buy protective clothing and equipment for their workers, partly because of low environmental awareness, but mostly because the public sector never actively enforced such environmental and occupational health and safety standards in Toritama until 2001.

News about the river's unusual blue coloring reached the Recife office of the state environmental agency, CPRH (Agência Pernambucana do Meio Ambiente e Recursos Hídricos) in 2000 through an anonymous phone call made to CPRH's anonymous complaint phone service. CPRH in Recife assigned one of its inspectors to conduct inspections in the Agreste region and sent him to Toritama to investigate the industrial pollution complaint. He was surprised to discover a place with many laundry firms concentrated in this small city; not one had an environmental license to operate. (See Appendix B). More importantly, all these firms contributed to river pollution through industrial effluents, producing a biological oxygen demand or BOD level of up to 1,600 milligrams per liter of water, five times the BOD of raw sewage.⁴² In comparison, Brazilian federal legislation established by CONAMA allows a maximum BOD level of only 50 milligrams per liter of water. The dark blue coloring of the effluent and the BOD level in Toritama rivaled that of the effluent pollution emitted by a large exporting textile firm in the state's largest port of Suápe, a successful case in which CPRH and the Public Ministry worked together to negotiate with the large firm to adopt a pollution abatement technology. But the Toritama laundry firm case presented other challenges such as the large number of firms, compared to the one large firm in Suápe. Moreover, Recife-based CPRH Director for Environmental Control, Geraldo Miranda, felt that if they closed down the firms in Toritama it would create an economic crisis throughout the entire municipality, as well as neighboring ones. Not only does Toritama employ people from the city but also from neighboring towns. Although the laundry firm sector employed considerably less (roughly 1000 employees or 6% of the

⁴² Biological Oxygen Demand or BOD is a measure of the oxygen used by microorganisms to decompose organic waste. If there is a large quantity of organic waste in the water supply, there will also be a lot of bacteria present working to decompose this waste. In this case, the demand for oxygen will be high (due to all the bacteria) so the BOD level will be high.

economically active population), closing these firms could generate huge economic repercussions to the whole industry because many firms depend on these laundry firms for value-added services such as dyeing, softening, and altering shades and tones of the jeans fabric.

*1.4 Linking Environmental Problems to Human Lives: The Crisis of the Blue River and Black Noses*⁴³

"No one ever complained about the River"
District Attorney of Toritama

While the state environmental agency contemplated the resolution of the blue river crisis in Toritama by calling a meeting with the mayor, a regional Congressman, and the state garment producers' association to try and find an environmentally and economically sustainable solution and found none, the local branch of the Public Ministry pondered the crisis of the black noses generated by the same river-polluting laundry firms. Interestingly, when I talked to the district attorney in Toritama, he informed me that no one ever complained about a blue river to him. In analyzing several official complaints filed by local residents from 2001-2002 at the district attorney's office (these documents are called *Termo de Declaração*), I found similar concerns that residents living next or close to laundry firms raised. The color in question was not blue; it was black. The local residents actually complained of atmospheric pollution: gas emission from the furnaces used by laundry firms, gas leaks, fumes, and black soot. This black soot, residents claimed, stuck to their clothes, furniture, and body and caused respiratory problems for their children. One of the residents testified in a written declaration at the district attorney's office that his seven-year old son has suffered from chronic coughing.

As the district attorney found out when he visited the laundry firms to investigate the complaints in 2002, not only were other people's workers at risk but also the workers in the

⁴³ "Black noses" came from some of the official legal documents I obtained from the local district attorney describing residents complaints. But the more important reason that I used this term was that in one of my visits to the district attorney's office in Toritama, one of the residents mentioned that he and his family still get 'black noses' as a result of the highly polluting laundry furnaces used in the laundering process.

laundry firms who did not wear adequate gear to protect themselves from the chemicals used in the laundry process. In addition, during the time that the district attorney began investigating this case, a furnace exploded and almost killed an operator, prompting the district attorney to call the state labor inspection agency to help resolve this issue. In interviews with the district attorney he emphasized the threat to human life, and the workplace health and safety issues within and near laundry firms moved him to act upon the residents' complaints against these local firms.

In this sleepy town bordering the highway BR-232 that connects Recife to the interior towns of the Agreste, the Toritama-based local district attorney and Recife-based state agency officials found a sleeping giant of an economy as well as an environmental disaster waiting to happen. In this small, unpretentious town that has been historically ignored by the public sector, where both the state environmental agency and the local Public Ministry had never tried enforcing environmental legislation before, one finds a wonderful web of motivated and committed public actors willing to enforce the law, on the one hand, and a key group of firms agreeing to comply.

In the next chapter, I will describe why and how two seemingly disconnected public agencies separated by 130 kilometers of federal highway worked together from 2001 until now to solve the laundry firm problem and eventually improve the quality of life of residents and workers in Toritama.

Below is a timeline of main events outlining the Toritama case from 1999-2005:

1999	- Sindivest, state garment producers' association initiated its project sponsored by a German non profit international cooperation agency, Bfz, to expand its membership and services to the garment industry in the Agreste cities of Caruarú, Toritama and Santa Cruz do Capibaribe
2000	- Lavanderia Mamute began constructing an effluent treatment plant with financial and technical help from the state garment association, Sindivest and the German workforce training and development organization, Bfz. - Anonymous complaint by a local resident about the pollution of the Rio Capibaribe to CPRH
2001	- Inauguration of <i>Parque das Feiras (Commercial Shopping Center in Toritama)</i> - Local complaints about atmospheric pollution and safety concerns caused by laundry firms to the local district attorney from the Public Ministry (the Promotor). District Attorney initiates an <i>Inquérito Civil/Civil Inquiry</i> , legal instruments used by the Public Ministry to document complaints and collect information and data regarding the complaints. <i>The Soft Bureaucratic Way Part I:</i> Meeting called by CDL, a local commercial association, to resolve pollution problem; CPRH present
2002	<i>The Soft Bureaucratic Way Part II:</i> - First inspections of laundry firms conducted by the Public Ministry - Partnership between Public Ministry and CPRH established and resulted in Environmental Awareness Week or <i>Semana do Meio Ambiente</i> organized by public sector in partnership with private actors
2003	<i>The Tough Legal Way Part I:</i> - Inspections by CPRH, summoned by the Public Ministry, resulting in “atuações” of several laundry firms - CPRH conducted a comprehensive diagnostic assessment of all the laundry firms, including the amount of water used, effluents thrown into the river, etc. - Laundry firms begin to form a local association to represent their interests; led by Lavanderia Mamute, one of the largest firms.
2004	<i>The Tough Legal Way Part II:</i> - Public Ministry and CPRH, along with <i>Vigilância Sanitária</i> (occupational health and safety inspection agency) drew up a legal document known as the TAC, or Terms of Conduct Adjustment (<i>Termo de Ajustamento de Conduta</i>) due to low level of compliance with environmental and labor standards by small firms. - The local and state governments (mayor and governor along with the Secretary of Infrastructure and COMPESA, the state water and sanitation agency) signed another TAC to construct a sewage treatment plant. - Inauguration of local firm association, ACIT (<i>Associação Comercial e Industrial de Toritama</i>).
2005	- Ongoing inspections by state agencies - As of April 2005, 10 laundry firms have fully installed the individual pollution abatement technology and others have begun construction - October 2005, deadline for all firms to install a fully functioning pollution reduction system to treat effluents.

Chapter 2: A Tropical Tandem -- The Public Ministry and the State Environmental Agency (CPRH)

When residents complain to public agencies about environmental, labor or other matters, they sometimes get a positive response, resulting in improvements such as the case in Toritama. But these matters do not always get resolved because of public agencies' lack of political will and capacity to solve a given problem. This chapter explores why the Public Ministry and the state environmental agency intervened to successfully enforce environmental conditions in Toritama. By examining the successful relationship between the Public Ministry and CPRH, I explain how the **blue river** and **black noses** problem (water and air pollution, respectively) became intricately intertwined. Both agencies relied on each other: CPRH used the Public Ministry's legal powers of enforcement to pressure the laundry firms to comply and the Public Ministry depended on CPRH for technical, monitoring and implementation support. This strong working relationship to solve the environmental problems in Toritama was partly a by-product of prior patterns of cooperation between the two agencies in enforcing environmental legislation in other places in Pernambuco.

2.1 Linking the Blue River and Black Noses: CPRH's Request for Legal Intervention to the Public Ministry

*"Neither he [the district attorney] nor [we] could solve the problem in Toritama."
CPRH Manager*

One of the main challenges identified in literature on enforcement and implementation of environmental legislation is the political weakness of the typical environmental agency (O'Rourke, 2000; Vyas and Reddy, 1998) and lack of political support needed to enforce legislation. This political weakness stems from an environmental agency's inherent embeddedness in the political system. In most cases, like Pernambuco, this environmental agency belongs to a secretary or department of the state executive branch, making it more vulnerable to political capture by powerful economic interests or politicians opposed to environmental legislation, compared to the Public Ministry. Even if it has succeeded in

pressuring large and economically powerful polluter firms to pollute less in the past through threats and actual firm closure, CPRH did not want to provoke an economic crisis in Toritama, knowing that the jeans industry not only employs and sustains local residents but also residents from neighboring cities and states in the Agreste region.⁴⁴

The state environmental agency alone could not resolve the industrial effluent pollution problem, as described in the previous chapter, because it did not want to close down the firms and cause an economic crisis in Toritama so it sought the Public Ministry's legal intervention. CPRH tried to garner political support from politicians both at the local and regional level (mayor and congressman). As CPRH staff informed me, the "administrative solution" is the first step they take in dealing with environmental cases and this usually involves attempts at meeting with relevant actors such as an industry or business association and local regional politicians to see if they could work together in finding a solution.⁴⁵ But none of the actors they called could nor would want to do anything about the situation. This is not so surprising that the mayor and congressman could not do anything because what was the incentive for them to disturb the local economy? Sindivest, the garment association, could not do much either because it was just beginning to gain local firm membership support in the Agreste garment industry in 2001 (as I discuss in the next chapter). Consequently, Recife-based CPRH sought the help of the State Public Ministry, also located in Recife, regarding the river pollution caused by Toritama's laundry firms in 2001. Interestingly, the Coordinator of State Public Ministry's environmental division, *Centro de Apoio Operacional ao Meio Ambiente* or Center for Operational Assistance for the Environment (CAOP/MA), had already known about the polluting laundry firms in

⁴⁴ For instance, during my visits to several laundry firms, I asked several workers where they came from and some of them told me they were from a neighboring state, Alagoas.

⁴⁵ I obtained this information from various conversations and email communication with CPRH staff from January-May 2005.

Toritama through district attorney reports of local complaints regarding air pollution (black noses) and workplace health and safety issues.

2.2 Why the Public Ministry Intervened in Toritama

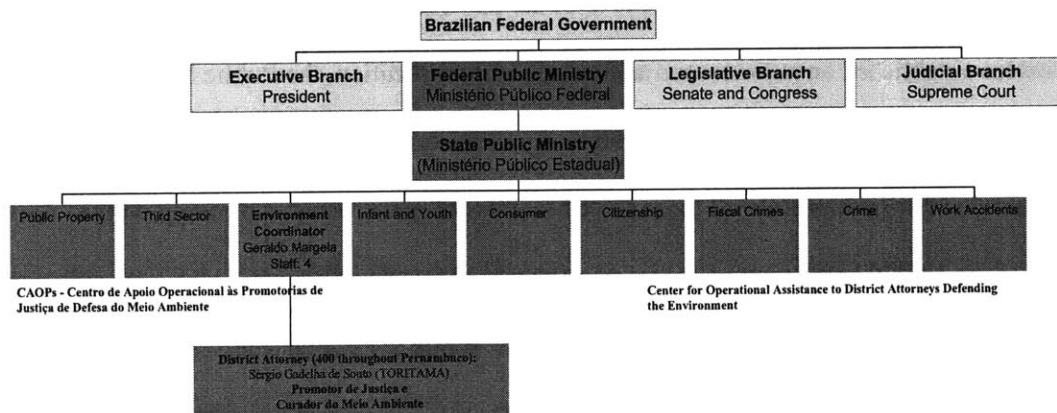
The Public Ministry's active involvement in implementing environmental legislation in Toritama in 2001 can be explained by an alignment of various factors. First, it is a Constitutional mandate for the Public Ministry to defend environmental interests and, as way to carry out this responsibility, the institution exists in all the states and works in all municipalities in Brazil. Second, CPRH's call for legal intervention regarding the Capibaribe River pollution corresponded with the Public Ministry-led new initiative to promote implementation of environmental legislation along the eight major river basins in Pernambuco. Third, the complaints that CPRH had received about the laundry firm effluent pollution matched the grievances received by the Toritama district attorney regarding air pollution and health and safety issues produced by the same laundry firms.

The legal mandate, political autonomy and state and local presence of the Public Ministry help make it an ideal institution to enforce environmental standards. Resolving environmental and social conflicts and defending individual and collective rights became the Public Ministry's core responsibilities after 1988. In an attempt to build a more democratic society after a period of long dictatorship, which spanned from the 1960s until the late 1980s, the creators of the 1988 Brazilian Constitution established an autonomous and independent institution, the Public Ministry, which stood separate from the executive, legislative, and judicial branches. Human rights abuses during the dictatorship period implicate all these three branches of government and prompted the creators of the 1988 Constitution to confer more power to this new 'branch,' whose mission was to defend society's individual and collective interests. While the Public Ministry has existed in Brazil since the 1800s, the main difference between the pre-democratic transition (1964-1988) and the post-dictatorship (1988) period was the expansion in the responsibilities of the Public

Ministry.⁴⁶ For instance, before the late 1980s, the Public Ministry did not have to cater specifically to indigenous populations, the physically challenged, children and youth, or the environment. The new Constitution marked the end of the three-decade dictatorship period and provided building blocks for creating a democratic society with the independent Public Ministry responsible for defending social and collective interests. Such interests include, but are not limited to: constitutional rights of citizens, consumer rights, rights of the disabled, children, youth and the environment.

As part of the Public Ministry's deconcentration and organizational restructuring efforts to better reach the population whose interests it aims to serve and defend, the Public Ministry has a branch in each of the twenty-six Brazilian states and at least one district attorney working for each municipality. It works through its cadre of educated workers called *Promotor* and *Procurador* or district attorney and state attorney. The state-level Public Ministry is further broken down into different divisions. Throughout Brazil, this division is called *Centro de Apoio Operacional* or Center for Operational Assistance (see diagram below).

2.2.1 CAOP's Pro-Active Approach: Project for Implementation of Environmental Legislation in the River Basins of Pernambuco



⁴⁶ While the district attorney position can be traced back to the colonial times in the 1600s, its function mainly involved serving the Crown. For more details, see Macedo, 1995 and De Mio, 2005.

The CAOP/MA's proactive and assertive approach to improving environmental conditions through strategic participatory planning and environmental education workshops with district attorneys throughout the state of Pernambuco demonstrates its desire and commitment to increasing the Public Ministry's knowledge of environmental issues and enhancing its effectiveness to implement environmental legislation. Housed in a small office at the State Public Ministry's building in Recife, along with Centers for Operational Assistance for specific issues such as children and youth, crime, and the environment, the CAOP/MA's main function consists of providing advice, information and guidance to district attorneys. The CAOP/MA boasts of a staff of four people, a seemingly low number considering the work of providing legal advice on environmental issues to approximately 400 district attorneys in 180 municipalities of the state of Pernambuco.⁴⁷ How this tiny department has managed to work on dozens of requests for advice a month on issues ranging from waste management, hospital hygiene and river pollution is beyond the scope of this study. Part of the success may lie in the Coordinator's vast experience prior to coming to the department, which included university professor (biology and physical sciences), international public interest law and as a district attorney in several Pernambuco cities. As a CPRH staff person informed me, aside from CAOP/MA's current coordinator, Geraldo Margela Correia, very few people in the Public Ministry have immense knowledge and experience in working on environmental issues.

Because of the identified need to improve the way it provides advice and support to district attorneys and perhaps because of Mr. Correia's deep knowledge and experience on the environment, the CAOP/MA initiated a pilot program aimed at "enforcing environmental legislation to prevent (specifically, environmental education in the community), recuperate, and

⁴⁷ There is a small division or Coordenação (one district attorney) of CAOP/MA currently being established by the Ministério Público of Pernambuco in the São Francisco River Basin area which consists of around 5 sub-river basins and covers roughly two-thirds of the state and extends to various other states such as Minas Gerais, Bahia, Sergipe, Alagoas, Distrito Federal, and Goiás. Other CAOP's that deal with other issues such as crime, consumer rights, etc have around the same number of employees as CAOP/MA. Personal Email Communication with Dr. Geraldo Margela Correia, May 19, 2005.

repair environmental damages, and adjusting the user population behavior towards a more balanced and correct use of these resources”.⁴⁸ The year 2001 marked the beginning of Project for Implementation of Environmental Legislation in the Capibaribe River Basin CAOP/MA to more effectively enforce environmental legislation by centralizing environmental data and support provided to local level district attorneys.⁴⁹ The Capibaribe River Basin Project, which followed the pilot program implemented by the Public Ministry in partnership with CPRH in the Recife Metropolitan Region’s Jaboatão River Basin, encompasses roughly 8% of the state’s territory and flows through the two largest cities of Pernambuco, Recife (the capital) and Caruarú, making it a very important water resource in the state. As a centerpiece of this initiative, the CAOP/MA sponsored participatory planning workshops in various cities around each of the eight major river basins throughout the state and come up with a strategic action plan for enforcing environmental legislation.⁵⁰ The CAOP/MA also provide environmental training aimed at increasing district attorneys’ awareness and knowledge of environmental matters.⁵¹ These training workshops exposed district attorneys such as the one in Toritama to different environmental issues such as effluent pollution, solid waste, toxic agricultural waste (*‘agrotóxicos’*), etc., and

⁴⁸ I translated this statement from a Project document called “Projeto de Implementação na area ambiental do Rio Capibaribe Pelo Ministério Público Estadual – CAOP/Meio Ambiente”, 2001.

⁴⁹ Other states have done similar things. In the municipality of São Carlos, in the state of São Paulo, the equivalent of the Pernambucan CAOP/MA, the Center for Operational Assistance for Urbanism and the Environment (CAO-UMA), also initiated a similar program to have strategic planning so as to better coordinate actions among and avoid mistakes by district attorneys, which was also the case in Pernambuco. For more details, see De Mío, 2005.

⁵⁰ These workshops happen every few months and involve various actors such as district attorneys, environmental agencies and other public agencies dealing with the environment, civil society groups, mayors and municipal secretaries, and the population. Interview and Electronical Communication with Public Ministry’s CAOP/MA Coordinator Dr. Geraldo Margela Correia, February and May, 2005.

⁵¹ One reason for the need to organize their work better came as a result of errors or mistakes committed by some district attorneys in dealing with certain cases. This was understandable considering the small number of staff at CAOP/MA and the number of district attorneys they serve. So, one of the objectives was to make the district attorneys understand their work related to environmental matters (*“faze-lo compreender o trabalho dele”*) through environmental training workshops. This work includes settling environmental conflicts through an IC and TAC or ACP, if negotiations with firms under TAC prove impossible.

procedures for tackling such complex issues. This proactive stance taken by the CAOP/MA in raising environmental awareness of district attorneys and working with other agencies such as CPRH to create comprehensive plans to improve the environmental situation organized by river basins raised the Toritama case to another level. To the state level agencies, the Public Ministry and CPRH, Toritama was not just an isolated case of pollution among laundry firms in a tiny town in the interior. Toritama was a case of industrial pollution along the important Capibaribe River which could essentially pollute the waters of important neighboring cities.

2.2.2 Local Branch – District Attorney

"I have a very strong institution behind me and a state attorney general who gives me a lot of support."
Promotor Sérgio Gadelha Souto, Toritama

While the state level intervention matters, the decision on when and how to respond to complaints rests with the local attorney. Furthermore, the District Attorney has full discretion in caseload selection. The high priority that both CPRH and the state level Public Ministry placed on the Toritama pollution case surely added an extra push for the district attorney's strong commitment to the laundry firms case. This is true in the neighboring city of Caruarú where, as a result of several Toritama laundry firms moving there to avoid compliance with stringent environmental legislation, the state-level Public Ministry contacted the district attorney and together with CPRH enforced environmental standards among the hundred-odd laundry firms in 2004.⁵²

One can say that it was just performing its role to defend environmental causes and respond to population demands, as stipulated by the 1988 Constitution. The Ministerio Público's presence in Brazilian municipalities takes the form of the District Attorney. He or she, as specified by the 1988 Constitution, must live in the district where he serves. Both the local presence and direct interaction with the public of the District Attorney allow the public to voice

⁵² One of the first meetings with firms happened in August 2004.

their concerns and demand action more intensively than if the District Attorney's office were located in the capital or another city far away from where he/she works. This function of personally attending to individual and collective demands in his office on a daily basis brings the District Attorney closer to the problems and social realities of the place where he works allowing the attorney to act as a true 'ombudsman', especially in places in the interior with sometimes weak and unresponsive local governments.⁵³

Direct contact with the population can help increase accountability as the literature says on bureaucracy and street level workers.⁵⁴ During my fieldwork, I witnessed a long line of people waiting outside the district attorney's office in Toritama to sign an official complaint about the lack of water in the city. However, given that there is only one district attorney attending to the needs of over 21,000 people in Toritama, the demands and concerns of local citizens do not necessarily get immediately translated into action due to competing work priorities. He chose to take on the pollution case partly as a response to the severity of residents' complaints and partly as a way to balance out his more challenging work, one of which involved mismanagement of funds by the local government.⁵⁵

Another reason simply lies on the individual district attorney's own interest and capabilities: the district attorney in Toritama was more interested in and capable of dealing with environmental issues than other district attorneys elsewhere, as some public agency officials told me. One way to address this concern is through environmental training, as the CAOP/MA

⁵³ Macedo, 1995.

⁵⁴ Lipsky, 1980. Though it can help increase accountability, it can also lead to corruption especially because of the Public Ministry's political independence from other branches of government. Cases of power abuse and corruption definitely exist (as in any case) as evidenced by news articles and stories from people in or familiar with the Public Ministry.

⁵⁵ It is interesting to note that when I asked both CPRH and Public Ministry staff as to whether Toritama was more challenging than their other cases, they told me that it was much harder to get the government to comply with a certain legislation, such as building sewage treatment plants, for instance. It seems that in general, these agencies have a much higher success rate in pressuring firms to comply. They did admit that Toritama was hard because of the precarious conditions of many firms (technically and financially).

provided. But ultimately, the local Public Ministry decides, thereby creating a need for more careful selection and job evaluation process.

2.3 Prior Patterns of Cooperation Between CPRH and the Public Ministry's CAOP/MA

*"We receive an average of 30 case requests per month from the Public Ministry."
Gilson Lima, CPRH inspector*

To address district attorneys' lack of capacity to deal with complex issues such as the environment, the attorney can work closely with environmental agencies, such as those in Pernambuco.⁵⁶ The CPRH's Director called the CAOP/MA's office in 2001 to discuss the laundry firms in Toritama; reflecting the history of cooperation between the two agencies. Since the early 1990s, the Public Ministry and CPRH have been working together through a technical cooperation agreement: CPRH provides technical assistance to the Public Ministry, which lacks a cadre of technical staff. According to state environmental agency inspector, Gilson Lima, his agency receives around 30 "*processos*" or requests for action per month exclusively from the Public Ministry. Work requests from the Public Ministry vary from conducting an environmental assessment or diagnostic to collect more information regarding a complaint to a more comprehensive request to reduce effluent pollution generated by a large textile firm. With around 200 employees of which 80 are inspectors⁵⁷, the Recife-based environmental agency seems to do its job quite well, especially when the Public Ministry gets involved. One of the main weaknesses of a typical environmental agency is its weak enforcement powers and lack of political support. While CPRH provides technical assistance to the Public Ministry, the latter strengthens CPRH's work through lending its legal muscle. As both CPRH and the Public

⁵⁶ Environmental agency and Public Ministry staff I interviewed have identified this as a constraint. This finding was corroborated by De Mio's work in the Public Ministry's São Carlos office in São Paulo. De Mio, 2005.

⁵⁷ The level of education and training for inspectors vary, but most have an engineering background. While all have college degrees, some have graduate degrees such as Inspector Gilson Lima who was a key actor in the Toritama case.

Ministry officials informed me, they have a fairly good success rate when they work together in getting firms to comply with environmental legislation.⁵⁸

According to CAOP/MA's Coordinator, CPRH sends his office various requests for legal action by district attorneys either through a negotiated agreement with the firms known as a TAC (Termo de Ajustamento de Conduta) or a judicial sentence. One main reason involves the legal powers of enforcement that CPRH lacks and the Public Ministry possesses. One successful case involving both agencies was the case of a large industry in the textile sector in the port area of Suapé. Its biological oxygenic demand and PTCO (platinum and cobalt effect which produces a very dark blue tone in the effluent) contents were comparable to those in the Toritama case. The Public Ministry's intervention allowed CPRH to work more effectively through negotiations and the signing of a TAC.

2.2.1 Legal Instruments to Elicit Information and Collaboration: The *Inquérito Civil* (Civil Investigation) and the *Termo de Ajustamento de Conduta* (Terms of Conduct Adjustment)

Moreover, the *Inquérito Civil* (IC) or Civil Investigation is an important tool for the District Attorney not only to gather more information regarding complaints, but also, to seek assistance from *any* public organization regarding its work. An *IC* is a legal instrument used exclusively by the Public Ministry, as stated in the Public Civil Action Law (*Lei da Açã`o Civil Publica*) of 1985, to collect and document information necessary to assist the District Attorney to further investigate a case. This is essentially a bureaucratic task that allows the local district attorney to detail the different violations, visit the areas or firms in question, consult with other agencies for technical assistance (such as CPRH), and negotiate what firms need to do based on technically and economically feasible solutions, etc.⁵⁹ In the Toritama case, which also involved

⁵⁸ As one respected Brazilian journalist said, the Public Ministry's legal pressure works quite well even against large, powerful firms. This journalist is a columnist for a prestigious national paper and writes on political, economic and social issues, in general. We had a conversation about the Public Ministry after a talk he gave at MIT on Brazil's current President, Lula Inázio da Silva in April 2005.

⁵⁹ I obtained part of this information from the Public Ministry and also from De Mío, 2005.

workplace health and safety standards, the district attorney found out about the violations in these labor codes through his visits to the laundry firms.⁶⁰

The Public Ministry and CPRH have succeeded in enforcing environmental legislation by using these two legal instruments,⁶¹ the IC and the TAC. According to the Public Ministry's CAOP/MA, 80% of its cases have been solved through the use of a TAC (through negotiations) and the success rate has been "bem bom" or very good.⁶² Similarly, in the interior city of São Carlos in the state of São Paulo, 63% of environmental cases have been resolved through the TAC from 2001-2004, compared to only 3% through a more traditional approach such as a civil action suit or *Ação Civil Pública*. Unlike the TAC which can be described as a consensus building approach to environmental disputes because it involves not only the Public Ministry but also the offender or polluting firm, the civil action suit depends solely on a judge's decision on what the penalty must be. First introduced in Brazilian law in 1990 when Consumer Rights Code brought modifications to the 1985 Law of Public Civil Action (*Lei de Ação Civil Pública*), the TAC is a legally binding contract between the Public Ministry and other parties involved in the dispute.⁶³ Like a civil action suit, the TAC stipulates the terms, obligations and penalties associated with non-compliance. The main difference between the two, however, which can make the TAC more effective is that while a civil action lawsuit relies on a judicial ruling and can take many years to resolve, the TAC relies on a negotiated agreement through dialogue among

⁶⁰ While I consider the workplace health and safety issues as an important part of the Toritama case and even did a few interviews with workers from the Secretary of Health's Sanitary Inspection Agency, Vigilância Sanitária, I did not include them in this paper for time, information and space constraints.

⁶¹ It is important to note that the Civil Inquiry is a tool exclusive to the Public Ministry, but the TAC is not. Other agencies such as environmental agencies and municipalities can draw up the TAC and negotiate with other parties, but the key advantage to the Public Ministry's involvement in the TAC is its legal powers of enforcement which the other agencies do not have.

⁶² Ibid.

⁶³ Personal Email Communication with CAOP/MA Coordinator, May 2005.

different parties involved in a dispute. However, using the TAC requires the polluting firms' collaboration. As the Pernambuco Public Ministry's Coordinator for the Environment informed me, they use the TAC when the polluting firm or offender agrees to sign it. When the offender does not want to negotiate and cooperate, the district attorney then sends the case to a judge in form of a Civil Action Suit, a process that tends to be very lengthy and less successful in enforcing standards. While the Public Ministry and a state environmental agency can resolve industrial pollution cases through a negotiated TAC in 1-2 years, the same problem can take several years. Again, in São Carlos, the oldest civil action lawsuit dates back 14 years while the average number of years for the TAC is less than two.⁶⁴ The degree of informality and precarious conditions facilities in which the firms operated posed a huge challenge to public authorities in Toritama took incredible time and resources for the public agencies to resolve. It took over three years from 2001-2004 starting from the time the district attorney began the Civil Inquiry to the time the last firm signed the TAC because of the quantity and type of firms. Public officials and staff I interviewed often referred to this incredible number of laundry firms (50 out of a total of 2,190 firms in a city of 21,800 people) located in one small city, a fact that they saw unusual given their experience dealing with firms elsewhere in the capital or in other interior regions. As the CPRH inspector, Gilson Lima, told me, the only other case similar to Toritama in quantity and type of firms was the plaster industry in Araripina which CPRH, in partnership with the Public Ministry has been working with for a couple of years now in an attempt to get firms to obtain environmental licenses. The Araripina plaster industry ("*Arranjo Produtivo Local do Gesso*", APL) consists of 312 firms, many of which are small producers, in the arid westernmost region of Pernambuco. The number of firms that were informal (roughly 40% were informal without a license to function) and the precarious installations of the small laundry firms located in lots or behind or next to people's residences, combined with the low level of education, low

⁶⁴ De Mío found that most of the environmental cases in the municipality of São Carlos took a maximum time of 1.5 years. De Mío, 2005. The data for Pernambuco is not available due to capacity constraints, as the CAOP/MA reported to me.

environmental awareness and knowledge of existing legislation, and financial and technical constraints faced by these firms, made the Toritama case a very challenging problem for all the public agencies involved.⁶⁵ These constraints, however, are not so unusual, as identified in the literature on implementation of environmental legislation and studies on firm compliance.⁶⁶ The next chapter addresses how the Public Ministry and CPRH overcame these constraints and in so doing, elicited the support of the laundry firms.

⁶⁵ In some of the Terms of Declaration which outlined residents' complaints, some people signed with a fingerprint, indicating illiteracy. Toritama has over 30% illiteracy rate compared to Brazil's roughly 25% (IBGE, 2000). While I do not have statistical data on the literacy and education levels of laundry firm owners, suffice it to say that many of them only have up to a high school education, based on my interviews with local actors and my own observations.

⁶⁶ For more information, see Dasgupta, 2000; Kennedy, 1999; Tewari and Pillai, 2004; Oliveira, 2000; De Mío, 2005.

Chapter 3: The Private Sector's Buy-In

Introduction

This chapter examines how the Public Ministry and the state environmental agency, CPRH, using a combination of soft and hard tactics, managed to convince Toritama laundry firms to sign TAC agreements and comply with strict environmental standards. I argue that the successful public sector enforcement of strict environmental legislation rested partly on the largest firms supporting the public sector's initiative and as well as the history, experience, and strong administrative capacity of the state environmental agency. For firms and public agencies alike, the answer to the double-edge sword problem (of economic development and environmental degradation) was the availability of water recycling technology that also doubles as an effective effluent treatment.

3.1 Soft and Hard Enforcement Tactics: Incentives and Disincentives to Compliance

3.1.1 Addressing Attitudinal, Technical, and Financial Constraints Faced by Small Firms

The literature on enforcement of environmental legislation among small firms highlights attitudinal (low level of cognizance of and compliance with laws; low environmental awareness), financial (lack of capital or access to banks), and technical (low education level; little knowledge of available technologies) obstacles faced by small firms.⁶⁷ Through visits to laundry firms and conversations with local actors, both the local Public Ministry and CPRH understood the significance of the firms to the local economy as well as the obstacles many of them faced. The large number of firms combined with the public agencies' inexperience dealing with such volume, caused the Public Ministry and CPRH to act with more patience and caution.

To raise the firms' awareness and understanding of environmental issues, the Public Ministry and CPRH organized an Environmental Awareness Week in October 2002. This event

⁶⁷ Dasgupta, 2000.

involved environmental education in the local schools, musicians performing songs about the Capibaribe River and a technology fair which brought several companies that work with effluent and solid waste treatment. This technology fair included workshops, presentations and display booths with demonstration models of water recycling and effluent treatment technology targeted to the needs of local firms. The Public Ministry worked in partnership with local Secretaries (Education, Social Welfare, and Health Departments, for example) to organize the event. CPRH invited outside firms and organizations to show laundry firms the different technologies available for them to adopt. But as both the Public Ministry and CPRH officials informed me, the whole event was a failure because only three laundry firms participated. After a few more failed attempts to convene all the laundry firms, the frustrated Public Ministry and CPRH began to employ a tougher strategy coupled with more soft tactics: inspections and sanctions combined with financial and technical assistance.

This gradual process of enforcement beginning with an awareness phase and then proceeding with an intensive inspection phase contributed to the Public Ministry and CPRH's success in pushing for firm cooperation. By August 2003, CPRH had placed sanctions on ten firms. Through its media contacts in Recife, CPRH also publicized the blue river situation in Toritama resulting important news articles in state newspapers.⁶⁸ As I describe later in this chapter, this sanction strategy intensified by the attention from the state wide newspapers highlighting that 99% of the laundry firms in Toritama help turn the Capibaribe River blue eventually pushed the firms to cooperate and sign a TAC.

However, even though CPRH considered the firms' laundry water and sewage effluents, which flow directly to the Capibaribe River without prior treatment a serious environmental infraction, the environmental agency only gave written violations and warnings instead of levying fines. CPRH chose this course of action since the Public Ministry was already involved in convening all the laundry firms to convince them to comply through signing the TAC. Given that

⁶⁸ See *Folha de Pernambuco* and *Jornal do Commercio*, August 7, 2003.

the firms did not want to comply, and only three firms showed up in the meetings during 2002 and most of 2003, it was noteworthy to have all the firms attend the next meeting after the CPRH inspections and written warnings. According to the CPRH inspector working on the Toritama case, one laundry firm owner even sent a doctor's note for missing the meeting. Aside from the one case, all the other laundry firms were present. The actual threat of firm closure and environmental inspections pushed the firms to begin attending the meetings. The awareness, warnings, and some firm closures were not always enough to compel firms to comply; some firms encountered significant technical and financial obstacles. In these cases, soft tactics and violation warnings provided the Public Ministry an effective method to bargain with the firms. During the meetings, including the one I attended in August 2004, the young, charismatic and outspoken district attorney reminded local firms that the Public Ministry and CPRH had a serious desire to help them and not hurt them. If the public agencies were really working against the firms, then why have not they closed all of them yet? The awareness phase, the numerous attempts to convene all the laundry firms, and lesser-degree violation issued by CPRH, all served as a reminder to firms that perhaps the public sector was indeed on their side.

I argue that the public sector's technical and financial assistance further showed the firms that the Public Ministry and CPRH were serious about helping them. For instance, CPRH requested technical assistance from the Pernambuco Institute of Technology (ITEP) to work with individual firms and customize the water treatment system according to the size and water consumption. A Recife-based public research institution and an affiliate of the Secretary of Science, Technology and the Environment, the state government created ITEP in 1942 to develop and disseminate scientific knowledge and technology relevant to promoting sustainable development in the State of Pernambuco.⁶⁹ Its experience working with firms throughout the state, and partnerships with government-financed technology support initiatives for firms, enabled

⁶⁹ ITEP website: www.itep.br. Interestingly enough, there is an ITEP representative in neighboring Caruarú who connects firms in the region to ITEP engineers from Recife. It mostly works on demand by firms and in partnership with Sebrae.

ITEP to work effectively with local laundry firms in developing low-cost, customized technology. While a modern and highly efficient effluent treatment system can cost around US\$250,000, an inexpensive system can cost as little as US\$3,000. ITEP's main contributions to the Toritama case include the following:

- ❖ Developing and implementing low-cost, low-tech effluent treatment systems using less expensive and locally available materials and technology, such as cement instead of glass and sand filters instead of a biological treatment process that require expensive ingredients such as hydrogen peroxide and ozone.
- ❖ Using one of its partner programs, SebraeTEC to help finance 70% of the cost of the effluent treatment system for the firms working with ITEP⁷⁰

Through CPRH's request, and its business relationship with Sebrae (which has strengthened its presence and services in partnership with Sindivest, the state garment association since 2000), ITEP provided much-needed technical staff to work individually with laundry firms and better customize the various technology solutions needed. ITEP worked with roughly 50% of the firms. ITEP's workload comprised of drawing out the plans for building the effluent treatment plants customized according to a firm's water use and space constraints. The balance of firms either wanted to work with ITEP but was unable due to time and capacity constraints or they sought assistance from a private firm, INASA, because several of ITEP's initial projects did not meet all the guidelines and specifications outlined by CPRH. Not only did the Public Ministry and CPRH provide technical assistance and some financing, but they also brought environmental firms and financial institutions to Toritama. During the meeting I attended in August 2004, several organizations made presentations to a packed room at the *Fórum*, where the old town plaza used to be. Bank of the Northeast (Banco do Nordeste) presented its credit offerings and

⁷⁰ SEBRAE (*Serviço Brasileiro às Empresas*) is federal government agency which extends business support and services to small and microenterprises, through various programs such as SebraeTEC. SebraeTEC (Sebrae Program for Technology Consulting) is one of Sebrae's new programs to help micro and small-sized firms to adopt new technology and increase competitiveness. In 2004, the program served 34,000 micro and small enterprises throughout Brazil. Source: SEBRAE website: www.sebrae.gov.br (last consulted on 04/22/05).

special credit programs to environmentally-friendly firms. An environmental recycling firm made a presentation about how solid waste from plastic containers from laundry chemicals and detergents could be sold back to the suppliers.

3.2 A Strong State Environmental Agency – CPRH's History and Experience

During my field work, I was struck by how modern and effective Pernambuco's state environmental agency, CPRH, seemed because I had expected something more resource-starved and less active. This was because of my prior knowledge of Pernambuco as one of the poorest states in Brazil with very high rates of poverty and unemployment. But my prior judgment had been a mistake. Through extensive conversations with both the Director for Environmental Control, Dr. Geraldo Miranda and Inspector, Gilson Lima and visits to its main office in Recife, I learned about the agency's long history in Pernambuco and its decade-long institutional capacity building project with Germany's International Cooperation Agency, GTZ. While I expected an environmental agency with a weak presence and capacity to enforce legislation, I encountered the opposite.

3.2.1 CPRH's History of Pollution Control in Pernambuco

The state government's tradition of controlling for industrial pollution, and thus CPRH's roots, began in 1946 with the creation of the Permanent Commission for Protection of Water Resource (CPPCA). CPPCA's primary aim comprised of dealing with the water pollution problem caused by the *industria canavieira*, one of the main traditional crops of Pernambuco.⁷¹ By 1967, the agency had changed its name to the State Commission of Environmental Pollution Control (CECPA) and tightened its grip on the pollution generated by the sugar industry. Thus, by the time CPRH was established by the state government in 1976 to replace CECPA, it already had the foundation and experience in tackling industrial pollution. This is important because the creation of an environmental agency as early as 1946 demonstrates the state's long-standing concern for the environment. Even before the federal government implemented the National

⁷¹ CPRH, "*CPRH 24 Anos. Sua vida. Sua historia*", 2001.

Environmental Policy in 1981, and created a national council called CONAMA to establish basic environmental guidelines (such as those used in measuring the pollution level of the laundry firms in Toritama, the BOD or biological oxygen demand), Pernambuco already had its own policies and agency. Another tradition that dates back to the 1980s involves the use of environmental education and awareness when dealing with firms. Focusing on compliance through education and counseling presents a very important break from the traditional approach of forcing adherence through only sanction and coercion. Since the 1980s, CPRH has held events, such as the Environmental Awareness Week, in an attempt to promote more environmentally friendly behavior and attitudes among the local population and firms. Moreover, since the 1980s, it also has promoted the recycling of residues and other waste from the production process in alcohol and sugar.

In looking back at CPRH's history, it is not so surprising that CPRH acted the way it did in Toritama. It adopted a more tutelary role vis-à-vis the local laundry firms, attempting to promote awareness rather than sanction in the beginning. As mentioned in the previous chapter, CPRH helped implement such event in Toritama and Gilson Lima, the inspector assigned to the Toritama case used the agency's contacts and existing projects to produce the event involving artists, competitions at schools and a technology fair. The technology fair's objective was to show local laundering firms the benefits of environmental upgrading through water and solid waste recycling. This is similar to labor inspection in Mexico where inspectors adopt a more "tutelary role".⁷² By contrast, in the United States enforcement of labor standards equates to a policing activity: the labor inspector fines the firm for non-compliance and the firm weighs the costs of compliance against the penalties and fine which they would otherwise receive.⁷³

⁷² Piore, 2004.

⁷³ Ibid.

3.2.2 Capacity Building

Capacity building has been a significant feature of CPRH throughout its history, enabling it to expand its presence and involvement in an increasing number of industries. The agency further built its capacity through a cooperation agreement with the German GTZ from 1995-2002. This project, worth US\$6 million, focused on four areas: 1.) Industrial Control; 2.) Process Optimization of Environmental Licensing and Inspections; 3.) Institutional Development; and 4.) Air Quality Monitoring. This project resulted in a more efficient licensing process, decreasing the steps and bureaucratic requirements needed, and helped to facilitate CPRH environmental licensing work in Toritama. Funding from this international cooperation project enabled CPRH to conduct surveys that informed the program to tackle industrial solid waste issue in the state. The multi-year cooperation agreement with the German government also brought laboratory and monitoring equipment for the inspections and technology teams. The CPRH/GTZ project also included training for its technical staff and inspectors, some of whom have been employed by CPRH for over 20 years, such as Inspector Gilson Lima who was assigned by a CPRH Director Geraldo Miranda to work in Toritama once a week in the last 3 years.⁷⁴

3.3 Private Sector's Collaboration and Compliance: Sindivest and Large "Small" Firms

Although most of the laundry firms refused to even attend any meetings in 2002 and most of 2003, all 50 of them signed the TAC by 2004. As of May 2005, ten of the largest small firms have built an effluent treatment plant, with five more months left before the deadline for firms to

⁷⁴ While the individual actors and their histories and trajectories which led them to the Toritama case are outside the scope of this study, I would like to point out the strong dedication demonstrated by Inspector Gilson Lima in his work in Toritama. Factors that could help explain this strong sense of commitment to the project: 1.) He is a chemical engineering professor and a Ph. D student at the Universidade Federal de Pernambuco who was planning on writing his dissertation on the Suape Textile Firm case and effluent treatment, before becoming involved in Toritama and eventually deciding to focus on the Toritama laundry firms as his dissertation topic, 2.) As part of a 'bargain' he struck with his manager at CPRH, he would work hard to resolve the pollution crisis in Toritama and in return, he could use CPRH's laboratories, technical and financial resources to carry out his dissertation work. As an institution, CPRH has provided these types of perks to its seasoned and experienced employees. Personal Interview and Email Communication with Gilson Lima, February and May, 2005.

have a fully functioning system.⁷⁵ While a 20% compliance rate may seem low, these 10 firms command a 50% market share, washing 642,000 of the total 1.2 million pairs of jeans washed by all the laundry firms. The laundry firms' compliance can be largely explained by exploring the relationship between a "large" laundry firm, Mamute, and the state garment association, Sindivest.

3.3.1 Local Firm backed by the State-Garment Association: Sindivest and Mamute

The cluster and industrial districts literature places emphasis on the role of a trade or business association in providing institution support, such as provision of real services (credit, training, testing facilities, technology transfer, etc.), to enhance industry competitiveness.⁷⁶ Sindivest has started to fill this role since 1997 when it began working in the Agreste region (Caruarú, Toritama, and Santa Cruz do Capibaribe) to implement a project worth US\$ 1.2 million for a total period of seven years and funded by Bfz, a German nonprofit training organization similar to SENAI in Brazil. The project aimed at providing technical and managerial training for business owners, acquiring equipment such as CAD scanners and promoting environmental sustainability.⁷⁷ Bfz's desire to have an environmental-related project triggered Sindivest to look for a firm partner in the Agreste. Sindivest found a willing partner in Mamute, and with Bfz's financial and technical backing, provided the firm with technology for recycling water and reducing effluent pollution from the laundering process. Before 1997, Sindivest did not pay much attention to the region partly because they only had a few member firms and they believed the

⁷⁵ By Brazilian standards as defined by the federal law, Lei Federal 9.841 de 01/10/99 (Estatuto da Micro e Pequena Empresa), a microenterprise has an annual sales of up to \$100,000 and a Small Firm earns between \$100,000-\$490,000 in annual sales. This means that all of the Toritama firms belong to the "Small or Microenterprise Firm Category".

⁷⁶ Nadvi and Schmitz, 1994. For examples of how business associations have helped firms comply with environmental, labor, and/or tax legislation, see Tewari and Pillai, 2004; Criscuolo, 1999; Damiani, 1999.

⁷⁷ Why Bfz began working with Sindivest and in the state of Pernambuco remains unclear to me. Part of the reason perhaps is the fact that one of Bfz's directors used to be a German missionary in Brazil. Sindivest also visited Germany in 1996 to visit industrial districts. This area needs some further investigation.

industry in Toritama was informal.⁷⁸ Thus, one can argue for the importance of international cooperation agreements in promoting local industries (or APLs). The external funding allowed Sindivest to expand its presence and member outreach efforts to the Agreste region and increase its membership from about 40 to 160 in a span of five years, a four-fold increase. While this number may not mean much because of the large number of firms located in the three Agreste garment cities, it is a significant achievement. By the time of my fieldwork, Sindivest already had an office within the Federal Industry Association building in Caruarú and three full-time consultants assigned to the three Sulanca cities, while before 2001 it only existed in Recife.

Sindivest's search for a partner to conduct a pilot implementation project of environmentally-sustainable technology, as desired by its generous German partner, coincided with Mamute's active interest in recycling water to save on operational costs. Mamute's main business challenge was water: It used too much water (approximately 400,000 liters of water per day) in the laundering process and consequently spent a high percentage its operating expense on this very scarce resource in the semi-arid city of Toritama. Mamute now recycles up to 60-80% of the laundry water used, realizing significant cost savings. The technology developed by German scientists and researchers consists of two main types of chemical treatment tanks called the equalization and flocculation tanks.⁷⁹ The equalization tank treats the water from the laundry process using chemicals such as aluminum sulfate (or aluminum chloride or iron sulfate) and calcium, which is ideal for the flocculation process due to its base pH level. The chemical reaction creates a gelatin-like substance called aluminum hydroxide, which then enters the flocculation tank where the sludge settles at the bottom and the clean water stays at the top. Through a decantation process, the chemically treated water at the top goes to another tank made

⁷⁸ For a good discussion on the lack of attention paid by government and business and training support agencies such as Sebrae and Senai in the Agreste region, see Dohnert.

⁷⁹ I thank Celerino and Jefferson at ITEP for explaining the equalization and flocculation tank effluent treatment process to me in 'simple' terms.

of thick sand with rocks at the bottom.⁸⁰ At this point, this treated water can be recycled back into the laundering process and the sludge is discharged to the sewer system. Sindivest's relationship with Mamute developed and matured during the construction of Bfz's water recycling technology and, in 2001, Mamute became part of Sindivest's Board of Directors. The cost savings came at a huge initial risk for Mamute. During my interview with Mamute's owner, Edilson Tavares, he recounted how difficult it was at times to adopt a new technology, especially when no one else thought it would work. It was a gamble. He took the challenge and relied strongly on Sindivest's support and encouragement that the 'experiment' would be a success.

Sindivest also strengthened Mamute's position as a 'leader' firm, or as what Brazilians call "*formador de opinião*" or opinion leader, through the firm's adoption of the new technology provided by the Germans.⁸¹ Young, entrepreneurial and ambitious, Edilson Tavares comes from one of the founding families in the Toritama jeans industry and has been a member of the state garment producers' association, Sindivest, since the mid-1990s. Partly because of his pioneering use of water recycling technology, he became a natural model for the Public Ministry and CPRH to use in trying to convince other laundry firms to do the same. The idea of showing other firms the benefits of the new technology he installed actually originated from the Sindivest/Bfz bargain: They would fund Mamute, but Mamute had to try and convince other firms to do the same. This reminds me of cases in which the public sector provided financial and technical assistance to

⁸⁰ The treated water, although much cleaner and less polluting than before still has a high BOD since the treatment system only takes 60% of the BOD level. While this is still around 400% higher than the Brazilian standards for BOD level, CPRH and the Public Ministry had to consider this acceptable – another example of the flexibility of the two agencies in enforcing environmental legislation.

⁸¹ In my conversations with local and state agencies and associations, they kept telling me that the Agreste region did not have "dynamic" or "leader" firms, but they do have "formadores de opinião" or opinion makers/trendsetters. They are usually the oldest and/or largest modern firms which produce designs and products that the other firms copy (design thieving and reverse engineering) and behavior that others emulate (where to sell products, what equipment to buy). Some firms even bear similar names such as Saka Praia and Saka Onda. The fact that firms tend to copy each others' designs and intense competition characterizes the Agreste garment industry has contributed to the lack of associationalism in the region and sector.

large firms on the condition that they disseminated the knowledge and information to smaller firms, such as the case of the agroindustry in Petrolina Juazeiro, Brazil and the agrobusiness (tomatoes) industry in Chile.⁸² This private sector-led attempt failed because none of the firms actually built a treatment plant until the public sector provided the legal pressure and threats of closure in 2003. Such private sector failure to initiate technology adoption parallels the lessons from European industrial districts in which successful interventions aimed at industry development through provision of real services, such as technology transfers, resulted from public and private sector joint collaboration.⁸³

However, public-private collaboration becomes all the more challenging in the absence of a strong trade or business association to organize and promote the interests of local firms and willingly work with the public sector. Even though Sindivest began paying more attention and supporting more firms in the region at the end of the 1990s, it was still in the process of recruiting more members and establishing relationships with Agreste firms by the time the Toritama environmental upgrading process began in 2001.⁸⁴ As a former Sindivest employee told me, it was very difficult to work with the local firms because of lack of interest in joining an association. During the beginning stages (2001-2003) of the Toritama environmental upgrading process proved to be very challenging especially because the firms did not have an association through which the public sector could work. For instance, in promoting environmental compliance by the state's traditional and powerful sugar industry, CPRH works with various actors such as the sugar industry association, Sindiaçucar. In Toritama, no local industry/firm association existed until local laundry firms, led by Mamute, created ACIT in 2003.

3.3.2 Mamute-led Private Sector Collaboration: The Creation of ACIT (Associação Comercial e Industrial de Toritama)

⁸² See Damiani, 1999; Pérez-Alemán, 1997.

⁸³ Schmidt and Musyck, 1994.

⁸⁴ Personal Interview with Fred Maia, President of Sindivest, August 2004.

One can attribute the local laundry firms' collaboration with the public agencies (attending meetings, signing the TAC and complying with environmental standards as stipulated by the TAC; See Appendix B) to the dedication and commitment of Mamute's owner, Edilson Tavares, who began organizing the laundry firms into a local association, ACIT, in 2003. By December 2004, ACIT celebrated its official founding.⁸⁵ I never really understood the term "formador de opinião" very well in the Agreste context until I saw this young man in his element at a group meeting with the Public Ministry and CPRH along with the rest of the laundry firms. Once the banks and environmental firms presented on credit programs and solid waste management services, Mr. Tavares stood up and told the Public Ministry, CPRH and everyone else in the audience, that part of the problem with the bank credit programs lies with the lack of legal land titles -- an important issue in an unplanned city like Toritama. The laundry firm owners, confused and frustrated, turned to him to listen, ask questions, and figure out an action plan.⁸⁶ Since 2001, Mr. Tavares has devoted much of his time being the spokesman for disseminating Sindivest/Bfz's effluent treatment technology and also for the laundry firms. He became the liaison between the public sector and the polluting firms, as public agency officials informed me. So, how did Mr. Tavares gain other firms' vote of cooperation? Perhaps part of the answer lies in Mr. Tavares's charismatic and passionate nature that he exudes when he talks. That was evident in the meeting I attended and through our conversations and my interviews with other people. He is outspoken, yet has a warm personality. But I argue that what pushed the firms to eventually cooperate can be explained by looking at the industry structure.

⁸⁵ Through his connections with Sindivest/Sebrae, Mr. Tavares was able to obtain administrative support from one of Sebrae's consultants in tasks such as formalizing ACIT into an official association. This shows that institutions such as Sindivest and Sebrae have started to play a role in stimulating the development not just of firms but also of firm associations.

⁸⁶ In May 2005, Mr. Tavares wrote me and said that the new local firm association which he helped create in response to the intensive inspections and firm closures in 2003, ACIT, had received a positive response from one Caixa Econômica Federal, about the possibility of a \$40.8 million loan (or R\$ 100,000,000) to provide financing for firms to install effluent and sewage treatment plants. This shows the agility and effectiveness of having a formal local association, which could not have been established without Mr. Tavares's leadership.

In analyzing the industry structure, one can better understand why Mamute and the rest of the laundry firms began collaborating with the public agencies and complying with environmental legislation. First, Mamute worked with the public sector because it had a fully functioning effluent treatment technology. Second, as one of the largest laundry firms and with his family and relatives owning several jeans firms, Mamute's owner knew that a bad image of Toritama due to the polluted blue could negatively affect their brands. With the media coverage of the Capibaribe River pollution in Toritama, Edilson realized how important it was to make sure that Toritama's public image was positive.⁸⁷ In our conversation, he pointed to the need to create a seal of origin to help promote Toritama's development as a jeans APL regionally, nationally, and internationally, but any bad news about Toritama could trigger huge repercussions for his family's firms. Regarding this negative image of Toritama, he reasoned that he needed to do something positive so that outsiders would view Toritama in a perjorative manner. Like I said before, economic development and growth in Toritama turned out to be a double-edged sword, attracting attention of the state garment association, the German training agency, more publicity and higher possibility of more sales as it became known as the jeans capital. But with this fame and fortune came sensitivity to bad publicity such as a polluted river that happens to be the most famous and important one in the state.

The threats of more bad publicity and more firm closures triggered other firms to follow Mamute's example because these threats after all, could negatively affect profits. Profits drive business to behave in certain ways. A bad image of Toritama could drastically cut profits of large firms that do sell a majority of its products to markets outside the Agreste region and to more demanding markets such as São Paulo. Mamute was not the only one who collaborated with the public sector in the beginning, in 2001-2002. A few other large firms supported his position because they stood to gain the most, financially, from installing a water recycling/effluent treatment technology. According to CPRH and the Public Ministry officials, two other large

⁸⁷ *Folha de Pernambuco*, August 7, 2003.

laundry firms attended the meetings they organized in Toritama. For example, the top 5 laundry firms consume about 40% of the total water consumption among Toritama's laundry firms and process (wash, dye, etc.) around 30% of the total 1.2 million jeans processed per month. In addition, these same laundry firms also have their own jeans manufacturing firms, which produce a large share of the formal sector jeans market. The top 12 jeans firms grab a 62% share of the jeans market.⁸⁸ The firms with the most to gain and the most to lose began to support Mamute and hence, the public sector, by 2003.

In a combination of awareness efforts, inducements, inspections and punishments and with strong support of the private sector, the Public Ministry and CPRH successfully enforced environmental standards in a place that had traditionally evaded such legislation.

⁸⁸ I distinguish between formal and informal jeans production because these producers sell to different segments. For example, informal firms sell 85% of their products in the 3 Sulanca markets while the formal firms sell less than 40% in these low-end open air markets. Data from FADE/Sebrae-PE. 2003.

Chapter 4: Final Considerations

At first glance, Toritama seemed like an unlikely place for the public sector to enforce environmental standards due to its historic lack of attention from public agencies. Until 2001, no public agency had tried to systematically enforce environmental legislation in Toritama. So what triggered the public sector to intervene and enforce existing environmental standards where it had not previously done so and why did it happen in 2001 and not earlier or later? My research revealed a fascinating story of a garment industry that benefited from what the Public Ministry and CPRH were doing in other places and increased attention from the state garment producers' association, Sindivest, which provided key technical and financial support to an enlightened, environmentally aware entrepreneur. Driven by a desire to improve the image of Toritama as a place with higher quality standards, including the environment, which could ultimately boost his bottom line, Mamute's laundry firm owner served as a liaison between the public agencies and laundry firms. During this process of public sector-led enforcement of environmental standards, the public agencies and private actors such as Sindivest/Sebrae, stimulated and supported the creation of a local business association, ACIT, led by Mamute's owner. This study showed the potential success that the Public Ministry can achieve in triggering the enforcement of environmental standards among small firms under the following conditions:

Local Level Public Ministry's Support

The local Public Ministry or the district attorney performs a very important function in the enforcement of environmental standards because he or she essentially decides which cases to prioritize and devote more attention to. In some places, the district attorney may have more interest and capacity to work on environmental issues. As a Public Ministry official confided in me, there are instances wherein the district attorney does not have the aptitude, skills, nor interest to perform his/her role as a defender of individual and collective interests. This could explain

why even if there have been complaints in other places like Santa Cruz do Capibaribe, no real enforcement of environmental legislation has happened. This high degree of discretion of the district attorney in selecting cases, though can be construed as a weak point, also provides a strength: it offers a window of opportunity for change. One way to influence the decision and performance in working on environmental case is through a pro-active and supportive Center for Operational Assistance at the state level.

Pro-active, Supportive State-Level Public Ministry:

A pro-active Center for Operational Assistance can strategically prioritize the important environmental issues in a certain region or river basin, based on local demands via local workshops in which residents, civil society groups, other district attorneys and public agencies participate. Even without this kind of strategic planning, the state level Public Ministry should, at the minimum, provide a mandatory environmental awareness and training course to district attorneys to discuss what other resources these district attorneys have in settling environmental cases. Without this key state actor, the local level Public Ministry can still successfully enforce environmental standards, albeit under more challenging circumstances, because it is usually this state level actor than can perform a ‘coordinating’ role and strengthen the link between district attorneys who work in the interior regions to state resources such as environmental agencies which are usually based in the capital or larger cities.

Strong State Environmental Agency and Technical Support Institutions:

Without the technical support and assistance from an environmental agency and/or technical support institutions, the Public Ministry’s job would be much harder. In the Toritama case, the Public Ministry’s success in getting firms to comply rested largely on the role that CPRH played in providing technical knowledge and experience dealing with firms elsewhere. Effective enforcement also requires flexibility and adaptability, which helped CPRH and the Public Ministry to deal with the large number of firms. First, these public agencies accepted a lower standard of effluent emission because a more efficient technology would have cost 10 times

the price and none of the firms would have invested. The drawback with negotiating with firms comes from having to lower standards and expectations at times. But the advantage of increased compliance usually cancels out this drawback.

The Importance of Business Associations and Business Support Institutions:

In successfully settling environmental cases through the legal document called Terms of Conduct Adjustment or TAC, private sector buy-in plays a pivotal factor because the TAC cannot be signed unless the firms are willing to accept the violations and change their environmentally damaging behavior. In places where there is a strong sectoral or firm association, private sector buy-in might be easier because it can serve as a liaison between the firms and the public agencies. The Toritama case shows that even without an existing local firm association, private buy-in could be obtained through key “leader” firms that could help create a local association.⁸⁹

The challenge is to provide firms with incentives and disincentives to collaborate. In Mamute’s case, it already had the pressure from Sindinvest and Bfz to disseminate the technology. Media attention and fear of bad image hurting profits in the laundry and jeans businesses also factored in Mamute’s cooperative behavior. The Public Ministry/State Environmental agency may need to promote compliance through a combination of disincentives such as contacting the media to create bad publicity for polluting firms and firm closures and incentives such as financial and/or technical support, especially when dealing with small firms with low technological and environmental awareness and financial capacity to comply.

In sum, the aforementioned factors provide a sort of recipe for settling environmental conflicts through the Public Ministry and state environmental agencies all over Brazil. Using legal instruments such as the Civil Inquiry and the TAC, the Public Ministry can bolster a state environmental agency’s enforcement capacity. A state environmental agency can provide the

⁸⁹ This finding contradicts the prevailing development literature which focuses on the importance of civil society to pressure governments to perform well. See Tandler, 1997 for a detailed discussion of how government can help stimulate and strengthen civil society. Also see Damiani, 1999 for the government supported creation of Valexport, a consortium of large and small agricultural producers in the Petrolina-Juazeiro region of the Pernambuco and Bahia states.

necessary technical advice and support to the Public Ministry. But the main challenge rests with the capacity of both agencies to perform their part of this bargain. Some say it takes two to tango. But even a partnership between the Public Ministry and the state environmental agency does not guarantee successful enforcement. Successful enforcement of environmental standards essentially depends on capacities of each of the agencies and their ability to drive firms to negotiate. Now, that's a nice recipe for improving environmental conditions. One can only hope that these public agencies throughout Brazil and in other parts of the world can build enough capacity and experience to replicate the experience in Toritama. It has already begun in neighboring Caruarú, with the Public Ministry and CPRH leading the enforcement initiative. That is great news.

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Appendix A:

LIST OF INTERVIEWEES

Note: Some names have been omitted because of little relevance to the Toritama case discussed in the paper such as the 11 firms interviewed in Caruarú and Santa Cruz do Capibaribe.

Institutional Actors

State-level (Recife)

AD-DIPER - Bruno Maia, Business Manager

CPRH – Gilson Lima Silva, Inspector

CPRH – Dr. Geraldo Miranda, Director for Environmental Control

ITEP – Celerino Silva, Chemical Engineer

ITEP – Jefferson Silva

ITEP - Lenildo

Public Ministry – Dr. Geraldo Margela Correia, Procurador do Meio Ambiente

Secretary of Health, Vigilância Sanitária, Recife

Secretary of Science, Technology and the Environment, Cláudio Marinho, Secretary

Business Association

SINDIVEST-PE - Fred Maia, President

Regional Level

Ministry of Labor, Delegacia Regional do Trabalho, Caruarú – A Labor Inspector

Secretary of Health, Vigilância Sanitária, Caruarú

Municipal Level

Public Ministry - Dr. Sérgio Gadelha Souto, District Attorney

Secretary of Economic Development, Caruarú

Secretary of Industry and Commerce, Toritama

Secretary of Education, Toritama

Secretary of Industry and Commerce, Santa Cruz do Capibaribe

Business Associations

ACIT Toritama – Edilson Tavares

CDL Toritama – José Hibernon, President

ASCAP, Santa Cruz do Capibaribe, Fátima

CDL Santa Cruz do Capibaribe (Câmara de Dirigentes Lojistas) – Hideraldo Abrantes, President

Business Support and Training Organizations:

SEBRAE Caruarú, Mário Cesar

SENAI Caruarú, Edilson, Director

SENAI Caruarú, Antônio Melo, Instructor

SENAI Caruarú, Mozart, Business Specialist and Former Sindivest Employee

Independent Garment Industry Consultant, Santa Cruz do Capibaribe

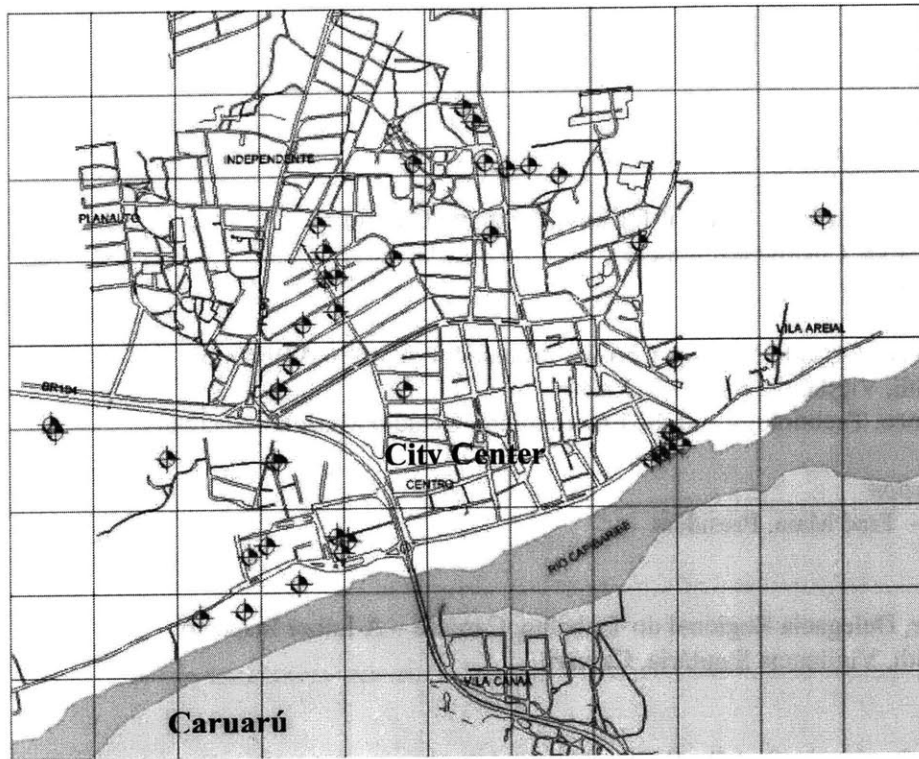
Firms

Lavanderia Mamute – Edilson Tavares

Appendix B

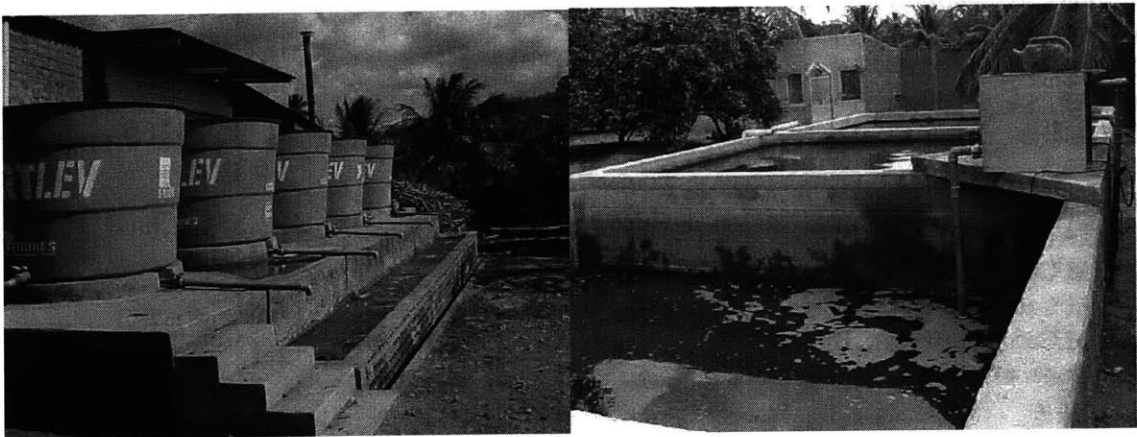
Location of Laundry Firms on Map of Toritama

Source: CPRH

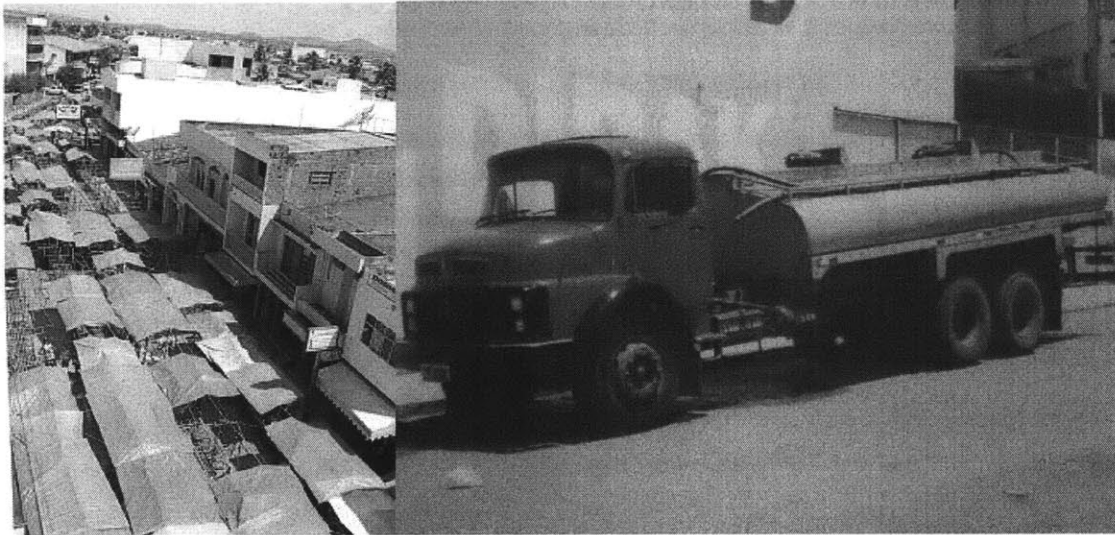


Mamute's Water Recycling and Effluent Treatment System

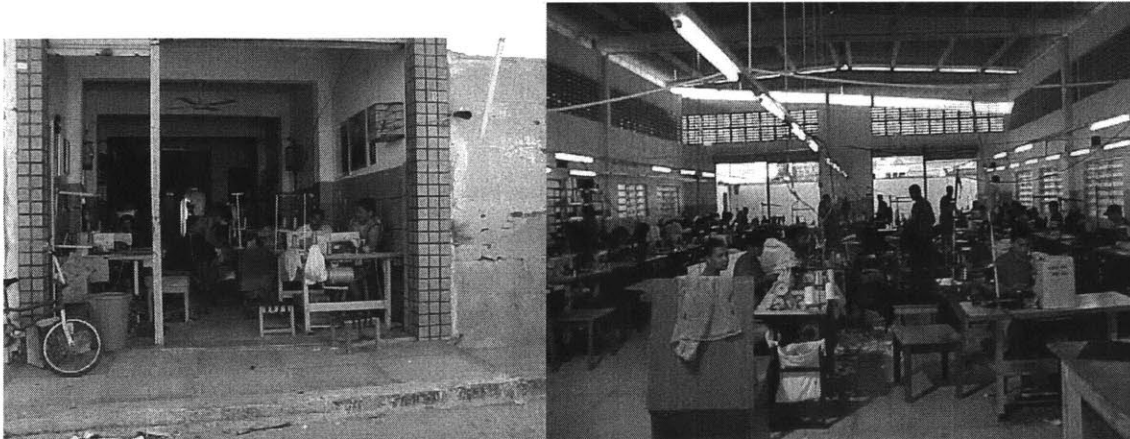
(Photo: Sindivest)



The Old Sulanca Market in Toritama (left) and A Water Truck (right)
(Photo on left obtained from online source; Photo on right taken by Author)



A Typical home-based Small Firm and A “Medium-sized” firm in Toritama
Photo: Sindivest



A Sample of Official Complaints from Residents

Source: the Ministério Público in Toritama



**MINISTÉRIO PÚBLICO DO ESTADO DE PERNAMBUCO
PROMOTORIA DE JUSTIÇA DA COMARCA DE TORITAMA**

TERMO DE DECLARAÇÃO

Aos sete dias do mês de outubro de 2002, pelas 14:30 horas, na sala da Promotoria de Justiça desta Comarca, perante o Dr. Promotor de Justiça **SÉRGIO GADELHA SOUTO**, e pelo Secretário Escrevente do Ministério Público Sr.

Toritama – PE, e declararam o seguinte:

Que na rua em que moram funcionam 3 (três) lavanderias de propriedade dos
que
estas lavanderias trabalham 24 (vinte e quatro) horas, todos os dias da semana;
que há um grade fluxo de caminhões pipa, de gás, de lenha e de produtos químicos
para abastecimento das lavanderias, causando danos as calçadas, às tubulações e
provocando muito barulho, inclusive à noite; que todo o maquinário faz muito
barulho, principalmente o secador e as caldeiras; que as referidas lavanderias
expelem muita fumaça das caldeiras, junto com muita fuligem, se impregnando nos
móveis e nas roupas; que nestas lavanderias se usam produtos como: Peróxido,
Permaganato de Potássio, Metabissulfito, Aditivo, Ácido, Cloro entre outros; que
estes produtos causam problemas respiratórios, irritação nos olhos, na garganta e
na pele; que foi instala vizinho da casa da 2 (duas) caldeiras
que esquentam a parede e todo o ambiente onde funciona a confecção da
declarante; que a confecção da declarante produzia 2.000 (duas mil) a 3.000 (três
mil) peças de roupa por semana; que devido a este calor a declarante
perdeu umas 15 (quinze) costureiras, e por conta disso a produção caiu
para 300 (trezentas) a 400 (quatrocentas) peças por semana; que a declarante
Ivonete tem problemas para dormir, pois vive com constante medo de uma
explosão; que a declarante dorme com a porta aberta pronta para correr
em caso de explosão; que as caldeiras correm o constante risco de explodirem, e
os moradores se sentem como dormindo com uma bomba; que constantemente os

Sample of a TAC signed by Toritama Laundry firms

Source: Ministério Público de Pernambuco

TERMO DE COMPROMISSO DE AJUSTAMENTO DE CONDUTA

Inquérito Civil nº 004/2001

Aos 07(sete) dias do mês de outubro do ano de 2003, na sala da PJ de defesa do meio ambiente da comarca de Toritama PE, ai sendo , presentes se encontravam o Dr. Sergio Gadelha Souto Promotor de Justiça e Curador do Meio ambiente, denominado compromitente, o (a) senhor(a) XX, situada na rua Antonio soares, 347, Toritama –PE , denominada doravante COMPROMISSARIA, onde ficarem certas e ajustadas as seguintes clausulas e condições:

CLAUSULA PRIMEIRA – O presente Termo de Ajustamento de Conduta tem por objetivo o compromisso da lavanderia indicada XX, proceder a medidas em atenção a condições expressas, com vistas a despoluição do Rio Capibaribe, a regularização da segurança no ambiente de trabalho e melhoria nas condições laborativas dos empregados.

CLAUSULA SEGUNDA – A COMPROMISSARIA reconhece que sua empresa vem causando danos ambientais e fica obrigada a adotar medidas especificas com objetivo de eliminar e corrigir a degradação ambiental verificada, devendo:

- a) no prazo de 90(noventa) dias , apresentar Projeto de Tratamento de Efluentes Líquidos Industriais, cuja implantação devera ser concluída no prazo máximo de 12(doze)meses, apos a aprovação do respectivo projeto;
- b) no prazo de 90(noventa) dias, apresentar Projeto de Controle de Poluição atmosférica, cuja implantação devera ser concluída no prazo máximo de 12(doze)meses, apos a aprovação do respectivo projeto;
- c) no prazo de 120(cento e vinte) dias, apresentar Projeto de Tratamento e destino final dos Efluentes Sanitários, cuja implantação devera ser concluída no prazo máximo de 12(doze)meses, apos a aprovação do respectivo projeto;
- d) no prazo de 90(noventa) dias, apresentar Plano de Gerenciamento de Resíduos Sólidos, , cuja implantação devera ser concluída no prazo máximo de 90(noventa)dias, apos a aprovação do aludido projeto;

CLAUSULA TERCEIRA – Fica a COMPROMISSARIA abrigada a providenciar, no prazo de 20(vinte) dias, a aquisição, fornecimento e a exigência do uso do Equipamento de Proteção Individual – EPI : protetor auditivo contra ruídos, calçados, luvas e avental, não permitindo ainda o uso de sandálias/ similares no ambiente de trabalho.

CLAUSULA QUARTA – Fica a COMPROMISSARIA obrigada a providenciar, no prazo de 45(quarenta e cinco) dias a proteção (enclausuramento) para as correias e polias das maquinas.

CLAUSULA QUINTA - – Fica a COMPROMISSARIA obrigada a providenciar, no prazo de 20(vinte)dias, revisão nas instalações elétricas e aterramentos elétricos para as maquinas.

CLAUSULA SEXTA - – Fica a COMPROMISSARIA obrigada a providenciar, no prazo de 10(dez) dias, a desobstruir as áreas dos extintores de incêndio.

CLAUSULA SETIMA – Fica a COMPROMISSARIA obrigada a apresentar a ART(Anotação de Responsabilidade Técnica), a inspeção da caldeira dentro do prazo de validade e o Atestado de Regularização do corpo de Bombeiro, e só permitir que trabalhadores habilitados operem em caldeiras.

CLAUSULA OITAVA – A COMPROMISSADA se obriga a enviar ao Ministério Público e a CPRH, após a aprovação do projeto a que se refere a CLAUSULA PRIMEIRA, a cada três meses, um relatório do andamento das obras de instalações do cronograma de pós-tratamento de efluentes.

CLAUSULA NONA - O não cumprimento pela COMPROMISSARIA dos prazos e obrigações constantes das clausulas do presente Termo de Ajustamento de Conduta acarretara contra a mesma multa diária de R\$ 3000,00(três mil reais), e a interdição do estabelecimento, independentemente das demais sanções pertinentes.

PARAGRAFO PRIMEIRO: A proibição de funcionamento da COMPROMISSARIA perdurara pelo tempo que a mesma permanecer inadimplente com as obrigações acordadas. A multa referida na clausula anterior será revertida para o Fundo Estadual do Meio Ambiente.

CLAUSULA DECIMA – O COMPROMITENTE, requisitara à CPRH, Vigilância Sanitária/SES, Corpo de Bombeiro e a DRT, inspeções/vistorias, objetivando verificar se as obrigações e os prazos constantes das clausulas acima foram cumpridos.

CLAUSULA DECIMA PRIMEIRA – O Ministério Público do Estado de Pernambuco fará publicar em espaço próprio do Diário Oficial do Estado o presente Termo de Compromisso.

Estando assim, certos e ajustados, constitui-se o presente Termo em titulo executivo extrajudicial, que vai assinado pelas partes.

Toritama, 07 de Outubro de 2003.