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Narrating Memories: Discourses of Development and the Environment in a Puerto Rican Coastal Region

RICARDO PÉREZ

ABSTRACT

This essay analyzes the construction of discourses on development and the environment in three communities in south Puerto Rico. It is based on research among rural workers whose lives and working trajectories were altered by industrial development along the coasts. Three outcomes of industrialization are 1) the diversification of productive activities; 2) an increase in commercial activities and internal migration; and 3) the transformation of the coastal landscapes. I argue that the discourses on development and the environment are similar and the few differences depend on the extent that local residents have benefited from industrialization in proximity to their communities. [Key words: development, modernization, industrialization, memory, environment]

Introduction

Pointing to the tall industrial chimneys and the great number of oil storage tanks dominating the horizon across Guayanilla Bay from where we were standing in El Faro, Rullán, a local worker, told me, with exasperated clarity:

Once [the petrochemicals and oil refineries] finished with the tax exemption period [granted by the government of Puerto Rico], many abandoned the region. You can see all [the chimneys and tanks]; it proves that [the industries] left; they took the money they made and left [all the rubble] there.¹

Looked at from a distance, the huge petrochemical and oil refining complex seemed like a painful remainder of the broken promises that the residents of El Faro, Playa de Guayanilla, and Encarnación—three small coastal communities in proximity to the industrial wasteland—had of improving their lives. Between 1996 and 1997, I conducted ethnographic research in the municipalities of Guayanilla and Peñuelas in order to study the transformation of the rural economy through the implementation of various economic development programs put in place by the Puerto Rican government since the 1950s (see Pérez 2000). Playa de Guayanilla and El Faro are located in Guayanilla, and Encarnación is located in Peñuelas.

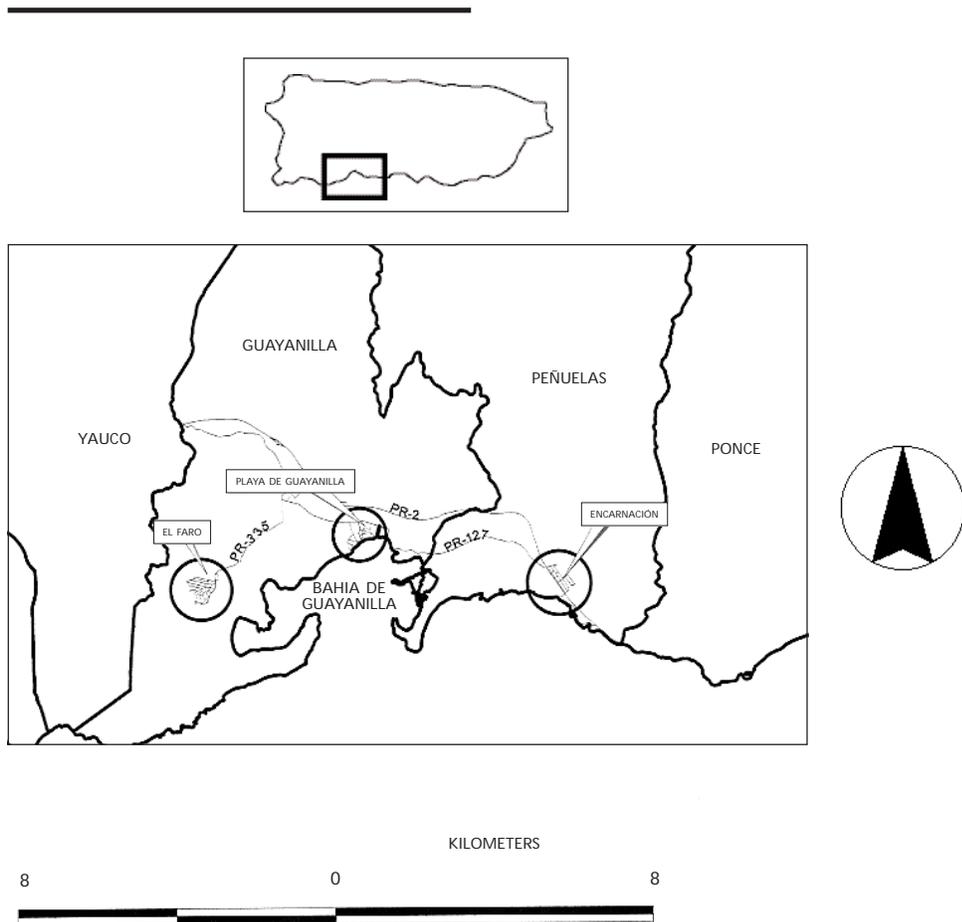


FIGURE 1. *The area of ethnographic research*

The three communities were founded by families who migrated from the highlands of these municipalities during the early 1930s in order to find jobs in the sugarcane fields of the region, a pattern that seemed to be common in other areas along the south coast (see Mintz 1956:321-323). When sugarcane production declined in the late 1960s, many rural migrants obtained work in factories located in close proximity to their communities.

While I lived in the region, Playa de Guayanilla had 1,262 inhabitants, 86 families lived in El Faro, and Encarnación had 1,154 inhabitants.² Because my research focused mainly on the modernization of the small-scale fishing economy, I interviewed more people in Playa de Guayanilla, the community with the highest numbers of commercial fishermen in the region, than in El Faro and Encarnación. Playa de Guayanilla is one of the poorest districts in the region; until last year it was under the jurisdiction of INSEC (or *Instituto de Servicios Comunales*), the Puerto Rican government's agency for community, economic, and social development. In the late 1960s, Blay (1972) found that it lacked the amenities of other coastal communities in southwest Puerto Rico with comparable population; and in the late 1970s, it was described as an isolated community that resembled a slum rather than a "traditional fishing community" (see Lucca Irizarry 1981:127). The efforts of the Puerto Rican and United States governments to improve the well-being of the local residents have not yet altered the conditions of rural poverty. And local residents still complain about the bureaucratic obstacles that they confront in order to receive the necessary financial and institutional support.

In interviews I conducted with local residents in the three communities, the impact of industrial development was a salient topic of conversation. Many local residents talked to me about their dreams of having higher salaries, better working conditions, and improved infrastructures in their communities. As I discuss below, for the rural workers who had the opportunity to work in the industrial complex from the 1950s to the 1970s, industrialization has impacted significantly on their lives and working trajectories. But industrialization has also had significant influence on the transformation of the coastal landscapes. It is indeed at the level of memory—how the local residents remember the transformations of the rural economy and the coastal landscapes, and how they narrate their perceptions of development in the region—that the discourses on development and the environment show their most compelling significance. The ways the local residents tell their memories become strategies that they use in order to construct and imagine histories, lives, and work experiences that differ from one another.

Memory has recently become an important topic of debate in cultural history. Some researchers have analyzed the impacts of certain historical events, like the Jewish Holocaust and the military regimes in South America during the 1970s and 1980s, on constructions of national culture (see Crane 1997, James 1997). But these researchers tend to focus on the way national governments commemorate such events, mainly by building monuments and memorials. In contrast, here I deal with the fragmented personal memories that local residents in Playa de Guayanilla, El Faro, and Encarnación conveyed through their remembrances of economic development in the region. John and Jean Comaroff (1992) have suggested that history and anthropology are inextricably linked to the production of ethnographic representations. During my field research, I realized how anthropological knowledge is incomplete if it relies solely on partial fragments of memory. It was necessary to relate those fragments of memories collected in the field to broader historical and

cultural events in Puerto Rico from the 1950s to the present. Like a fishing net that captures only certain species while allowing others to escape, memories were prone to subtle manipulations that local residents used in order to narrate rather similar experiences in a variety of ways.

The use of personal memories helped me understand the socioeconomic changes and transformations of the coastal landscapes in south Puerto Rico. In what follows, I analyze the transformations of the rural economy and the coastal landscapes as a result of industrial development since the mid-1950s. The creation of a huge petrochemical and industrial complex in proximity to the three communities has had the most devastating effects. I first describe the region where I conducted ethnographic research highlighting the history, geographic location, and conditions of the rural economy. I then present a historical background of industrial development and analyze the main outcomes of industrialization. Finally, I analyze a set of interviews with local residents that show the contested nature of personal memories and discourses as they relate to the interviewees' perceptions of economic development. The analysis of the multiple discourses on development and the environment compares Rullán's perceptions with those of two other interviewees, one from Playa de Guayanilla and another from Encarnación. I will argue that the differences in discourses and perceptions are few and depend on the extent to which local residents have benefited from industrialization.

Mapping the region: Nature, history and the dynamics of economic development

The region under study is located about 15 kilometers west of Ponce, Puerto Rico's second largest city, and is characterized by low levels of rainfall and the predominance of arid soils. It extends upward from the Caribbean Sea to the *Cordillera Central*, the mountainous range that runs continuously from the eastern to the western part of the island, and thus includes coastal valleys, semiarid hills, and forested highlands. These geographic and climatic features allow for the cultivation of sugarcane, coffee, tobacco, and fruits, as well as livestock and cattle raising, as the major economic pursuits. Two small bays, Guayanilla Bay and Tallaboa Bay, define the main features of the coastal landscapes. Guayanilla Bay is the largest one and covers eight kilometers²; it is protected from storms by *Punta Verraco* and *Punta Guayanilla*, two protruding land masses covered with wetlands, mangroves, and xerophitic vegetation. Also along the coast there are subtropical dry forests, which extend into the municipality of Guánica in the southwest coast of Puerto Rico. A few miles from the coast there are various islets and sandy cays, such as *Cayo Mata*, *Cayo Caribe*, *Cayo Palomas* and *Cayo María Langa*, that harbor abundant sea grapes, red mangroves, and *emajaguilla* (*Thespesia populnea*), and comprise some of the best fishing grounds in the inshore areas. The shallow waters of the insular platform are also rich in coral reefs that nurture a diversity of marine plants and animals and constitute natural breakwaters to protect coasts from erosion. Also in the shallow waters there are extensive areas of sea grass that provide a natural habitat for the reproduction of various fish species with commercial value for local fishermen.

Sugarcane cultivation has been the most productive economic activity in the region. Especially from the 1930s to the late 1960s, the sugar economy dominated agricultural production and two sugar mills, *Hacienda Rufina* and *Hacienda San Francisco*, were among the largest producers of sugarcane in Puerto Rico (see Gayer, Homan and James 1938:80). Both sugar mills provided employment opportunities

to local residents in the various stages of sugar production. In fact, the original settlement of El Faro was a community of rural laborers employed by the owners of *Hacienda Rufina*. They also owned and operated a dock in Playa de Guayanilla, from which they exported refined sugar to national and international markets. In other words, the region has been incorporated into Puerto Rico's political and economic system for a long time and has struggled along with the island to keep pace with global trends favoring capitalist development and modernization.

In 1996-97, agriculture provided some rural workers with seasonal jobs. For instance, Tropical Fruit, an Israeli-owned corporation, owns 1,232 *cuerdas*³ in Barrio Boca, a few miles west of El Faro, which are cultivated with bananas and mangoes for export to international markets. The United States Environmental Protection Agency (EPA) has sued the company and demanded the elimination of all pesticides used to grow bananas and mangoes.⁴ Some local residents work in agricultural fields north of El Faro, cultivating vegetables and fruits to distribute in local markets. Limited employment opportunities are available in various government offices and small stores in the municipal towns, but the few industries that operate in areas close to Playa de Guayanilla, El Faro, and Encarnación do not provide enough employment opportunities to local residents. They are able to obtain work primarily in low-paying, semiskilled or unskilled positions. Since industrial development during the last two decades has slowed down, local residents have limited opportunities to find employment in the nearby industrial complex. As a result, it is estimated that Guayanilla's unemployment rate is 16% while Peñuelas' is 24.6%.⁵

There are few field studies about the region prior to the start of industrialization in the mid-1950s. The earliest field reports that I was able to read dated from the 1970s and were based on research that focused on the consequences of industrial pollution for marine and aquatic resources along Guayanilla Bay and Tallaboa Bay (see Chartock 1980; López 1979). These early investigations were limited to evaluating "the effects of heated water on organisms from the vicinity of a steam-generating plant" (López 1979:92). As noted elsewhere,

[Guayanilla Bay] is polluted primarily by energy-related effluents and has offered, and will offer, a unique field laboratory to assess the dynamics of bioavailability, uptake and transport of toxic (acute and chronic) contaminants through tropical marine ecosystems (González 1979:90-91).

A striking feature has been the absence of studies that examine the extent to which industrial development has altered the coastal landscapes. Various economic development processes have accelerated the region's incorporation into the world economy since the 1950s, and the coastal landscapes now show the all too-familiar outcomes of industrialization and de-industrialization noted in coastal areas far away from Puerto Rico.⁶ The most recent case of the region's incorporation into global capitalist markets occurred during my stay in the three communities that I discuss here.

In 1997, Eco-Eléctrica, a natural gas power plant, was being built only a few miles to the north of Playa de Guayanilla. It is a subsidiary of Kenetech-Enron Corporation, whose representatives have signed a contract with Puerto Rico's Electric Power Authority to produce 507 megawatts of electricity daily. According

to a recent newspaper article, this represents between 15% and 17% of the energy produced in the island.⁷ Only six months after Eco-Eléctrica started full operations, in December 2001, Enron filed for bankruptcy. Prior to that announcement, Mirant—another energy company with headquarters in Atlanta—had offered to buy all of Enron’s stock shares and promised to expand operations in southern Puerto Rico.⁸ But when Enron made public its bankruptcy, Mirant retired its offer, a move that has been questioned by Enron’s officials. In Puerto Rico, Enron’s collapse has not received widespread publicity, as has been the case in the United States. The full consequences of Enron’s collapse are yet undetermined; however, spokespersons for Eco-Eléctrica have confirmed that Enron’s bankruptcy will not affect in any way Eco-Eléctrica’s agreement with Puerto Rico’s Electric Power Authority to supply a share of the electric power needed in the island.⁹

As I will explain in the next section, the region’s coastal landscapes have been rapidly transformed since the mid-1950s by heavy industrialization in areas near the coast, which nowadays is dotted with rusted chimneys and abandoned oil storage tanks that are remnants of an aborted development strategy based on the construction of petrochemical plants and oil refineries. I argue that by diverting the study of industrial development from the sociopolitical framework of modernization and cultural change in Puerto Rico, the investigations of the early 1970s have also failed to evaluate the ideologies driving industrial development.

Industrialization and the transformation of the coastal landscapes

In *Landscape and Memory*, Simon Schama (1995: 61) has reminded us that

landscapes are culture before they are nature; constructs of the imagination projected onto wood and water and rock... But it should also be acknowledged that once a certain idea of landscape, a myth, a vision, establishes itself in an actual place, it has a peculiar way of muddling categories, of making metaphor more real than their referents; of becoming, in fact, part of the scenery.

Nowhere is this statement more evident than along Puerto Rico’s southern coast. The coast’s proximity to Venezuela, which lies 525 miles away and is an oil-producing country, was taken into consideration to select Guayanilla Bay and Tallaboa Bay as sites for the location of a petrochemical industrial complex on the southern coast of the island. The Commonwealth Oil Refining Company (CORCO) was the first major industry established there, and it attracted other industrial developments, such as electricity production and ship building. For example, in 1958 the South Puerto Rico Towing and Boat Service, Inc. started operations, and a few years later, it constructed a small shipyard (*Astillero del Sur, Inc.*), where the first maritime tug boat to operate in Puerto Rico was built. Tug boats were necessary to industrial development in the region as they guided bigger ships entering Guayanilla Bay to refine crude oil in CORCO plants. On April 12, 1958, Costa Sur Electric Power Plant initiated operations with two power-generating units; by 1983 energy demands in Puerto Rico had greatly increased and the plant was expanded in order to include six additional units (Sievens Irizarry 1983:45). Industrial development was based on the creation of a huge petrochemical and oil-refining complex and subsidiary industries to sustain large-scale industrial production in nearby areas. The Costa Sur Electric Power Plant supplies electricity to the industrial complex as well as to the majority of

municipalities on the south and west coasts of the island.

The promotion of such heavy industries was the backbone of the capital importation/export-processing (CI/EP) strategy that Emilio Pantojas García (1990:101-142) has identified as the second stage of industrial development in Puerto Rico¹⁰ (see also Baver 1993:47-69; Dietz 1986:252-255; Maldonado 1997:155-159). The expansion of the petrochemicals and oil refineries complex benefited from “the allocation to Puerto Rico of special oil imports quotas between 1965-1973” (Pantojas García 1990:106). Presidential Proclamation 3663 of December 10, 1965, legitimated the legal framework of oil importation in Puerto Rico by amending Presidential Proclamation 3279 of 1959 and changing the limitations to oil imports. Presidential Proclamation 3279 imposed limitations on oil imports from foreign countries and was at odds with further plans to develop a petrochemical complex on the island (see Pantojas García 1990). Without the amendment of Presidential Proclamation 3279 the expansion of the oil industry (two oil refineries were operating in the island since 1955) would have been halted. Presidential Proclamation 3663 thus provided the key incentive for developing a petrochemical industry in Puerto Rico by allowing the United States Secretary of Interior to assign special oil quotas in order to stimulate the island’s economic development.

The petrochemical industrial complex had benefited from the concession of special oil import quotas in 1965 and 1968, and for this reason the majority of petrochemical plants and oil refineries gained privileged access to cheap Venezuelan and Middle Eastern oil. According to Pantojas García (1990:110-111), in 1969 a United States corporation operating in Puerto Rico paid \$2.25 for a barrel of Venezuelan oil while producers in the United States were forced by the quota to buy oil at \$3.50 per barrel. In order to eschew the possibility that higher oil import quotas were applied to Puerto Rico, lobbyists and legislators travelled to Washington, D.C., and gained support to amend Presidential Proclamation 3279. The United States Congress approved Presidential Proclamation 3663 in 1965 and allowed the island to continue importing oil at cheaper rates than oil importers in the United States mainland. However, the United States government did not envision the collapse of oil prices, and it did little to avoid the Organization of Petroleum Exporting Countries (OPEC) from calling an oil embargo in 1973.

Industrial development along Guayanilla Bay and Tallaboa Bay was so rapid and successful that in 1977 27 out of 51 petrochemical plants established in the island “were operated by CORCO and Union Carbide. Both these companies had been ranked among the 500 largest companies in the United States by Fortune Magazine” (Pantojas García 1990:114). CORCO provided a larger share of government revenues and employment than any other industrial plant operating at the time in Puerto Rico. For example, in 1978 it supplied 80% of the petroleum products consumed in the island and served as Puerto Rico’s largest employer, with a labor force numbering approximately 2,700 workers. CORCO was not only the biggest and most important industrial employer on the island but was also considered among the “largest independent petroleum refiners and petrochemical producers in the world” (Baver 1993:58-59). By 1978, “nine petrochemical plants were operating in the complex as CORCO subsidiaries or joint ventures, representing a total investment of more than \$545 million” (see Baver 1993:58-59).

Industrial development along Guayanilla Bay and Tallaboa Bay continued unabated until the early 1980s, when the economic crisis produced by high prices for imported oil forced many industries to shut down. The sudden collapse of oil refining and petrochemical production halted plans to construct a port on Mona Island, off the

southwest coast of Puerto Rico, that would have been used as a transshipment station for crude oil imported from Venezuela and the Middle East. The Puerto Rican government has recently proposed the construction of a transshipment port, *El Puerto de las Américas*, from Guayanilla Bay to Ponce. The region is a preferred location because of the industrial infrastructure already in existence in the area. Ponce has outstanding port facilities as well as improved highways and an airport that can promote international flights. Guayanilla Bay's natural depth and the varied industrial infrastructure, part of the petrochemical complex, are recognized as facilitating the construction of a transshipment port in southern Puerto Rico. Ecological problems, however, persist, and the location of *El Puerto de las Américas* in Guayanilla is conditioned on the rehabilitation and cleaning up of the area, which is contaminated with chemical pollution and discharges.

Most petrochemicals and oil refineries established since the mid-1950s are gone; today some tanks and storage facilities are used as "terminal facilities for suppliers of liquid petroleum gas used for cooking" (Baver 1993:59). The downfall of industrial operations in Guayanilla Bay and Tallaboa Bay greatly affected the island's incipient industrialization program. As an example, consider the fact that industrial output in Puerto Rico fell almost 20%, from 5.2% in 1974 to 4.2% in 1976, and the industrial complex's contribution to manufacturing net income fell from 13.1% in 1974 to 8.1% in 1977, a reduction of approximately 40 percent (Baver 1993:57-58). The only industries that remain, such as DEMACO, Vassallo Paints and Coating, Peerless Oils and Chemicals, and TEXACO, have started operations more recently and rely on an educated and well-trained labor force. Some of the industries established after the early 1980s are owned by Puerto Rican investors. Most industrial infrastructure is located in Peñuelas (see Table 1), although their economic impact has extended throughout the region, even to areas far away from both Guayanilla and Peñuelas.

INDUSTRIES LOCATED ALONG GUAYANILLA BAY AND TALLABOA BAY		
Name of industry	Location	Years of operation
Commonwealth Oil Refining Company (CORCO)	Peñuelas	1956-1982
Costa Sur Electric Power Plant	Guayanilla	1958-Present
South Puerto Rico Towing & Boat Service, INC.	Guayanilla	1958-Present
Union Carbide	Peñuelas	1959-1985
Hercor Chemical Corporation	Peñuelas	1966-1982
Peerless Oil Chemicals	Peñuelas	1968-1981
Styrochem Corporation	Peñuelas	1968-1982
Air Products and Chemicals of Puerto Rico	Guayanilla	1970-Present
Orochem Enterprises	Peñuelas	1971-1978
ESSO Standard Oil	Peñuelas	1971-1978
Puerto Rico Olefins Plant	Peñuelas	1971-1978
Pittsburgh Plate and Glass Industries	Guayanilla	1972-1978
Rico Chemicals Corporation	Guayanilla	1975-1981
Caribe Isoprene Corporation	Peñuelas	1975-1982
Oxochem Enterprises	Peñuelas	1976-1978
Industrial Chemicals Corporation	Peñuelas	1977-Present
DEMACO	Guayanilla	1984-Present
BETTERROADS	Guayanilla	1985-Present
Arochem International	Peñuelas	1988-1992
Vassallo Paints and Coatings	Guayanilla	1988-Present
Peerless Oil and Chemicals	Peñuelas	1989-Present
TEXACO Industries	Guayanilla	1990-Present

TABLE 1. *Adapted from Servicios Científicos y Técnicos. 1995:64-67*

As a result of rapid and careless industrialization in coastal landscapes, both Guayanilla Bay and Tallaboa Bay are heavily contaminated with discharges of hot water and pollutants from nearby industries and oil refineries (see Chartock 1980). Chemical and industrial contamination, as well as discharges of hot water from Costa

Sur Electric Power Plant, have negatively affected fish populations and other marine invertebrates that inhabit the bays, especially during the spawning and larval phases. During these two phases, fish, larvae, nutrients, and other organisms are at the mercy of water currents. Also as a result of heavy industrial pollution, both Guayanilla Bay and Tallaboa Bay have experienced until recently a significant reduction in the quantity and diversity of fish and mollusks, such as the queen conch. Fortunately for the present and future activities of the local fishermen, since the early 1980s industrial pollution levels have decreased and a recovery of certain fish species has been noted by both fishermen and environmentalists (see *Servicios Científicos y Técnicos* 1995:89).

Industrial development in this region has had three outstanding outcomes. First, it has reduced agriculture's contributions to the reproduction of the rural household economy and provided some residents with a steady source of employment. Some residents have found jobs in the industrial complex during the early construction phases or, later, in menial positions such as janitors. Demographic data collected in 1997 indicate that 12 residents (24%) included in a household survey found employment in nearby petrochemicals and oil refineries, but only one has held a high-income producing position as a machine operator for Union Carbide. Six of the twelve residents (50%) have worked as laborers, two (17%) have worked as welders, two more as janitors and one (8%) as a painter in TEXACO.

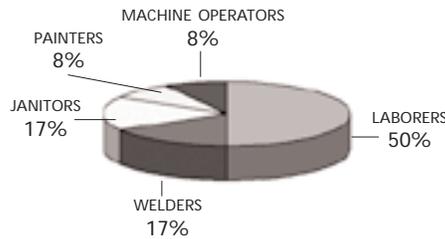


FIGURE 2. Industrial jobs available to twelve fishermen in Playa de Guayanilla

I assume that the number of residents employed during the early construction stages must have been much higher than indicated in Figure 2 because industrial development required a large labor force of both semiskilled and unskilled workers. Similarly, the fact that the industrial complex was expanded constantly until the early 1980s might have helped local residents find employment opportunities building the industrial infrastructure.

Second, industrial development has led to dramatic population changes as great numbers of people have settled in coastal areas and others abandoned the region when industrial production dwindled. Industrialization thus furthered the expansion of commercial activities as more people migrated to areas close to the industrial complex. The growth and expansion of coastal communities promoted commercial venues such as bars, small lodging facilities, and restaurants, which increased the local demand for fish. Some residents took advantage of this situation and set up independent fish houses in order to purchase and sell fresh fish. Indeed, the recent spatial and residential distribution in Playa de Guayanilla has been attributed to the economic and commercial boom promoted by industrial development. For example, a man I interviewed argued convincingly that when industries were operating in the region, this community grew larger and expanded with more commercial activities devoted to the preparation and selling of fish pastries and beverages, “just like it is now because there is a store everywhere.”

Third, industrial development has dramatically transformed the natural landscapes of the coastal zones. Mangrove forests, agricultural lands, and residential areas were cleared in order to make way for the construction of the industrial infrastructure. One of the most dramatic transformations of the coastal landscapes was the relocation of Peñoncillo, a small community of rural workers located on the north side of Guayanilla Bay. With the help of the Puerto Rican government, which was enthusiastically promoting industrial development in the region, Pittsburgh Plate and Glass Industries (PPG) bought the lands where Peñoncillo was originally located. The residents were relocated to the eastern tip of Playa de Guayanilla in a section known today as Villa del Carmen. As a town “planned” by industrial and government administrators, Villa del Carmen boasts wider roads and nicer homes than the other two sections of Playa de Guayanilla: San Pedro de Macorís and Honradez. At the time of the relocation in the late 1960s, the lands were still cultivated with cash crops such as coconuts, bananas, and other types of fruits. The original vegetation was cut down and the wetlands replenished with clay soil brought from outside the region. Although many residents wanted to remain in Peñoncillo, their houses were torn down without further considerations.

Today, a major highway borders the industrial complex on the north side and a local road that connects Playa de Guayanilla, El Faro, and Encarnación crosses it (see Figure 1). The local road goes from east to west and passes through some old wooden houses, small family shops, the original Catholic Church of Encarnación, an elementary school, and a junior high school before it extends further close to Playa de Guayanilla. It cuts across the petrochemical and oil refining complex and provides access to two smaller roads that lead to Playa de Guayanilla and El Faro, respectively. Encarnación lies at 7 kilometers east of El Faro, and the short distance between them takes about half an hour travel. However, while driving through the local road from Encarnación to Playa de Guayanilla and El Faro, the traveler must accustom his gaze to the somber visual landscape of deindustrialization that the rusted chimneys and tanks of the petrochemical complex produce.

The tall, rusted chimneys of the industries that once formed the huge petrochemical and oil refining complex dominated by the Commonwealth Oil Refining Company (CORCO) are a sad landmark and now salute with their gloomy presence passengers traveling through the highway to the beaches and towns in southwest Puerto Rico. While most petrochemicals are now abandoned, other industrial operations, such as Costa Sur Power Plant, Air Products, and Industrial Chemicals, are still maintained. The present condition of the coastal landscapes contrasts sharply with the conditions prevailing three decades ago. From the 1950s to the 1970s, the industrial complex produced a bright spectacle of lights that illuminated the hills facing the coast. But industrial development has greatly slowed down since the 1970s, and the illumination and visual attraction of the region have faded.

Discourses of development and the environment in southern Puerto Rico

Industrialization and deindustrialization in southern Puerto Rico are a part of the coastal landscapes and have impacted profoundly on the local residents’ perceptions of economic development. As will become evident below, those perceptions are grounded on multiple narratives and discourses that the rural workers cogently used, and depend on the benefits they derived from industrial development in the region. Therefore, residents who benefited the most from

industrialization regard the transformation of the economy and the landscapes more positively than those who benefited less. In the following analysis, I compare the life histories that sustain the discourses of three local residents: Luis, Rullán, and Don Ramón. I begin with Luis's story not only because he is the youngest informant of the three analyzed here, but because his is the most evident example of the contradictions that local residents face in talking about the impacts of industrial development in the region.

Luis is a fisherman from Encarnación. In contrast to most people in this community, he has followed a peculiar work trajectory, which may be characterized as fisherman-proletarian. Luis has never worked in the sugarcane fields, and his only remembrances about agriculture are the ways his neighbors earned a living from sugarcane cultivation. As a child during the late 1960s, when sugarcane still dominated the regional economy, he collected crabs and oysters in the afternoon and on weekends, and helped the older fishermen land the catches and clean the fishing vessels. For doing this, the fishermen gave him some smaller fish that he brought home with a heightened sense of accomplishment. When he was between eight and nine years old, he began to fish with friends and relatives using small wooden vessels, fishing nets, and fish pots. However, he has always preferred to dive, initially without any gear but now with full SCUBA diving equipment.

Luis's father has never worked in agriculture either. He was among the large number of people who migrated from the highlands of Peñuelas and settled near the coast, in Las Salinas, lured by the industrial boom that petrochemical industries and oil refineries had created since the mid-1950s. His father found a job in *Productos Salinos de Tallaboa*, later known as Ponce Salt Industries, which inaugurated operations on June 30, 1951 (Balasquide 1972:225). It was a small salt industry that survived for about a decade. Probably because its operations did not last very long, few local residents recalled that this industry had any economic importance to the region. In fact, most local residents only remembered that *Productos Salinos de Tallaboa* prepared salt, mainly for bakeries and for raising livestock. In Encarnación there were no port facilities to export salt and when competition from other producers intensified, the owners of *Productos Salinos de Tallaboa* found it more convenient and cost efficient to distribute the product using facilities available in the port of Ponce.

When *Productos Salinos de Tallaboa* closed operations in the mid-1960s,¹¹ most residents from Encarnación who worked there found jobs in some petrochemicals and oil refineries located nearby. The Commonwealth Oil Refining Company (CORCO) began to build its first unit in 1954, and started operations in 1956. It was finally incorporated on May 19, 1963, and represented an investment of \$25 million with the capacity to refine 23,500 barrels of oil daily. In 1959, Puerto Rico's first petrochemical plant opened, "when Union Carbide began operating a \$35-million plant to produce ethylene glycol with feedstocks purchased from the nearby CORCO refinery" (Baver 1993:50). The company that built Union Carbide, Chicago Bridge, contracted Luis as a welder. Union Carbide continued to add new units and plants until the late 1970s, thus providing Luis with steady work for fifteen years. Welding was at the time a highly remunerated job in a region of impoverished rural laborers, who were coping with the economic changes that industrial development had created. Luis added his new income to what he could earn from diving for lobsters and queen conch off the Ponce coast. As for many other coastal laborers, industrial development helped him improve his standards of living.

When the boom of industrial expansion in the region came to an end in the early 1980s, Luis did not have many opportunities to find industrial employment and thus intensified fish production by diving for lobsters and queen conch. At the time of my research, he lived with his wife, a daughter who was about to graduate from high school and a brother-in-law, whom he raised. Now adult, his brother-in-law has an associate degree in computers but had been laid off from his position at Peñuelas' City Hall. While his brother-in-law was working at the city hall, Luis became ineligible to receive benefits from the Nutritional Assistance Program, the federal program that helps low-income families, although he plans to apply for the program once again. None of the other family members were working at that moment, and Luis counted on Nutritional Assistance Program benefits to supplement his earnings. Due to his diving schedule, he contracted bends disease¹² at a young age, but he continues to fish almost daily, though the money he earns from catching lobsters and queen conch barely suffices to support his family. The times are long gone when he earned a robust salary working as a welder for Chicago Bridge building the infrastructure for Union Carbide, CORCO, and other petrochemical industries.

Luis is one of a few residents who secured a steady job while the industrial construction boom lasted. Not surprisingly, he harbors fond memories of the transformation of the rural economy and the coastal landscapes. He remembers especially that when industrialization was being promoted, many local residents were able to improve their economic situation, and that they were able to purchase automobiles, repair their homes, and acquire the modern conveniences, such as television sets, radios, and washers, that Puerto Rico's government heralded as the hallmark of progress. As he describes it, the economic boom seemed like an endless golden opportunity and everyone believed that local residents were going to experience higher economic standards forever. But when the promises of economic development faltered during the early 1980s, many industrial workers lost their jobs. Amidst the rusted chimneys and tanks of petrochemical plants and oil refineries, Costa Sur Electric Power Plant still rises as an undefeated giant. However, it does not provide any jobs for local residents because, according to Luis, "it has its own work force. Now everyone around here is unemployed or seeking odd jobs."

While Luis's case reinforces the perception that industrialization in southern Puerto Rico had positive results because it provided a reliable source of income, it is also true that only a small number of residents with necessary skills and training found jobs in the industrial complex. As a young person with a solid training in welding, Luis was among the lucky residents who found steady employment in one of the highest paying industrial jobs available in the region. The older and poorly educated people, however, fared quite differently because their access to industrial jobs was limited. Such was the situation that Rullán, a foreman in *Hacienda Rufina* until it closed operations in the late 1960s, had to confront. Like most residents from El Faro, Rullán never benefited directly from industrial employment and he deplored industrialization because it relied on the labor force of workers from nearby towns and municipalities. He commented, "I would say that [industrialization's effect] in the economy was limited because only a few local residents worked in the industrial complex." For Rullán, the only significant contribution of industrial development has been that "the municipal government earned the revenues that [industries] paid" for operating in the region. A pillar of Puerto Rico's model of industrial development were tax exemptions for a period of between ten and twenty years to United States multinational corporations operating on the island. Most

industries frequently abandoned the island when their tax exemption period expired, although in this region they left mainly because of the 1970s economic recession.

Rullán was upset not only because a few residents from his community found steady employment in the industrial complex, but because he saw how the industrialization of Puerto Rico's economy replaced sugarcane production and by extension the old social structure of hierarchical privileges he cherished so much. His perceptions of industrial development are nuanced by a longing for an agrarian past that only former foremen and overseers (such as himself) wish had never disappeared. The people who worked in both sugarcane and industrial production are grateful for the contributions that industrialization made to the regional economy. For example, Don Ramón, a resident from Playa de Guayanilla, worked during the early 1970s in the construction of Pittsburgh Plate and Glass Industries (PPG), and fished in order to supplement his household's income. For him, securing a temporary job in the industrial complex made it possible to purchase a variety of products that otherwise he could have never acquired. By the time he worked for Pittsburgh Plate and Glass Industries (PPG) the sugarcane economy had already collapsed.

The discourse of older residents is interesting because while some praised industrialization's contribution to the local economy, others rendered a nostalgic longing for an agricultural past they know will never return. Don Ramón worked for many years in sugarcane cultivation and harvesting, and his father was a *colono*¹³ who sold sugarcane on contract to *Hacienda Rufina*. As a result, he nurtures memories of agricultural work as the best and most dignified way to earn a living. He told me repeatedly that most local residents were doing fine when sugar mills were operating in the region, "but when the industries came, sugar mills were closed." As for many residents who also engaged in sugarcane production, it did not matter to Don Ramón that he was poorly paid for cutting and harvesting sugarcane under an implacable sun. Nor did it matter that the sugarcane economy was subject to the fluctuations of prices paid for this commodity in global markets (see Dietz 1986). What really mattered for him was that industrial development in Puerto Rico turned agriculture, and especially sugarcane production, into an unfeasible economic pursuit.

Residents with negative perceptions of industrial development argued that it has increased pollution levels and prompted the collapse of some major fish stocks, such as queen conch and snappers. It is important to note that even residents who have a positive perception of industrial development also blamed it for the declining productivity in local fisheries. Industrial pollution has also contributed to the elimination of mangrove forests and other coastal vegetation, as well as to the reduction of fish biodiversity in coral reefs. It is also true that some industries have produced more contamination than others. For example, during the 1970s and 1980s Costa Sur Electric Power Plant and Pittsburgh Plate and Glass Industries (PPG) were repeatedly identified by both fishermen, environmentalists, and scientists as major sources of industrial pollution (see *Servicios Científicos y Técnicos* 1995). Scientists have determined that during these decades hot water discharged by Costa Sur Electric Power Plant increased water temperature levels in Guayanilla Bay and Tallaboa Bay, while discharges of chlorine by Pittsburgh Plate and Glass Industries (PPG) have decimated marine and coastal resources (see Chartock 1980 and López 1979). In the late 1970s, the United States Environmental Protection Agency (EPA) forced Pittsburgh Plate and Glass Industries (PPG) to shut down operations because it exceeded permissible levels of air and water pollution in Puerto Rico.

The transformation of coastal landscapes and the degradation of coastal and

marine resources are major factors that shape perceptions of development. It is fairly easy for local residents to change perceptions in their assessment of economic development. The diversity of opinions and perceptions that most residents produced can be better assessed when we acknowledge that the economic well-being they derived from industrialization was rather short lived. Coastal residents agreed that heavy industrialization has had adverse and possibly irreversible effects on coastal areas and marine resources as well. Today industrial pollution does not represent a serious problem anymore precisely because most industries have abandoned the region. Now local residents have to cope with new problems, such as the indiscriminate use of jet skis in fishing areas and the lengthy bureaucratic procedures they have to go through in order to receive fishing licenses (see Pérez 2000). However, as some residents argue, it will be hard to revert to the conditions they had prior to the beginnings of industrial development because “the damage is already done and the fisheries will never be the same.”

The outcomes of industrialization have affected negatively rural households in the region and forced local residents to adapt to the precarious economic conditions they now experience. The closing of many industrial operations has increased unemployment rates among local residents and compelled them to combine various working strategies in order to supplement household incomes, a well-known pattern of multiple occupations found among many rural coastal laborers in the Caribbean (see Griffith and Valdés Pizzini 2002). In contrast to the preindustrialization era, now local residents have to scratch a living from the multiple occupations they may be able to obtain. Most of the residents interviewed received benefits from the Nutritional Assistance Program, while the elderly received Social Security benefits.

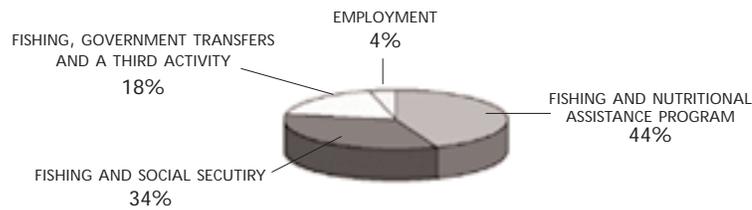


FIGURE 3. *Income sources for fifty fisherman in Guayanilla Peñuelas*

The reduction of industrial pollution levels is credited with a noticeable recovery of some fish stocks as well as maritime flora and fauna along the coasts. Environmentalists have confirmed this condition in recent studies conducted in the region (see *Servicios Científicos y Técnicos* 1995:89) and local residents told me, perhaps a bit optimistically, that nowadays they can fish anywhere in the inshore areas. Although only a small group of people deemed this recovery a positive sign of a more promising future, the majority remembered fondly the good old days before industrial development, when fish were plentiful and environmental pollution and degradation barely existed.

Conclusion

There are only slight differences between the discourses of the three rural workers discussed above. Luis and Don Ramón found employment in the petrochemical and oil refining complex and thus can attest to the economic bonanza it ushered in. However, since both depended to some extent on local fishery resources, they criticized the degradation of the coastal landscapes and the loss of marine resources

as a fallout of industrial development. In an emotional statement, Luis aptly expressed his perception of industrial development:

When the industries were here, everyone was happy because there was more money. People did not care about anything else besides working and having a good salary; they forgot about the [natural] resources. Around here it was all mangrove forests, and there were crabs everywhere; but then [with industrial development] the wetlands were replenished and the mangroves disappeared. And many people did not care about that; they only wanted to receive a good salary because everyone around here was so poor.

On the other hand, Rullán never worked for any of the petrochemical industries and saw how industrialization displaced the agricultural economy based on sugarcane production. As I mentioned earlier, he was a foreman in one of the most productive sugar mills in southern Puerto Rico. Neither Luis nor Don Ramón found permanent jobs in the petrochemical complex, and since industrialization in the region did not last very long, their economic benefits were partial and short lived. In general, the narratives of the three rural workers are consistent with their memories of development and the intervention of Puerto Rico's government in the lives of the local residents. Their memories, perceptions, and discourses of development and environmental degradation confirm, as Enrique Leff (2000) has argued, that current environmental debacles are reflections of misguided economic development policies put in place since the mid-20th century by governments wishing to cross the threshold to modernity.

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NOTES

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¹ Interview conducted on November 10, 1997. All the interviews analyzed in this essay were conducted during September-November, 1997, and the excerpts and quotes from interviews with local residents are translations by the author.

² Population figures for Playa de Guayanilla are from the 1990 United States Census Bureau; population figures for Encarnación are from an undated leaflet prepared by Peñuelas Cultural Center. And population figures for El Faro are from a household census conducted by the local residents. According to the 2000 United States Census Bureau, the municipality of Guayanilla has 23,072 inhabitants and Peñuelas has 26,719 inhabitants.

³ A *cuerda* is approximately .9712 acre.

⁴ The United States Environmental Protection Agency has banned four pesticides used by Tropical Fruit in the island: Malathion, Supracide-2E, Captan 50, and DITHANE F-45. Residents from Barrio Boca have developed pulmonary conditions, such as asthma and bronchitis, allergies, and skin irritation because of exposure to pesticides. In 1997, the United

States Environmental Protection Agency filed a case against Tropical Fruit on behalf of the local residents. For additional information on this case, see Jackeline del Toro 1997a and 1997b.

⁵ See Unemployment Rate: Guayanilla Municipio, Puerto Rico; NSA and Unemployment Rate: Peñuelas Municipio, Puerto Rico; NSA. Both documents can be found at www.economagic.com/em-cgi/data.exe/BLSLA.

⁶ For example, Koester (1986) has documented the effects of industrial development on a community of fishers in the south coast of Saint Lucia, while Cerf (1990) and Kottak (1999) have explained the socioeconomic and cultural transformations of fishing practices in two regions of northeast Brazil.

⁷ See Eco-Eléctrica en planes construir otra planta co-generadora [sic].

⁸ See Anula Mirant el acuerdo de compraventa de Eco-Eléctrica.

⁹ See Eco-Eléctrica en planes construir otra planta co-generadora [sic].

¹⁰ The first stage of economic development consisted of the promotion of government investment to finance the operation of various industries, such as cardboard, glass, and shoe factories, that relied on large pools of semi-skilled labor power. This program was replicated in many Latin American countries since the 1930s and is commonly known as import substitution industrialization (ISI).

¹¹ There was an attempt to use the building and other facilities to promote a small shrimp aquaculture project financed by Chinese capital. However, this project was abandoned shortly after starting operations.

¹² Bends disease affects divers who inhale a mixture of oxygen, hydrogen and other gases from diving tanks. It happens when divers are swimming deep and cannot return to the surface quickly enough to maintain an appropriate balance of gas inhalation. Bends disease affects the nervous system, and although many divers are successfully treated with decompression, some may have difficulty working fully again.

¹³ A *colono* is a sugarcane grower who owns agricultural lands but makes contracts with owners of sugar mills to process and refine sugar. Don Ramón told me that there were seven *colonos* operating in Playa de Guayanilla before the late 1960s.

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Rethinking the Struggle for Puerto Rican Rights offers a reexamination of the history of Puerto Ricans' political and social activism in the United States in the twentieth century. Authors Lorrin Thomas and Aldo A. Lauria Santiago survey the ways in which Puerto Ricans worked within the United States to create communities for themselves and their compatriots in times and places where dark-skinned or "foreign" Americans were often unwelcome. The authors argue that the energetic Puerto Rican rights movement which rose to prominence in the late 1960s was built on a foundation of civil rights acti