

IN THE SHADOW OF THE MAQUILA:

Sustainability and Small Business in Tijuana

Carol S. Armstrong

carolarm@usc.edu

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University of Southern California, Los Angeles, U.S.A.

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Introduction

Maquiladoras have long been the conspicuous targets of environmental pollution in Mexican border towns and cities; however, pressure from bilateral institutions created under the NAFTA side agreement in conjunction with the rapidly growing non-governmental organization (NGO) sector in Mexico have helped to curb their harmful practices. (Herzog 2000) These activities have raised the profile of *maquiladoras* as large-scale polluters and have stepped up the level of scrutiny under which they operate. While considerable work remains to be done in improving the border environment via the more responsible stewardship of *maquiladoras*, small businesses in Mexico are potentially a much more powerful indicator of the overall sustainability of cities like Tijuana because they are more entrenched, long-term community stakeholders. For instance, small businesses with one-to-five employees absorbed more than one-third (35.8 percent) of the Tijuana labor force in 1997 (Kopinak 1998, p. 37), thus demonstrating their value as pivotal stakeholders in the city's sustainable development. Given the proliferation of small businesses in Tijuana and the substantial socioeconomic impacts they generate, it is logical to now mobilize the resources used in instigating environmental reform in *maquiladoras* to improve the practices of domestic industry as well. Very little research has been conducted to date on the polluting behavior of small- and medium-sized enterprises (SMEs) in Mexican border towns because the conspicuous *maquiladoras* have monopolized the spotlight. However, now that the Mexican government has begun to implement the necessary decentralization policies and supporting environmental legislation, and the NGO sector has achieved considerable maturity, the tools and methods are available to extend scrutiny beyond *maquiladoras* and into the shadowy territory of SMEs.

The considerable sociopolitical and decidedly environmental activist movement that has coalesced around the operations of *maquiladoras* has come a long way in enlightening the myopic focus of

past policies on economic outcomes and it must now be prepared to broaden its attention to encompass domestic industry as well. Especially since the damaging environmental impacts of small firms, and the reasons for them, are becoming more obvious: "Lack of financial resources and of access to clean technologies increase the environmental degradation of small Mexican businesses." (Margáin 1998, p. 92) Including domestic firms—particularly SMEs—within the purview of environmental accountability research helps to address the multiple dimensions of sustainability (sociopolitical, economic, environmental, and intergenerational) concurrently, and has heretofore been an overlooked aspect of sustainable development analysis in Mexico's border region. This prospectus offers the thesis that the long-term sustainability of Tijuana is greatly affected by the health—and particularly, the environmental practices—of its small business sector. Therefore, a detailed inventory analysis of the sector's composition, growth, and behavior is proposed as a method to better understand the city's development, its sustainability potential, and to catalyze discussion in more thoughtfully influencing its nascent municipal environmental regulatory process.

Background and Context

Border scholars have recently begun to call attention to the lack of environmental planning and policy focus on SMEs in Mexico (Pezzoli 2000) (Margáin 1998); this is regrettable since SMEs offer a unique snapshot of sustainability because of their influence in multiple, interdependent development dimensions. The health of a city's small business sector is a powerful indicator of sustainability because SMEs are often owned by local residents, serve local populations of relatives, friends, and neighbors and are a valuable source of local employment. Additionally, they act as fundamental community institutions, cultivate innovation and entrepreneurial activity, demonstrate a commitment to place, and are important predictors of wider socioeconomic prosperity. The

environmental practices of small businesses differ from larger firms in a variety of ways, but two key aspects affecting sustainability are that their operators are community residents with a more established commitment to the immediate locality, and they are subject to generally less regulatory oversight. This first aspect implies that SMEs may have considerable influence in affecting grassroots environmental attitudes via their own practices as well as those they may impel in their peer and customer networks. The latter aspect is less conclusive since it supports divergent scenarios: a less well-established regulatory oversight system may encourage polluting behavior in SMEs, but might also encourage more flexible and diverse pollution prevention and control methods since SMEs are more obvious “change agents” regarding the implementation and diffusion of innovation. Further research is warranted in establishing a clearer understanding of these relationships for SMEs in Tijuana. The research proposed here has the potential to fill an important gap in analyzing the sustainability of Tijuana, recognizing that small businesses, because they are interwoven components of the urban social fabric, have a complex and critical role to play in local environmental management as well as long-term regional growth.

Preliminary examination of this topic which included interviews with local environmentalists and academics in Tijuana (Durazo, López Hurtado 2000) and Ensenada (Flores 2000), businesspeople in Tijuana (Cervantes 2000), Mexicali (Mohedano 2000), and Ensenada (Paz, Copasa Co., 2000), and municipal government representatives in Mexicali (López Rodríguez, Montes, Raya 2000) indicated that the environmental practices of small businesses are a concern in the border region. These interviews revealed a consensus belief that because there is a current paucity of information about such practices, response options in addressing them are severely limited; however, the issue is seen as timely because municipal regulations regarding the environment are presently being developed in border cities. Two common themes which emerged from the initial interviews and supplemental

research are a need for institutional and regulatory reform which will (1) support greater *community involvement* in environmental planning and policy processes and (2) systematically *enforce* environmental mandates (Ruiz 2000) (Sánchez 2000) which nurture creative problem-solving rather than impose rigid solutions. This prospectus aims to address these themes by first inventorying small businesses and then surveying their owners in order to uncover their environmental stewardship behavior. While the scope of this endeavor is potentially enormous, it may be limited to subsector analyses such as an evaluation of the polluting behavior of certain types of businesses that proliferate in Tijuana: hair salons, laundry shops, car washes, dry cleaners, automotive repair shops, printing operations, dentists, pharmacies, clinics, pet shops, or restaurants (local vs. chain franchises), etc. The exercise may also offer insight into the composition of Tijuana's obviously-thriving "informal sector" which is a topic of contemporary interest across many disciplines and which remains a relatively hidden aspect of the city's sociopolitical economy.

Ultimately, an analysis of the sustainability of small businesses in Tijuana may provide valuable information in tracking and improving the city's environmental stewardship practices while allowing for a more comprehensive and coordinated approach to environmental problem-solving. Ideally, the research endeavor might help establish a high-profile precedent for future data collection and practice while recognizing the potential of small businesses in influencing citizens and policy—thus helping to define a role for small businesses in environmental management as distinct constituents of the community. Also, this type of analysis could describe an institutional culture and its trends, and most importantly, empower participants in the ongoing dialogue of ensuring communities' right-to-know about the conditions of their environment. In sustainable development, knowledge is power, and this has worked well in past border reform efforts: "The Emergency Planning and Community Right to Know Act, passed in the United States in 1986, is a

crucial precedent in environmental legislation, and it represents a powerful lobbying tool for NGOs working to control *maquiladora* pollution along the Mexican border..." (Herzog 2000, p. 14) and is reflected in the passage of Mexico's own right-to-know legislation in 1996 (Durazo 2000).

According to Pezzoli (2000), NAFTA environmental institutions such as the Commission on Environmental Cooperation (CEC), which oversees the interests of Mexico, Canada, and the U.S., are focusing on pollution prevention (P2) as opposed to pollution control as the best goal for businesses. The industrial ecology field advocates cradle-to-grave or life-cycle accounting of businesses' environmental practices which stresses the reduction of pollution production via design process changes instead of the use of "end-of-pipe" pollution control solutions. The ability of Mexican small businesses to implement P2 is different than that of larger firms, "...many small and midsize enterprises (SMEs) have hardly begun to establish P2 programs. As a rule, SMEs are more preoccupied with pollution control and compliance with environmental regulations than they are with P2." (43) In Mexico, environmental regulations still advocate the use of control technologies: Mexico's General Law of Ecological Equilibrium and Environmental Protection (LGEEPA) describes P2 as "a set of provisions and measures taken to avoid anticipated environmental harm...[it] is comprehensive in scope and covers all media, including air, water, and solid waste handling and disposal....[P2] appears in the law as 'pollution prevention and control'" and indicates what Pezzoli calls a "lingering tendency in Mexico toward the use of abatement technology, such as emissions control equipment, wastewater treatment plants, and treatment and final disposal of solid wastes, rather than the implementation of pollution 'prevention' programs." (Ibid.)

This "control" loophole is an important condition for small businesses in Mexico, as anywhere, which often lack the capital necessary to implement intensive design process changes. Further, strict

P2 requirements might stymie the growth of small businesses in the short-term. In the U.S., a rigid regulatory oversight structure regarding the environmental practices of small business in some cases may discourage flexibility in prevention or control technology choice. An example of this is SMEs' use of traditional methods of air pollution control such as incineration, which may often generate harmful end products or political disapproval, at the expense of more innovative, lower cost, and environmentally-friendly technologies like biofiltration, which are rejected because of an inflexible regulatory monitoring system, i.e., the regulatory system supports the monitoring of incinerators because it only requires a temperature level check whereas biofilters would require laboratory tests of various air samples. This raises the question of whether or not innovation should be ultimately determined by regulatory capacity and this is particularly relevant to small businesses that are, by nature, quite diverse in their designs and operations. Since the U.S. has a well-established, complex regulatory process concerning the use of P2 and control technologies by small businesses, it may be cost-prohibitive in many cases to make changes that support greater innovative choice. Mexico, on the other hand, is in the process of working out the details of such regulation and may benefit from not following the U.S. example in this case. In fact, the current lack of strict regulation in Mexico may actually be encouraging more environmentally-sound innovative practices in some small businesses.

For instance, when fish processing plants in Ensenada were faced with public criticism regarding the offensive odors they emitted into neighboring communities, small firms chose different solutions. One plant elected to use biofiltration (Flores 2000) while its next-door neighbor developed an altogether new ozonation-based process for which it secured a patent (Paz 2000). Ensenada is presently crafting regulations concerning odor control for the first time and the diverse

experiences of these businesses will likely help in designing a policy that respects and nurtures future innovation in meeting its objectives.

Another example is the occurrence of “toxic hot spots” and the way they have been enabled by regulation in the U.S. Presently, individual businesses are granted air emissions permits based on their level of toxic emissions, but there is no process to determine the interaction—and thus cumulative—effects of the emissions of neighboring businesses on a certain area, i.e., if a school site has two auto paint shops across the street, is next to a dry cleaner, has three gas stations within two blocks, and is within two miles of a freeway, there is no established method of assessing a cumulative effect on the human health of the school’s students. Since these combined effects—as well as the interaction of soil and water conditions—would have a much greater impact than is currently observed by the regulatory system, changes are needed to ensure that human health is adequately protected. The U.S. Environmental Protection Agency (EPA) has just recently started to discuss implementing a cumulative risk assessment (CRA) method to uncover and account for such combination and interaction effects. (USEPA 1997) Mexican planners and policy makers can take advantage of such lessons and design more appropriate policies from the very beginning. Thus, while Tijuana’s local environmental regulations are in the draft stages, it may be advisable to imbue them with the flexibility to support these circumstances and the variability in environmental control capacity among diverse SMEs. If such area-threshold pollution criteria were developed by planners in Mexico at the outset, then the prevention and control behavior of SMEs would be better understood and supported over the long-term. The pollution management behavior of SMEs is just one aspect of sustainability research in Tijuana that may be uncovered in a thorough sector analysis.

Theory

An investigation of the role played by small businesses in the long-term sustainability of Tijuana might draw on a number of theoretical foundations. As stated by Liverman et. al (1999), the U.S.-Mexico border is a “useful venue” for analyzing a variety of theoretical questions related to the subject discussed here: “the role and effectiveness of environmental social movements and binational institutions, the political ecology of economic globalization, and the impacts of decentralization and democratization on environmental practices of local governments.” (p. 609) Additionally, theories of innovation diffusion might be appropriate as well as those concerning public versus private stewardship of the “common good.” Small businesses and their combined impact on Tijuana’s sustainability is a concept tied to local economic development theory and particularly, as noted above, the discourse on democratization and decentralization within Mexico since it involves the empowerment of both local citizens and the governance structure which enforces the environmental laws they either eschew or embrace.

Products, Methods, and Resources

Potential products of this research prospectus include:

(1) A detailed inventory of small businesses in Tijuana represented by data describing the number of businesses by size (revenue, number of employees); These data may be available from the municipal government department in charge of issuing business permits and/or licenses, the Tijuana Economic Development Commission (www.tijuana-edc.com), or the U.S.-Mexico Chamber of Commerce (www.usmcoc.org);

(Ideally, data would be collected on the *composition* of businesses (industry type and/or product type, ownership status (citizenship, ethnicity, gender), and administration classification (single establishment, chain, subsidiary, etc.)), *location* (street, colonia, AHEB), and *health* (date founded, growth (change in revenue, number of employees, product volume or failure)).)

(2) A GIS representation of the data to demonstrate industry concentration and/or pollution potential (emission plumes may be approximated following a similar format followed by Durazo et. al in analyzing *maquiladora* behavior) and create cluster maps as the basis for further survey analysis and data collection;

(3) Surveys for acquiring supplemental information for inclusion in the database and for subsector analysis (Surveys might be designed to indicate health of sector (how long business operational), local economy impacts (number of workers, customers, suppliers, number and type of product, geographic range of distribution), perceptions of the environment (concerns, policy views, future predictions), environmental practices (life cycle inputs and outputs, waste stream tracking, cradle-to-grave assessment).);

(4) An institutional and regulatory snapshot of small businesses from an environmental standpoint derived from a small business perspective (buying and disposal practices, networking, association membership), a government perspective (regulatory evolution, concerns), and the perspectives of other stakeholders such as citizens, workers, environmental groups, chambers of commerce, etc.;

(5) Subsector analysis based on information gleaned from above process: dry cleaners, hair salons, or printing shops, etc.; and

(6) Policy recommendations regarding key sustainability impacts of the small business sector and the related municipal governance structure which influences it.

Other potential data sources include the following:

- Border Environmental Commercial Alliance (BECA)
- The 1997 Lexington Group Survey of environmental management systems in Mexican businesses of varying size (in Pezzoli 2000)
- The Confederation of Industrial Chambers (CONCAMIN) Program on Environmental Protection and Industrial Competitiveness
- Tijuana STEP Project to encourage large firms to mentor their small suppliers in environmental management and P2 practices (in Pezzoli et. al 1999)
- Tijuana's Municipal Planning and Development Committee (COPLADEM)
- Tijuana's Municipal Planning Department (IMPLAN)
- Secretariat Desarrollo Economico de Baja California
- Secretariat Comercio y Fomento Industrial de Mexico
- Mexican Ministry of the Environment (SEMARNAP)

Conclusions

Tijuana's long-term sustainability is very much contingent upon the health of its small business sector; therefore, additional research to uncover the environmental practices of this sector is warranted. The first step in improving the survival and thus, sustainability, prospects of local industry in Tijuana is attempting to better understand it. The results of this prospectus would provide valuable information that could be used to craft a more comprehensive and coordinated

system of small business regulation in Tijuana—a system that supports flexible environmental management practices seeking innovation in conjunction with improved stewardship goals. Many models exist as positive case examples for small business support by various levels of government. For instance, what Margáin (1998) calls “progressive entrepreneurship” is applied worldwide by various governments to strengthen their small business sectors:

- Italian consortiums organize the activities of thousands of small businesses through chain production, flexible specialization and outsourcing, enabling the whole system to enjoy benefits of economies of scale;
- The Japanese system of financial, fiscal, technological and marketing support to small businesses uses strategies of outsourcing through multiple chains which may include up to 3,000 firms;
- The U.S. provides substantial financial and technical support via its federal Small Business Administration and that agency’s many local divisions along with the EPA’s Office on Small Business Environmental Assistance;
- The European Community has established Structural Policies aimed at developing industrial cooperation networks for small businesses; and
- Programa Bolivar in Venezuela provides aid to small businesses through support networks, associations, strengthening of production chains and linking universities and research centers with small businesses. (87)

Progressive entrepreneurship is possible and likely desirable in Tijuana and the entire Mexican border region. The analysis proposed here would identify trends and common concerns among small businesses and may uncover consensus solution opportunities regarding more localized

networking of recycling, reuse, and waste absorption, among others. This information is necessary in order to understand the SME sector's needs and to provide appropriate infrastructure and services. As evident in Tijuana, the small business sector is an integral part of long-term sustainability and the city can benefit enormously from formally including the sector as a stakeholder in its environmental stewardship goals. While much more information is needed, preliminary indications of the sector's economic vitality are promising and they illustrate Tijuana's emergence as a more stable community—increasingly less relevant as a stopping off point for future border crossers and tourists, but more so as a distinct culture rooted in a permanent home for thousands more people each year.

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