

PROFMEX
URBAN STUDIES SERIES

POLICY RECOMMENDATIONS
FOR MANAGING THE
EL PASO-CIUDAD JUÁREZ
METROPOLITAN AREA

BY

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AND

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POLICY RECOMMENDATIONS FOR MANAGING THE EL PASO-CIUDAD JUÁREZ METROPOLITAN AREA

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INTRODUCTION

(James W. Wilkie)

The policy recommendations presented here for managing the intermeshing cities of El Paso and Ciudad Juarez are important for a number of reasons. They offer solutions to some major problems of an area which must be considered a greater metropolitan area divided arbitrarily by an international line. They concern a region in which two cities have traditionally not taken each other into account but must do so if they are to avoid ecological disaster. They have been developed for an area that is a proving ground in U.S.-Mexican relations in the new free-trade era. They are relevant also to the entire U.S.-Mexican border area and indeed to the development of multi-jurisdictional cities everywhere.

By the year 2010 the rapidly growing population of the El Paso-Ciudad Juarez area is projected to reach a phenomenal 3.3 million persons. Despite the shortage of water, population growth of the region is encouraged by its favorable location for international transportation and the boom in maquila industrial activity.

Hampering the search for solutions to the problems of El Paso-Ciudad Juarez is the fact that until this project the area had not been considered for management purposes as a single unit. Further, the greater metropolitan area has suffered from a weakness of the information infrastructure underpinning the debate over service and environmental issues. Little quality research has been conducted on the issues outlined here. There exists at present few reliable basic data series on many aspects of life and economic development on the U.S.-Mexican border. In El Paso-Ciudad Juarez there is at present no consistent monitoring of either water or air pollution and statistics on basic aspects of economic and social change in Ciudad Juarez are yet to be developed or made widely available. A well-developed informational and statistical basis is urgently needed so that both scholars and policymakers have the information on which to base research and policy.

To frame binational analysis and debate about El Paso-Ciudad Juarez in terms of managing them as a greater metropolitan area and to begin the serious long-term basic research on the region, the eighty member institutions of PROFMEX (the Worldwide Consortium for Research on Mexico) and the eighty members of ANUIES (the Mexican Asociacion Nacional de Universidades e Instituciones de Educacion Superior) joined forces. The goal has been to introduce for the first time in Mexico research teams which are not dominated by the traditional mold of territorially oriented universities, each of which have competed to "own" the research rights in their area.

By organizing PROFMEX-ANUIES teams of scholars to solve problems, researchers have been able to cooperate in defining and developing policy-oriented research at the border. Thus for this PROFMEX-ANUIES Project individual researchers set their own research agenda based upon academic theory and practical field work representing their own expertise.

Project research teams have focused on four topics:

1. management of urban services and policy planning in the greater metropolitan area;
2. water, hazardous waste, and public policy;
3. environmental pollution and health issues;
4. public housing, irregular settlements, and the informal sector.

Project researchers have met frequently to consider their on-going findings about El Paso-Ciudad Juarez, linking their findings to the PROFMEX-ANUIES research on Tijuana-San Diego public housing and urban services (also funded by the Ford Foundation). The project has successfully incorporated representatives of local and state government, users of public services, and business leaders.

Because many El Paso-Ciudad Juarez issues involve international policy, PROFMEX convoked a meeting in El Paso, January 13, 1994, to make practical research recommendations intended to ease tension at the border and promote management internationally. Selected Project findings were presented to U.S.-Mexican policy making teams led by Ambassador to Mexico James R. Jones and Mexico's Undersecretary of Finance Francisco Gil Diaz. Project recommendations for breaking bottlenecks in U.S.-Mexican interaction were warmly accepted by the group. For example, to reduce the need for Mexicans to pass through U.S. Immigration and Customs controls merely to use the U.S. Postal Services, Gil Diaz offered and U.S. Postal authorities agreed to establish a pilot U. S. Post Office in Mexico. Mexican foreign relations authorities led by Eduardo Ibarrola (Director General of the Mexican Consular Corps) and immigration authorities led by Javier Zenteno and Raul Solorzano (advisors of Mexico's National Migration Institute) agreed to streamline visas as well as create a new academic visa.

In carrying out this Project it has been my pleasure to work successively with two presidents of ANUIES. The project began with the cooperation of Juan Casillas Garcia de Leon and has continued to fruition with the cooperation of Carlos Pallan Figueroa.

Seed funding to prepare the Project proposal came from El Paso Community Foundation (EPCF) led by President Janice Woods Windle and Vice Presidents Virginia Kemendo and Nestor Valencia. EPCF has served as the financial administrator for the major funding provided to PROFMEX by the Ford Foundation.

Financial support by the Ford Foundation has been accompanied by the thoughtful insights and ongoing observations provided about the progress of the Project by Norman Collins and Jose Gabriel Lopez (Ford Foundation Office in Mexico City) as well as Robert Curvin, E. Walter Coward, and Frances Korten (Ford Foundation Office in New York City).

The work of the Project has been carried out brilliantly by Executive Coordinator David E. Lorey (UCLA) and Site Director Samuel Schmidt (UTEP) who have coordinated research by including faculty from Universidad Autonoma de Ciudad Juarez, El Colegio de la Frontera Norte, UTEP, the University of Arizona, New Mexico State University, and UCLA.

Special thanks to UTEP President Diana Natalicio and EPCF President Janice Woods Windle for laying the ground upon which PROFMEX has been able to build the bilateral research teams to bring the Project to its first stage of completion.

With the presentation here of the Project first-stage recommendations, and as PROFMEX prepares to begin the next stage of its research in mid-1994, let me take this opportunity to invite wide participation in exploring the recommendations which follow.

ABOUT THE FORD PROJECT

The fundamental aim of the El Paso-Ciudad Juárez Project has been to set in motion a comprehensive policy analysis of the increasingly acute environmental and services crisis in Ciudad Juárez-El Paso. The project uses the El Paso-Ciudad Juárez area as a case study, bringing together scholars from both sides of the border with policy makers and service users to produce both basic research results on many virtually unstudied issues and to propose policy options for regional and national leaders. The most important regional institutions, researchers, and activities. policymaking bodies have participated.

The Project has made both substantive, basic-research contributions and has developed applied mechanisms for conflict resolution and policy implementation. Substantive results pertain to the needs and options for public services in the short and medium terms and are the direct result of applied research and analysis. Procedural outcomes consist of the emergence of new consultative mechanisms linking policymakers, scholars, representatives of local industry, and civic and community leaders from both sides of the border.

The Project network has served to strengthen regional, developed

involved in the Project, the Project has created a precedent for cooperation among these groups and across the U.S.-Mexican border.

The Project has enhanced the internal research capacity and instructional impact of participating institutions. Project sponsored research has been directly linked to teaching at both the undergraduate and graduate levels, for example. The

has served as a model for the coordination of multi-university, multi-institutional collaboration for in policy-research

As both the structure and function of universities along the border change, it is imperative that they develop the sorts of mechanisms for cooperative research endeavors that the Ford Project has created and nurtured.

The El Paso-Ciudad Juárez project is one of a series of programs that PROFMEX is undertaking on the border with Ford Foundation funding to develop a border agenda. PROFMEX is also linking other Ford initiatives on the U.S.-Mexican border. For example, PROFMEX is studying the Tijuana housing market, providing a comparative framework for studies of El Paso-Ciudad Juárez. Additionally, linkages have been



BACKGROUND ON THE ENVIRONMENTAL
AND PUBLIC-SERVICE CRISIS IN THE
EL PASO-CIUDAD JUAREZ AREA

While population in the El Paso-Ciudad Juarez metropolitan area has grown to at least 1.5 million, the social and physical infrastructure supporting the living conditions of workers and their families has not improved apace. For example, if housing operations for workers is to match the projected growth of industry in the Mexico region, the housing stock will have to increase fifteen percent annually over the next five years. A wide range of infrastructure bottlenecks have resulted in serious backlogs not only in public housing but also in transportation, sewage, potable water, electricity, paved roads, health services, garbage removal, and county child-care facilities.

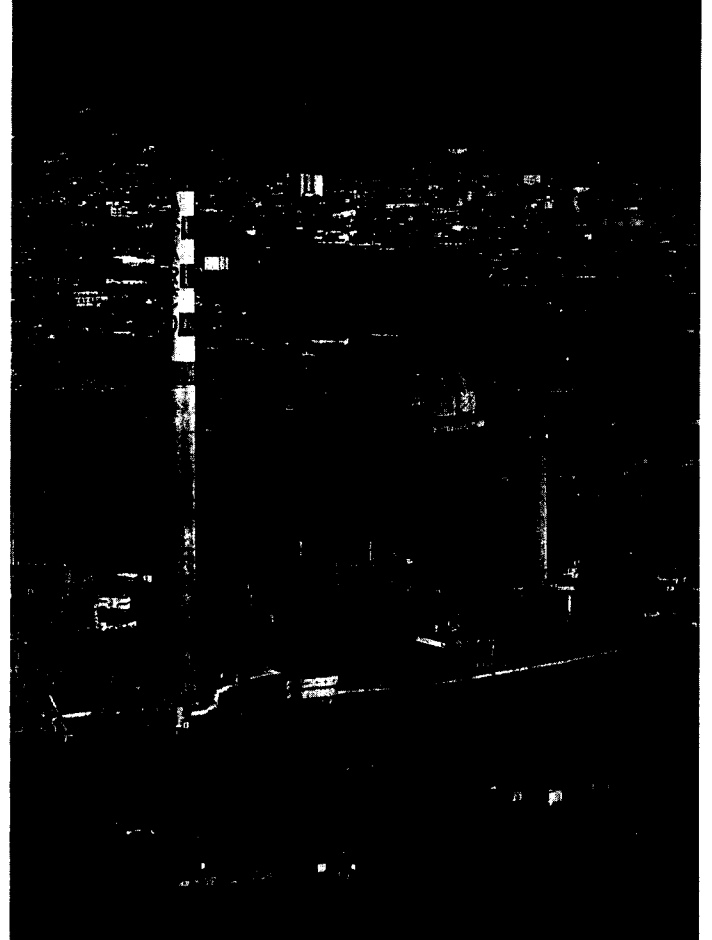
The expected economic activities stimulated by NAFTA of the will strain already limited infrastructure and endangered environment and limited public services which reduce border quality houses more than 250,000 people. About three-fifths of the city's land area is made up of poorly constructed shantytown developments.

Dramatic population increases in the El Paso-Ciudad Juarez area have put increasing stress on the supply of water, the most critical natural resource in the arid border region. The two cities depend on a shared underground aquifer (the Hueco Bolson) for the majority of their potable water. The supply of quality water from this source has been rapidly declining for a number of years due to increasing demands from both sides of the border. The rapid growth of the last three decades will force changes in the way policymakers address the use and conservation of both ground and surface water. Supplying future water for the region in a fair and equitable manner will become a major challenge in the twenty-first century.

Infrastructure bottlenecks associated with rapid growth are responsible for substantial environmental degradation on both sides of the border. Environmental concerns have grown as the metropolitan area has experienced runaway development during its most recent boom period. The metropolitan area is generally covered in a thick pall of smoke and haze from factory emissions, the burning of used tires, and the windblown dust from unpaved roads. Scarcity of water has led to the use of polluted runoff for household purposes and the dumping of toxic chemicals is threatening the well-water resources with serious

Government efforts to provide key urban services have been only partially successful in responding to the challenge of rapid, maquiladora-led development. In Ciudad Juarez maquiladoras generate only token income taxes from in Mexico, and because state and municipal authorities in have virtually no independent tax levying authority to fund lic services, infrastructure on the Mexican side of the border is largely dependent on funding from the Federal Government. In contrast in El Paso, lack of public-service infrastructure is due the location of colonias outside the city limits where the claims it has no resources to resolve public service shortfalls. Few mechanisms exist at present for the resolution urban-services and environmental crisis in the Ciudad

El Paso area. Problems of border infrastructure are not routinely



MANAGING URBAN SERVICES IN EL PASO-CIUDAD JUÁREZ*Principal Investigators: Samuel Schmidt (UTEP), James W. Wilkie (UCLA)***FwDiOs**

Urban-service management in both cities has not adequately addressed major cross-border issues. For example, the border.

traffic jam at the border continues to allow vehicles to idle for periods up to several hours spewing hazardous fumes into the air while they await U.S. inspections, thus fueling air pollution and raising hostility in U.S.-Mexican border relations. There are few common definitions around with which to focus analysis and number

debate on such issues as managing waste to enhance the quality per of life in the region. are

Budgeting systems in the two cities are not comparable, do not present data on programmatic analysis, and are not avail-expedited

able to the public in any complete form. Projected budgets are who

used for propaganda purposes in summary form and the result of audits are known to only a handful of people. The financial data for both cities is presented in administrative format which is hard to understand, owing to the fact that the programs do not appear consistently under the same administrative units over time. Actual expenditures in El Paso appear to be closer to the amount budgeted than in Ciudad Juarez. Developing yearly data water as

for the United States requires finding a complete set of books to which access is difficult. On the Mexican side the books tend to announce

vanish with each new administration. Administrators generally to it

discourage long-term analysis. City plans are often not kept in a central location and sometimes are lost.

**RBCOMMMJDATTONS**

To reduce border crossings

- Create a greater metropolitan local telephoning arrangement.

- Establish an arrangement for mutual delivery of U.S. and Mexican mail to post office boxes across the

- Create a mobility program to facilitate border related activities.

To reduce air pollution

- Create a trans-border air quality district.

- Develop financing for both sides to increase the

of inexpensive machines that can pave up to 5 km

day of dusty secondary streets, 70 percent of which

currently unpaved on both sides of the border.

- Establish U.S. customs lanes and routes for

crossings for official business and for legal residents

live on one side of the border but work legally on the other side.

- Issue certificates to expedite repetitive and routine border crossings.

To manage water quality

- Develop reliable data on the availability of piped

opposed to "potable" water.

- Encourage Mexican government agencies to

expansion of the "piped" water supply and not refer

as "potable" water supply.

*T-
Planning*

- Establish an independent Bi-national Urban Policy Institute to accumulate resources and statistical data. The Institute will preserve city planning materials (including city plans, city budgets, and audits).

Develop a similar programmatic system for analyzing

projected and actual expenditures for municipal governments on both sides of the border.

RESEARCH SUMMARIES AND POLICY RECOMMENDATIONS

"THE RIGHT TO KNOW": HAZARDOUS WASTE AWARENESS

Environmental Health Perspectives

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need

Findings

The amount and trans-boundary movement of hazardous wastes between Ciudad Juarez and El Paso is increasing **significantly**. For 1990 and 1991 it reached 7,466.87 tons, and 375,785.94 gallons. The average number of hazardous materials used per plant in Ciudad Juarez is 3.9 types of products.

Information on the quantity and risks of handling hazardous waste is not available and cooperation by main producers is difficult to obtain. Reading and understanding of material safety data sheets (MSDS) supplied with many chemicals is not easy for many individuals, due to the technical language used in these safety sheets. Additionally, the sheets are frequently only printed in English.

Awareness of hazardous waste issues is complicated by a lack of information. No single local agency or private organization has a complete list of laws, regulations and technical norms of the different regulatory agencies on such topics as environment, health, safety and industrial hygiene.

Recommendations

Sign Bi-national accords for the:

- Identification of hazardous materials used in border cities.
- Implementation of training programs for safe handling of hazardous materials and help all personnel better understand material safety data sheets.
- Publication of bilingual environmental pamphlets to be

EVALUATION OF SOURCES OF POLLUTION IN CIUDAD JUÁREZ

Principal Investigator: Juan Efigenio Sanchez (UACJ)

Findings

There are several principal sources of environmental contamination in Ciudad Juarez. Maquiladora plants generate wastes that contaminate the soil, air, and water. There are large amounts of contaminants produced by the open-air burning of garbage. At least 250 brick factories use old tires, chemicals, and other waste products to fire their ovens. More than 200 paint shops operate in the eastern part of the city without modern fume controls. Garbage collection service only reaches 30 percent of

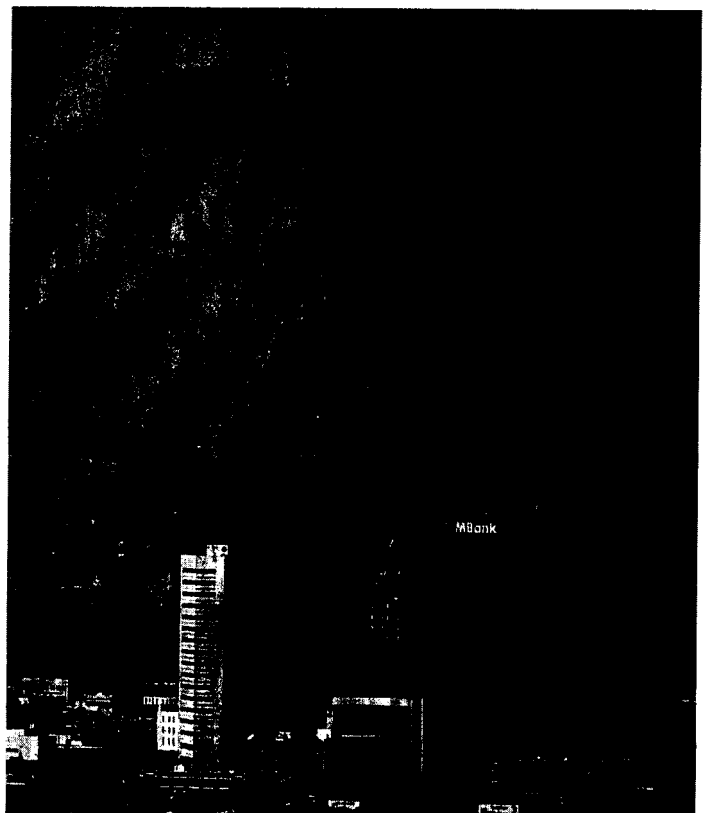
the populace. At least 310,000 cars circulate in Ciudad Juarez. Just 3 percent of these cars are responsible for 24 percent of

hydrocarbon emissions in the city; 31 percent produce 50 percent of the carbon monoxide. Almost 100,000 vehicles would

major repairs to reduce emissions of these pollutants.

Recommendations

- Develop inventories of soil, air, and water contaminants.
 - Initiate a program for the training of environmental professionals in the region.
 - Involve the polluting industries in joint programs to reduce the level of and toxicity of their waste discharges.
 - Develop regional processing of toxic wastes.
 - Develop environmental awareness programs.
- Coordinate pavement of secondary roads on both sides of the border.
 - Develop a training program for small and medium industries to optimize operations in environmentally sound ways; involve chambers of commerce and municipal authorities in this program.



RESEARCH SUMMARIES AND POLICY RECOMMENDATIONS

THE PERCEPTION OF ENVIRONMENTAL PROBLEMS IN CIUDAD JUAREZ AND EL PASO

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While environmental problems on the U.S.-Mexican bor-

der have a high degree of social visibility, there has been little research on how these problems are perceived by residents on both sides of the border. And while it is frequently said that envi-

BOLSON ronmental threats know no borders, perception of those threats may reflect the divisions of the international boundary. Because they have different views of what constitutes an environmental danger, residents of Ciudad Juarez and El Paso sometimes are divided along class, national, gender, and age lines on environmental issues.

Two examples from the project suffice to illustrate these year findings. The Sunland Park garbage dump gravely affects the Bolson health of residents on both sides of the border. Area residents on the U.S. side have organized attempts to have the dump moved. But across the border, in the Anapra colonia, residents upset annual about environmental issues have focused not on garbage, but on vol the provision of running water so they can stop using the used 50-gallon drums they currently use for water. little

A similar division of perceptions and interests is appar- within ent in the debate over air quality in the region. Some Juarenses



Rewrnmenclations

- Establish a bilateral citizens' environmental committee to define: common definitions and rankings of issues.
- Formulate policies which rely on listening to the

who live in specific zones of the cities and have

interests that affect their views of environmental problems.

MATHEMATICAL MODEL OF THE FIUEco

IN THE CIUDAD JUAREZ AREA

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The usage of water in Ciudad Juarez has been doubling approximately every 10 years. The volume estimated for the

2000 is 187 million cubic meters. Depletion of the Hueco

aquifer at these rates threatens to completely drain the aquifer, the major source of potable water in the region. The aquifer is only slowly recharged naturally due to the low levels of

rainfall, high rate of evaporation, and small number and low umes of surface streams.

Wells have been located in a haphazard fashion, with planning or overall coordination. The majority are located

the central area of the city. Because of their location, there has

- Sink test wells to estimate the size and characteristics of the aquifer.
- Assure that the volume of water extracted from the aquifer is not more than equal to the volume of annual rainfall, allowing recharge to occur from the Rio Grande flow.
- Sink new wells where draw-down and water quality will be least affected.
- Evaluate the distribution network to eliminate leaks.
- Develop an infrastructure for the efficient recharging

RESEARCH SUMMARIES AND POLICY RECOMMENDATIONS

BACTERIOLOGICAL STUDY OF DRINKING WATER QUALITY IN CIUDAD JUAREZ

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GEOHYDROLOGICAL STUDY OF THE TERRAZAS ZONE IN THE CIUDAD JUAREZ VALLEY

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Findings

According to official statistics, 92 percent of the population of Ciudad Juarez has potable water and 85 percent of houses have sewage. Actual rates are considerably lower. Many Juarenes get their drinking water in deliveries from roaming water trucks or from rain barrels. There have been various studies of water quality in the region: In 1987 microorganisms were found in deliveries of drinking water; in 1988 new studies gave negative results. In 1992 microorganisms were found only in the quantities approved by the Health Ministry; nonetheless, residents were warned to boil their drinking water.

Although this study has found that levels of nitrates are of some much lower than the upper limit allowed by the government (both Use inside and outside of houses), chloroform bacteria is present in public

These areas are the same ones in which the highest incidence of chloroform bacteria is detected. Future contamination threats are open sewers, cemeteries, and garbage dumps.

Recommendations

- Increase the monitoring of bacteriological characteristics of the water supply during different times of the year to correlate climatic factors with incidence of waterborne bacteria.
- Establish a stricter control of chlorination.
- Check older sewer and water distribution networks for leaks.
- Reduce the threat to water quality from external sources such as cemeteries, garbage dumps, open sewage lines, and hospital dumps.

Findings

Three decades of overuse of the Hueco Bolson aquifer, which lies under the Ciudad Juarez-El Paso metropolitan area, has left three troubling environmental legacies: depletion of aquifer; deterioration of water quality; and a migration of polluted water toward drinking water supplies.

While the high salinity of wells in the Juarez Valley limited their use for agricultural purposes, some wells supply outlying towns with drinking and cooking water. As a result of the salinity of well water, sewage from Ciudad Juarez has been used for irrigation. This is the case, for example, in the Ninth Irrigation District, which has an extension of 24,590 hectares. The depletion of the underlying aquifer and the drying-up of wells has also made the use of sewage attractive to growers. of untreated sewage has led to serious environmental and

- Create a transboundary water conservation



HOUSING, SELF-BUILDING, AND SELF-DETERMINATION

Principal Investigators: Eduardo Barrera and Lidia Castillo Oronoz (COFF)

FEMALE HEADS OF HOUSEHOLDS IN CIUDAD JUAREZ

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Findings

Approximately 40 percent of **all** housing in Ciudad Juarez is irregular, that is, tenancy is not legal or registered by any agency or office. Irregular housing areas are usually the result of invasions of unoccupied land by leaders who organize the takeover and then distribute lots, take responsibility for legalizing the area, and attempt to secure public services for inhabitants. Recent arrivals in the city frequently turn to these organizers because they do not have sufficient income or capital with which to rent or buy regular housing. Additionally, the scarcity of space for popular housing and the selectivity of the housing market contribute to the development of irregular settlements.

Data collected by the project gives a statistical picture of these realities: 75 percent of Juarenses interviewed were born in other areas of Mexico; 61 percent are in the process of regularizing their housing; 36 percent have been occupying their irregular housing for between 10 and 20 years. Ninety-two percent of the interviewed do not belong to a neighborhood organization or association; 78 percent reported that they have not received assistance from the Mexican government's Solidarity Program. The total housing deficit is calculated by project researchers as 18.5 percent, meaning that nearly one out of five Juarenses has no regular housing.

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- Involve the maquila industry in the process of regularizing housing, as is being tried in other border cities. (In Nogales, Sonora, for example, a pilot project is underway in which the maquiladora association provides partial credit, while the state government and housing promoters negotiate other credits and buy and develop land).
- Step up the process of regularizing irregular settlements.
- Encourage self-building projects.
- Provide information to persons living in irregular settlements about the advantages of self-building projects.
- Make the legal requisites for land ownership and regularization widely known among inhabitants of irregular settlements.

Findings

The maquiladora industry has created new work opportunities for women. Improved economic independence

has transformed the household in Mexico, as in other

The birth rate has declined, the divorce rate has risen, and

has been an increase in female-headed households.

However, women are likely to be concentrated in low paying jobs, and women who are the sole support of their families are more likely to be living in poverty, compared to male-headed households or dual income families. About half

the women studied in this sub-project are renters.

A high percentage of women heading households are migrants and are poor and poorly educated and need child care services for young children while they work. A large

of interviewed women reported health problems and low

tion of health services. Their job preferences reflect low levels

career aspiration.

Recommendations

- Develop specific programs to improve living standards and raise the quality of the housing stock in Ciudad Juarez, including regularization, provision of utilities, and offering legal titles of ownership.
- Upgrade services to outlying colonias.
 - Reform transportation routes to minimize travel time to and from work.
 - Investigate the possibility of providing low-cost solar heated shower facilities for use by those who lack indoor plumbing.
 - Encourage self-help home builders to incorporate elements of passive solar design into their construction.
 - Create community-based adult education programs designed for economically active persons with little free time.
- Develop an integrated preventive health care initiative perhaps through an already established organization such as FEMAP (a nongovernment organization). This program should include nutritional counseling and

REPORT OF THE FINDINGS AND RECOMMENDATIONS
 POLICE, KECOM, AND OTHER AGENCIES

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Principal Investigator, K. J. Staudt (UIP)

Findings

Approximately a quarter of the population in Juarez and El Paso are employed in the informal sector of the regional economy. Such employment is extremely diverse in terms of its profitability and its relationship to the authorities and to formal businesses. In Juarez, it is open, visible, legitimate, and even well organized in some areas, while in El Paso, informal work is less visible. Work in the informal sector generates work for family members (generally unpaid) and to a lesser extent, other employees. Street vending, for example, can generate better income than minimum-wage maquila work in Ciudad Juarez.

Women participate in sizable numbers in the informal sector. In Ciudad Juarez, women represent half or more of the workers. Informal workers have ambivalent relationships with the authorities, who represent fragmented agencies with diverse goals and who frequently operate "informally" as well. Enforcement is sporadic and inconsistent, fee scales are non-transparent and/or change frequently, and frontline staff do not always comply with official policy.

To support entry costs to their businesses, informal workers use savings most frequently, and the minority use loans obtained for them from friends and family. Governments and banks play little to no role in facilitating capital needs and training for small-scale commerce. In Ciudad Juarez, FEMAP operates community banks in 17 colonias. To eliminate informality, minimum wages must increase along with fuller employment opportunities for persons now employed informally.

Recommendations

- Administration of micro-enterprises should be simplified and provided, at a one-stop unit with publicly posted fees that are consistently enforced. Given the job creation, generation, and revenue generated, flat fees could support an ombudsperson.
- To support entry and development costs, a micro enterprise fund should be established that provides loans that are guaranteed in nonconventional ways. Ideally, this fund should serve both sides of the border. Some models

- To reduce costs of enforcement and corruption and increase compliance, noncompliance in vending should goods should not be confiscated (Ciudad Juarez).

THE URBAN SERVICES CRISIS IN HISTORICAL PERSPECTIVE

The historical record reveals that Ciudad Juarez and El Paso have continuously been challenged to meet the needs of increasing numbers of people. Ciudad Juarez and El Paso major urban centers as a result of extraordinary migrations primarily triggered by 1) international conflicts—World War II; the Korean War; and Vietnam; 2) the Bracero Program; 3) the emergence of the U.S. "Sun Belt" as a boom region; and 4) the Border Industrialization Program (with its associated maquiladoras). The current "crisis" is the latest chapter of a and difficult history. The difference between the present and eras is that the challenges for Juarenses and El Pasoans are greater now than ever before. Today hundreds of thousands of people in the combined metropolitan area lead marginal lives, compared to a few tens of thousands in the recent past and a thousand in the distant past.

Recommendations

- Identify the limits, or carrying capacity, of the metropolitan area for human occupation and use this limit as a guide to policy.
- Inform area residents about problems where their daily involvement is necessary, for example in water conservation and pollution control.
- Create a Border Heritage Project to counterbalance the constant flow of negative publicity about the border region, extol the accomplishments of the region, its rich history and culture, and attract tourism.

