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Binational Vital Signs: A Quality of Life Indicator Program for the San Diego-Tijuana Metropolitan Region¹

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Abstract

This is a study of a binational community indicator program for the San Diego-Tijuana metropolitan area (SDTMA). The key objective of the research was to produce a citizen-generated community indicator program (CIP). The study is closely based on the work of the two focus groups held in the two cities and offers a small program that has immediate practical potential for implementation. The program consists of a suite of thirty-five indicators for which data has been identified and provided. Fifteen of the indicators apply to Tijuana, twenty to San Diego. The program is built around principles of community well-being or quality of life (QOL). It is the first subregional attempt at the scale of the United States-Mexico Bi-National Region (BNR) to integrate existing environmental, social, and economic data into a single coherent program to inform community leaders about the condition of the SDTMA. The region covered by the CIP generally consists of the urbanized core of metropolitan Tijuana, the city of San Diego, and associated cities like Chula Vista and El Cajon within the southern part of San Diego County.

Indicators are quantitative or qualitative information presented in a formalized way. They facilitate assessment of the past, current, or future condition of a system (Hodge, 1996). There is nothing new about indicators—they have been used for decades to inform, enlighten, and support policy change. Gross national product, cost of living, and employment statistics are three of the more common national indicators used in many countries. What is innovative is how suites of indicators are used in programs to monitor global, national, and community condition. As a result of the Rio Declaration and commitments to Agenda 21 (United Nations Conference on Environment and Development, 1993) several European countries, Canada, and Japan are using sets of indicators at a national scale. Efforts to monitor global conditions have existed for several years, too. The United Nations (UN) coordinates the measurement of problems like greenhouse gas accumulation and ozone depletion; constructs macro-indicators that describe "North" and "South" processes, and has assembled the human development index (HDI) (Henderson, 1994), which aggregates a number of separate indicators into a composite measure. Private organizations like *The Economist* (London) and The Worldwatch Institute are also important producers of global indicators and data.

At the other end of the scale, there has been a proliferation of city-based indicator programs. More than two hundred communities around the United States are using suites of indicators in community indicator programs (CIPs) in an attempt to monitor economic and environmental trends and social well-being (Atkinson & Hamilton, 1996; Besleme and Mullin, 1997; Innes & Bocher, 1999; Redefining Progress, 1997). The first indicator program in United States in was created in

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1985 in Jacksonville, Florida (Jacksonville Community Council Inc., 1999). The program relied almost exclusively on citizen volunteers. The CIP lead to the creation of a nongovernmental organization that tracked local conditions within the Jacksonville area. The CIP did not measure performance against goals and objectives at first. However, in 2001 a small number of goals were introduced into the program.

Community indicator programs are essentially policy management tools, yielding information that justifies change of direction or reinforcement of existing policy. The CIP is based on the philosophy that good management of our cities requires accurate and regular feedback. Community indicator programs are a particularly tangible way of measuring performance of community goals and tracking city conditions. Many researchers (e.g., Reid, 1995) have also commented on the ability of CIPs to heighten public awareness about community issues and on their value in helping the policy management process.

This study focuses on a binational community indicator program for the San Diego-Tijuana metropolitan area (SDTMA). The key objective of the research was to produce a citizen-generated CIP. The study is closely based on the work of the two focus groups held in the two cities and offers a small program that has immediate practical potential for implementation. The program consists of a suite of thirty-five indicators for which data has been identified and provided. Fifteen of the indicators apply to Tijuana, twenty-one to San Diego. The program is built around principles of community well-being or quality of life (QOL). It is the first subregional attempt at the scale of the United States-Mexico Bi-National Region (BNR) to integrate existing environmental, social, and economic data into a single coherent program to inform community leaders about the condition of the SDTMA. The region covered by the CIP generally consists of the urbanized core of metropolitan Tijuana, the City of San Diego, and associated cities like Chula Vista and El Cajon within San Diego County.

Literature Review

The literature on community indicator programs reveals there is a noticeable lack of programs operating at a regional scale. Formal application of CIPs at the inter-local government level requires a high degree of cooperation, which is often difficult to obtain. Neighboring communities do sometimes combine to operate a "regional" indicator program but some may not embrace all local government agencies (LGAs) within the geographical area. The tri-county central Texas program is a case in point (City of Austin, 2000) where fifty-three individual cities, including Austin, do not participate in the three-county CIP. Most programs with a regional focus are limited to a major city and part of its rural-urban hinterland. Portland-Multnomah County Progress Board (1999) in Oregon and Truckee Meadows Regional Planning Agency (1999) in Nevada are rare examples of such "subregional" CIPs.

There is only one fully regional indicator program in the United States and Mexico. It covers the binational region (BNR) along the United States-Mexico international boundary (U.S. EPA & SEMARNAT, 1998). The geographical extent of the border region is a 200-kilometer zone that extends for 100 kilometers (62.5

miles) on either side of the United States-Mexico boundary and stretches 3,141 kilometers (1,952 miles) from the Pacific Ocean to the Gulf of Mexico. The BNR is one of the fastest growing regions in North America, especially in some sister cities such as the San Diego-Tijuana Metropolitan Area (SDTMA). The SDTMA is the focus of this research.

Concerns in the SDTMA suggest that regional monitoring and feedback is imperative if society is to maintain and enhance its QOL. Implementing the CIP would be valuable for several reasons. First, the SDTMA is one of the fastest growing regions in North America. Second, the pace of development, significant disparities between the two cities, and decades of insensitive development have brought a plethora of environmental problems. The SDTMA is a microcosm of the challenges faced by the entire United States-Mexico BNR. It is "on a trajectory that will lead to declining quality of life and quality of environment and . . . trans-border cooperation . . . is necessary" (Canster, 1998, p. 1). Third, some critical issues challenging the SDTMA are intense pressure on natural resources like the water supply; that biodiversity is seriously threatened; and that there are health risks to humans as a result of air, water, and soil pollution according to the United States Environmental Protection Agency (EPA) and the Mexican Secretariat for Environment, Natural Resources, and Fisheries (U.S. EPA & SEMARNAT, 1998). Quality of life in parts of the metropolitan region is so poor that the regional economy could be adversely impacted. A superior management and information system can highlight such pressures and help to support investment and initiatives designed to correct problems.

Indicators vary greatly regarding their caliber. Many CIPs emphasize simplistic output measures such as the number of building permits issued, or the number of affordable houses built in a specific time period. Measures like this are always helpful, but they lack dimension. In the first example that would be to give an idea of building durability or the proportion of permits issued that incorporate energy efficiency measures. In the second example it might be the degree to which housing provision is meeting demand. There are three issues here. First, it is not always possible to enhance indicators in this way. Second, data needs are invariably greater when more than two dimensions are incorporated in a measure. Third, the researchers are mindful that an organization has not been identified to run the CIP at this stage and that launching a straightforward program might be more attractive than a complex one to a future organization.

The Purpose and Nature of Indicator Programs

Most indicator programs are compiled by local government agencies (LGAs) and nongovernmental agencies (NGOs). In both cases it is often done in collaboration with residents as a grassroots or bottom-up program. Community indicator programs monitor the health or state of a community. At one end of the spectrum CIPs appear to be purely tracking devices. Reference to goals and objectives may be completely absent (Hennepin County, 1997; Joint Venture: Silicon Valley, 1999; Sustainable Seattle, 1995; Pierce County, 1998). The suite of indicators researched and selected in a highly participatory way by NGO Sustainable Seattle has acted as a model for many subsequent CIPs, though there is some doubt about the pur-

usefulness of programs that avoid goals. Nevertheless, the very existence of the program implies concern about the direction in which a community is heading. It infers a series of goals and the program may be seen as the first step to positive quantification of community environmental policy (Adriaanse, 1993). Some NGO indicator programs (e.g., Joint Venture: Silicon Valley Network [JVSVN], 1999) introduce goals as they mature. Indeed the JVSVN program may be a model for a proposed San Diego-Tijuana program. It started off as a very small program monitoring educational achievements, expanded into other social areas as well as the economic and environmental domains, and recently adopted a full set of goals (JVSVN, 2002). However, questions remain about implementation and accountability unless there is a strong alliance between LGAs and NGOs.

At the other end of the spectrum, many cities have goal-based CIPs and a few have gone further by adopting goals based on sustainability principles (e.g., City of Olympia, 1998; City of Santa Monica, 1999; City of Tucson, 1999). Adopting such principles implies a quantum leap in environmental sensitivity. It points to the need for close performance monitoring and a willingness to use indicator outcomes to modify policy.

Research Objectives and Questions

The primary objective of this study was to prepare a citizen-based indicator program to monitor the quality of life (QOL) within the San Diego-Tijuana Metropolitan. The researchers intended to develop an indicator program for a governmental or nongovernmental agency to operationalize and implement.

There were several subsidiary objectives to the research. The first was to prepare a program that offers potential for being implemented. A second subsidiary objective was to provide a model program for other twin-city areas along the BNR. The third objective of the project was designed to aid implementation. It is to identify data and its source for the indicators.

Several research questions were presented to address the research objectives. They are: What are the social, economic, and environmental indicators of the quality of life for the San Diego-Tijuana Metropolitan Region? What indicators are shared by San Diego and Tijuana? What indicators are different for San Diego and Tijuana? If there are shared indicators, is there data available to measure each indicator? What is the quality of the available data? What is the reliability of the available data?

Research Methodology

In order to develop a citizen-based CIP the researchers conducted two focus groups. The focus groups were created and managed by the researchers using traditional methods. Group interaction was captured using a notetaker and tape recorder with transcription done by the researchers. An introductory presentation about CIPs was given before each focus group meeting. One focus group was held in October 2001 in San Ysidro, California, a border city located south of San Diego. The focus group was held at the San Ysidro Chamber of Commerce. Citizens from various sectors of the San Diego community were invited to attend. Participants

included representatives from government, business, nonprofit organizations, and San Diego State University. The second focus group was held in December of 2001 in Tijuana, Mexico, at the Camino Real Hotel. Focus group participants included mainly participants from local nonprofit organizations and Universidad de Baja California. The focus group participants were compensated only for their travel to and from the focus groups, as well as being provided refreshments during the session.

Results

Each focus group: (1) identified issues and proposed indicators in each of the three (environmental, social, and economic) domains, (2) identified a limited number of specialized indicators that reflected particular characteristics of the SDTMA, and (3) expressed views regarding data availability and implementation and operation of the CIP. Attendance at the focus groups was lower than expected. The researchers may attribute this to the fact that the San Diego focus group was held a month after the September 11 attacks. The Tijuana focus group was scheduled months in advance, however, Mexican President Vicente Fox held a last-minute community health forum at the same time and in the same hotel as the focus group and the coordinator of the Mexican focus group believes several potential participants attended the president's forum instead.

The San Diego focus group suggested 47 indicators and the Tijuana group suggested 50, representing 12 different subject and issue areas. Of the 47 original San Diego focus group indicators, data was identified for 21 of the measures. Of the 50 original Tijuana indicators, data was identified for 15 of the measures. These indicators are shown in Table One.

Based on the feedback from the focus groups, the next stage of the research involved data-gathering. Locating the San Diego data involved library and Internet research. Some data for the Mexican indicators was obtained online, but most was available in Tijuana.

The following charts reveal data the researchers found to be comparable data found for both San Diego and Tijuana. Due to the limitations of this article, only selected data will be presented to provide a sample of quality of life indicators representing social, economic, and environmental data. Figures One and Two display the population data available for both regions. Population data is considered a one-dimensional social indicator.

This indicator contains data that is fundamental to good urban planning and city management. However, population data is normally considered background information in a CIP. It often appears in an indicator program allied with other data. Population information is so basic that enhancement is hardly necessary. However, the data rarely appears in CIPs in its simple form. It is either allied with another variable (like trash generation) or with first level analysis giving information on rates—for example crime rates per one thousand population, water consumption per capita, or literacy as a percentage of the total population. As revealed in Figures One and Two, the populations of both San Diego and Tijuana are increasing rapidly. The rate of growth appears to have increased particularly after the 1980s. Data was only available from 1950 for Tijuana but United States census

Table 1. Indicators for Which Data Has Been Identified

Tijuana Indicators with Data Provided	San Diego Indicators with Data Provided
Population of Tijuana 1950-1995	Population of San Diego County 1900-2000
Number of occupants per household in Tijuana	Number of occupants per household
Predominant building materials for house roofs, floors and walls in Tijuana	Housing units with access to public sewer system in San Diego
Average grade level education	High school graduation rate
Literacy rate in Tijuana 1990-2000	
Proportion of homes provided with plumbing, sewer and electricity	
Life expectancy	
Infant mortality rate	
Causes of death	
Suicide rate	
Domestic violence	
Number of individuals with access to health care	
HIV Rate	
Rate of violent and property crime per 100,000 inhabitants in SDMA	
Total police officers in City of San Diego	
Average water use in San Diego Region and Tijuana (these data are identical despite differences in phrasing)	
Percent of water recycled	
Amount and percent of residential waste generated, measured in tons	
Tons of trash generated annually in Tijuana	
Number of days exceeding federal regulations of air quality in three-month test	
Per capita green areas	
Landfill composites in Tijuana	
Commuting time	
Number of days of beach closure in San Diego County	
Per capita income	
Number of people coming to San Diego from Tijuana to work	
Total: 15 indicators	21 indicators

data provides San Diego data as far back as 1900, providing a better picture of long-term growth.

Figures Three and Four measure the number of people per household. This indicator measures the number of people living in a dwelling unit. Its deeper aim is to measure overcrowding since that may be a public health concern. Therefore, this could be considered both a social and an economic indicator. It may be a sign of poverty or a lack of affordable housing, and both the indigenous and non-indigenous community should be monitored. This indicator would be strengthened if it were accompanied by data relating to house size and the number of habitable rooms. Using an indicator like this at appropriate scale is also vital. A city-wide indicator is too generalized and it would be more informative if it were targeted at individual neighborhoods and, preferably, designed to establish differences between the nonindigenous population in Tijuana and the indigenous population. For San Diego County, like Tijuana, using an indicator like this at appropriate scale is also vital. A city- or countywide indicator is too generalized, thus it ought to be targeted at individual census tracts and neighborhoods, which is feasible given the existence of geographical information systems (GIS) and databases in the United States.

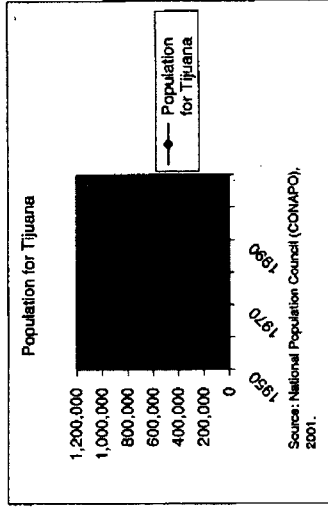


Figure 1. Population of Tijuana, 1950-1995

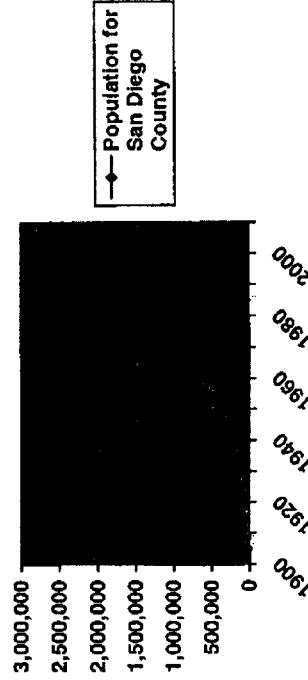


Figure 2. Population of San Diego County, 1900-2000
Source: U.S. Census, 2003.

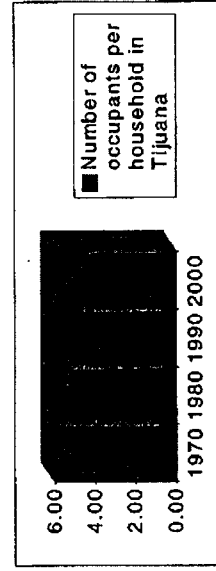


Figure 3. Number of Occupants per Household in Tijuana
Source: Instituto Nacional de Estadística, Geografía e Informática (INEGI), 2000.

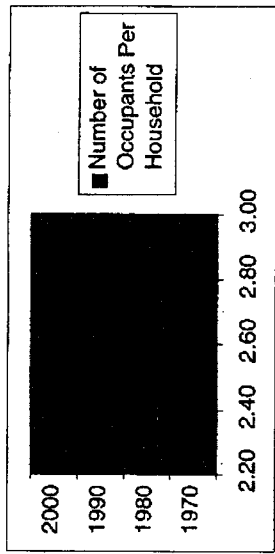


Figure 4. Number of Occupants per Household in San Diego County
Source: U.S. Census, 2000.

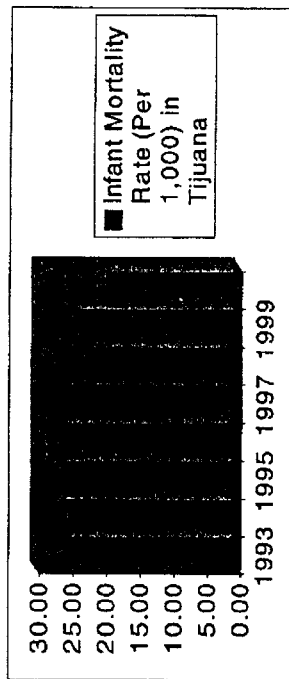


Figure 5. Infant Mortality Rate for Tijuana
Source: Instituto Nacional de Estadística, Geografía e Informática (INEGI), 2000.

Figures Five and Six provide infant mortality data for each region. This data is measures the death rate of newly born infants per thousand live births. As with the San Diego indicator, the measure is somewhat simplistic. The indicator measures a single phenomenon and it does not indicate either direct or indirect cause of death, and is not able to suggest whether the rates are acceptable or otherwise.

This indicator is measuring the death rate of newly born babies. It is a simplistic indicator in that it cannot reveal either direct or indirect cause of death, though that data probably exists. Nevertheless it is a useful indicator because it tells something about the health of the society by revealing how many children live until they are beyond infancy. It is evident from the data there is a higher rate of mortality among infants in Tijuana compared to San Diego. However, there is a gap in the data, with figures available until 2001 for San Diego, while Tijuana data is available only until 1999.

The indicator is useful in averaging state (and county) mortality information, but it is too coarse at this scale to uncover localized problems or to guide policy. Its value would be increased in two ways; first by introducing information on cause of infant death, and second by linking it to finer-scaled geographical data. Data at

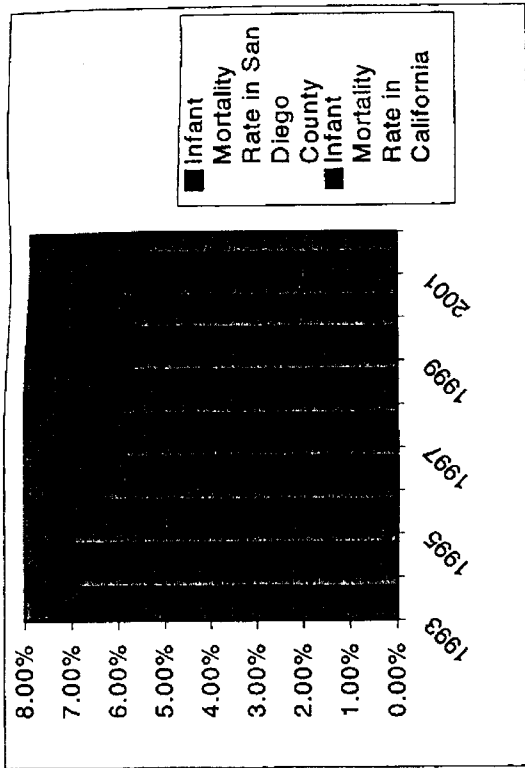


Figure 6. Infant Mortality Rate for San Diego
Source: California Department of Health Services, 2003.

neighborhood or census tract scale might reveal significantly different trends in mortality and highlight the need for action that is not apparent at county or state level. In addition, linking this indicator to income categories could be much more revealing. Comparing data with the health access measures might also be instructive. Enhancing it in this way might allow the indicator to become an important measure of social equity, as in the health access indicator.

Figures Seven and Eight reveal the number of individuals with access to health care in both Tijuana and San Diego.

This indicator measures the number and proportion of the population that either has health insurance or has access to health care in some other way. It is a sign of quality of life and an approximate measure of the level of social equity in society. Measuring the proportion of individuals with access to health care is a useful statistic but it says nothing about the range or quality of care available. Nor does it speak to the general wellness of the population. Both aspects could be allied to the indicator to strengthen its value. A very positive indicator might be one that measured people's healthfulness—attitudes toward and adoption of healthy eating habits and exercise, for example. Data for such an indicator would be difficult to acquire. However, it would be a significantly more informative indicator and one that would carry great potential for policy management at senior levels of government.

Data is available for Tijuana in only one form, the total number of individuals with access to health care. San Diego County data is available for the percentage of individuals with access to health care, broken down by age groups. In the United

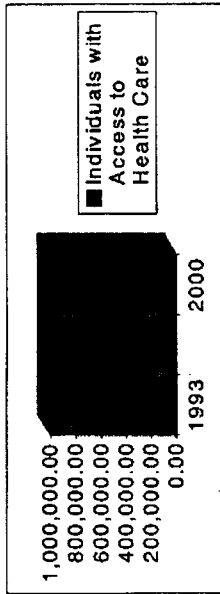


Figure 7. Number of Individuals with Access to Health Care in Tijuana. Source: Instituto Nacional de Estadística, Geografía e Informática (INEGI), 2000.

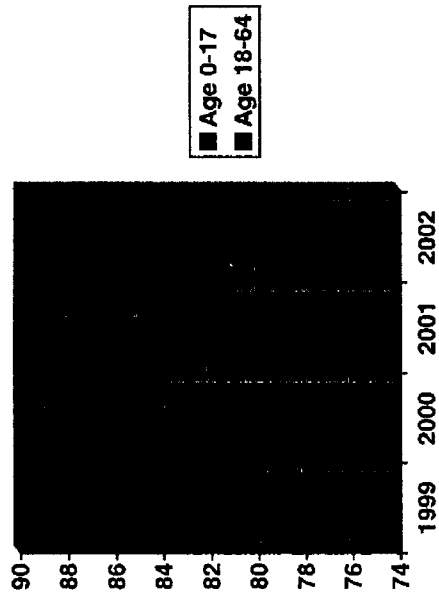


Figure 8. Percentage of Individuals in San Diego with Access to Health Care. Source: United Way of San Diego County, 2002.

States people aged 65 and over are automatically covered by Medicare, the federally sponsored health care program. Thus, data is collected only for individuals up to age 64. Tijuana data reveals a dramatic increase in the number of individuals with access to health care, while San Diego data reveal a more consistent percentage of people with access to health care. However, it is evident there was a slight decrease in the percentage of people with access to healthcare between 2001 and 2002.

Figures Nine and Ten provide information regarding air quality for both Tijuana and San Diego. It is an important quality of life indicator given the adverse health effects that polluted air can have on humans. Poor air quality directly affects the health of many people in a large urban area. It also influences a city's livability and the quality of life among its citizens. Figure Nine represents the Tijuana data. This is an indicator giving data on violations of the federal clean air standard.

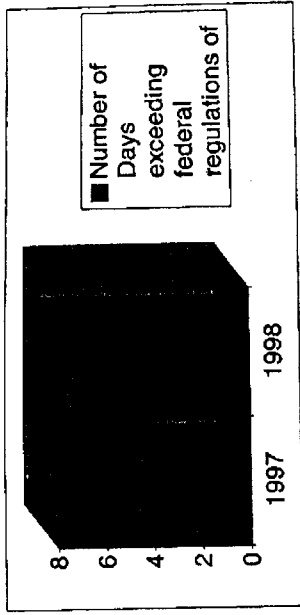


Figure 9. Number of Days Exceeding Federal Regulations of Air Quality in Three-Month Test. Source: Instituto Nacional de Estadística, Geografía e Informática (INEGI), 2000.

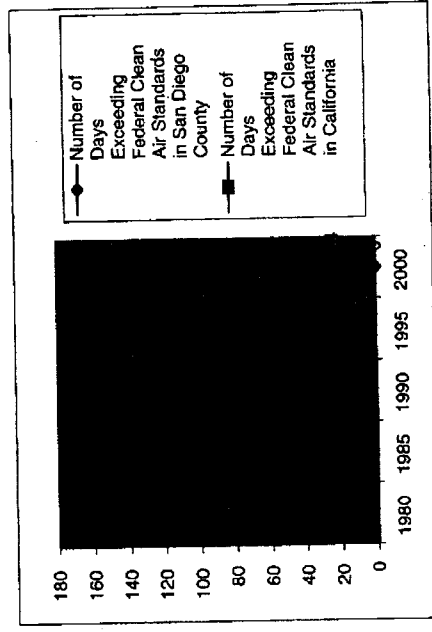


Figure 10. Index of Air Quality in San Diego County. Source: Air Pollution Control District of San Diego, 2000.

The indicator is important in its own right but care needs to be exercised in how the data is reported. Comments made about a similar indicator in the San Diego suite concerned with the pollution standard index (PSI) may also apply to Tijuana.

Figure Ten is a double indicator giving data on the number of days exceeding the federal clean air standard (one hour) and the number of days exceeding the state clean air standard (one hour) in San Diego County. This is a crucial indicator of environmental quality and enhancement is probably not necessary. A cautionary note is needed about the underlying data in the indicator. The pollution standard index (PSI) is frequently used in local indicator reports. The numerical index is calculated for each of the five federally regulated air pollutants—carbon monoxide, ozone, sulfur dioxide, nitrogen oxides, and particulate matter. The

highest reading for any of the five pollutants on a given day is reported as the overall PSI. The weakness of the PSI is that it represents only one pollutant. It is not a conventional index in which all readings are aggregated. Four of the five are not represented every day. Nationally, ozone is the most severe pollutant 89% of the time. We receive no information about the other pollutants and no data about those contaminants not covered by the PSI. While the PSI may represent the most significant threats in many areas, that may not be the case in others. In summary, the PSI is not a particularly good indicator. Its reliability is probably high but its validity as a representative measure of air quality is low.

A better approach to measuring air quality would be to follow that adopted by the United States Environmental Protection Agency and Mexican Secretariat for Environment, Natural Resources, and Fisheries (EPA/SEMARNAT, 1996), two government agencies jointly monitoring cities in the United States-Mexico Bi-national Region. The index approach is avoided and separate data is presented for each of the criteria pollutants.

A further weakness with an index (or even an average for one particular pollutant for a city) is that the average may meet a regulatory standard, but averaging conceals differences across the urban system. It means that the equity implications of a poor part of town having higher pollution levels than a richer area cannot be explored. Lastly, it needs to be noted that meeting environmental standards is not necessarily a measure of effectiveness. It is quite possible to meet federal air standards but experience increases, for example, in asthma and lung cancers in Boston (Klein, 1997).

The data presented in Figures Nine and Ten reveal a lack of congruence in data collection. The Tijuana data is available for only 1997 and 1999 for a three-month test, whereas data for San Diego is available from 1980 to 2000. More clarification is needed to better understand what is meant by a three-month test. San Diego data is representative of an entire year and indicates progress by a decrease in the number of days exceeding both California and San Diego Air Quality Standards. The data also indicate the California state standards are more stringent than the San Diego standards, due to the higher number of days in violation of the state standard in comparison to the San Diego standards. The Tijuana data reflects an increase in the number of days exceeding national standards.

Discussion

Due to the limitations of this article, only a sample of the data for the indicators is presented. However, the data presented provides some insight into the challenges of constructing a fully comprehensive binational indicator program. The researchers achieved the first objective of preparing a citizen-based indicator program in one sense, but it was unrealistic to expect to produce a fully participatory and representative CIP with a small budget. The focus group input was less than desired. Other than the researchers there were four representatives of the community at the Tijuana group and seven at the San Diego focus group. An extensive citizen participation process needs to be applied to the CIP. The CIP as it stands does have the practical virtue of being primed with data and therefore implementable. It is, however, very narrowly conceived. The researchers have reached

a milestone but the journey remains lengthy. However, the CIP's credibility can readily be improved if it is viewed as an initial step in the development of a truly representative CIP and the necessary resources and time are devoted to raising its stature.

There are several subsidiary objectives to the research. The first has been to prepare a program that offers potential for being implemented. In providing data, often time-series data for Tijuana and San Diego indicators, the researchers have provided some of that potential. The promise of an operational program is also expanded by an emphasis of the research that has been to consider practical matters like program operation and management and possible end-users of the CIP. The program managers could be either government or nongovernment agencies in a variety of combinations and partnerships, for example San Diego County, a coalition of cities within the region with, perhaps, the participation of quasi-government agencies like the San Diego Association of Governments (SANDAG) and private organizations like business groups and local chambers of commerce. The Joint Venture: Silicon Valley Network (1999) experience might be a model for the SDTMA though others exist too.

A second subsidiary objective was to provide a model program for other twin-city areas along the BNR. The embryonic nature of the CIP's construction will delay the realization of this objective until the process aspects of the program are enhanced. The researchers expect, ultimately, that the CIP will stimulate interest by other jurisdictions in the BNR. Both the product (a CIP) and a fully participatory process of program formation can be instructive models for other twin city complexes in the BNR.

The third objective of the project is designed to aid implementation. It is to identify data and its source for the indicators that have been nominated by the focus groups. In achieving this objective the researchers have gone beyond simply identifying data sources, but have provided much data, some of it in time-series. A final subsidiary objective of the research was to take the indicator statements from the focus groups and enhance them so that they become more informative. The researchers have not redefined and rephrased each indicator but have made extensive suggestions together with examples of how indicators can be made to be more inquisitive and informative. Enhancement has been done for those indicators that have data provided.

The proposed CIP takes a first essential step in monitoring the region. It is, however, only a building block, for representativeness is missing in two important ways. First, much more ambitious process objectives need to be achieved if full community support is to be gained. Second, the CIP is unbalanced from a technical point of view since critical themes are missing from both focus group efforts. Issues of energy and of habitat and biodiversity are completely ignored for example. Despite these drawbacks, there are sufficient indicators primed with data to enable monitoring to take place if an immediate start is needed. In its embryonic condition, the CIP can still give substance to policy processes and provide justification for change or reinforcement of policy. However, a fully participatory CIP will build community awareness across many facets of society, gain wider acceptance, and allow attention to be devoted to resolving difficult issues. Community participation in the program-building period and support and involvement in the monitoring

and measuring process will yield a much more productive monitoring tool. It brings results that are likely to be supported by the community and will heighten the likelihood of the results being implemented through government's planning and budgetary process.

After several years of using indicators purporting to measure quality of life, sustainability, or progress toward community goals, researchers and practitioners have raised numerous doubts about the content and caliber of indicator programs. There are reservations about the internal logic of CIPs, especially their validity, and there is a series of issues connected with data, its collection, comparability, and reliability (for example, Joint Center for Sustainable Communities, 1998, Redefining Progress, 1998, Redefining Progress, Tyler Norris Associates, & Sustainable Seattle, 1997). There are limitations associated with the lack of norms or targets and there are entire themes missing or neglected in CIPs, for example equity, biodiversity, and neglect of global issues. They are mainly technical but one process matter is important, participation in program-building, since the researchers perceive that as an important area for program enhancement.

Validity is not usually an issue for indicator programs without goals. However, meaningful CIPs are generally goal-based. We assume the SDTMA program will ultimately contain goals or objectives. Moreover, the validity question can arise where there are no goals in a CIP. The Pollution Standard Index is one of these exceptions. In relation to goal-based programs, indicators must be valid and robust and much of the literature on indicator programs points to flaws in their construction. Validity is an elusive concept and is difficult to test. An air quality measure can be readily related to a normative objective for that category but the connection is often clouded in other policy areas. Accurate monitoring requires goals (or objectives) and a solid conceptual understanding of the issues if the indicator-goal relationship is to meet tests of validity (de Neufville, 1975). For example, a comprehensive plan goal (City of Olympia, 1998) is related to water quality. It is measured by two indicators. One uses stream instruments to track several aspects of water quality, which is perfectly valid. The second measures the number of volunteer hours spent in stream-cleaning activities. It is of limited validity. It is not directly measuring water quality, though a weak connection may exist. It is an indicator that might be more useful as a reflection of civic engagement in the community.

Plausible and Measurable Goals

An SDTMA indicator program may not be goal-based immediately, but there is still value in starting the process of data collection and management. Avoiding a goal-based CIP escapes the problem of accountability but reduces sense of purpose and focus in a community. The reality is that handling goals is difficult. Many goals in CIPs (and comprehensive plans) are intangible. "Improve citizen well-being" is a common example. Such goals defy definition and measurement. They are implausible without a lot of definitional work. They need elaboration with a series of objectives, each paired with an indicator. Other goals in CIPs are complex, which is inherently dangerous because they may contain contradictions. Deconstructing

them will help but does not necessarily remove conflict. Sometimes there is no solution to the mutual incompatibility of a goal set and it may be necessary to solve one problem well and forget about the other (Dorner, 1995).

Problems and Issues Encountered

The overriding objective of the project has been to prepare an indicator program to monitor quality of life within a major subregion of the larger BNR. Several problems and issues were encountered in meeting this objective. Not all were anticipated in the research proposal.

Divergence in Living Standards

One issue has been nominating indicators that acknowledge the vast discrepancy in standard of living between the two metropolitan areas forming the SDTMA. Some indicators are not subject to this problem. Air and water quality, for example, are readily comparable throughout the SDTMA since these environmental standards are nearly identical in both the United States and Mexico. The subject matter of some indicators, including the common indicators, does not allow this and the divergence of conditions needs to be acknowledged. All indicators that have a monetary dimension are likely to be affected. Housing affordability is an example. A single indicator may be used to express affordability, but the monitoring phase of performance evaluation will need to reflect the results separately in graphical or tabular form for each of the two regions in the SDTMA.

Overlap Between Focus Group Contributions

Each focus group presented between forty-five and fifty individual topics and indicator statements. Approximately twenty-one indicators are common to each focus group suite although the terminology is not necessarily identical. The overlap is seen as an advantage in that intraregional conditions can be monitored readily and the commonality of issues that seems to exist may be paralleled by common solutions.

Representativeness

Effort was made to obtain representativeness in the focus groups but the researchers are conscious that only one focus group was held in each city (San Diego and Tijuana) and that the participation level in the focus groups was low. The researchers realize that these circumstances do not promote a CIP with community credibility, a critical objective of the research. The problem can be overcome by a full participatory exercise in indicator-building. In addition, the CIP is unbalanced from a technical point of view since critical themes are missing from both focus group efforts. Issues of energy and of habitat and biodiversity are completely ignored, for example. The lack of technical balance may well have resulted from weaknesses in the citizen involvement process.

Data Gaps and Filling Them

Virtually all of the indicators that emerged from the focus groups were suggested without knowing whether there were data available to underpin the measure. Establishing data availability has been a problem, both because the data is difficult to uncover—and may not exist—and the program budget did not allow further resources to be devoted to this important task. It was possible to uncover data for only about 35% of the total focus group measures. This does not mean that data does not exist. Indicators for which there is no data at this stage appear in the indicator suite because they were generated by the community focus groups and are important from that viewpoint.

Data Reliability

Data is reliable only if its source is dependable. The researchers used the best available data from the most reliable sources. However, most data should be viewed with caution, including the information from Tijuana. Here, collection methods are not always rigorous and it is more difficult gaining access to data than in the United States.

Enhancing the Indicators

Enhancement can be discussed at two levels. First, indicators with data attached have been enhanced by way of comment, advice, and occasional reconfiguring. The researchers have been cautious about the degree to which this has been done. The CIP is embryonic and is probably at the beginning of a lengthy gestation process toward becoming a credible community program. Significantly more ambitious process objectives need to be achieved if full community support is to be gained. Enhancing indicators through expert application is premature at this stage. Moreover, enhancing indicators invariably increases data needs and there are potential problems in that direction. Hence, the researchers' approach is an exploratory one in which possibilities have been presented, suggestions made, and expert-imposed solutions avoided.

Second, it would be a simple matter to add several indicators to the suite to improve its technical balance. It would be quite logical to use the biodiversity indicators that appear in the EPA/SEMARNAT's indicator program (1998) for example. Again, the researchers believe that it would be premature to modify the program at this stage given its embryonic nature.

Further Research

Further technical research in relation to the SDTMA indicator program is needed. The first is to supplement the embryonic SDTMA program with a greatly enhanced public involvement process. The second is the need to place the CIP with a managing organization. Both will require significant effort. However, this research project is the first step of an important process that may be useful for other binational regions such as those along the United States–Mexican border and throughout the world.

Note

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The Impact of Low Trust on Economic Development: The Case of Latin America

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Abstract

Deficiencies of trust in many Latin American countries significantly impede efforts to attain sufficient levels of sustainable, long-term economic growth. This paper discusses the role of trust as seen through the eyes of small entrepreneurs in Latin America. Three tables are discussed that specifically portray the role of trust in society, how entrepreneurs use trust to sustain their enterprises and socioeconomic networks, and the impacts of low trust in economic development in Latin America. This paper confirms what many leading scholars have claimed over the past two decades, that a cultural legacy of fractious civil societies accompanied with disruptive and often-corrupt politics does matter when measuring human progress and economic development.

Introduction

Latin America has a long history of social activism and is the source of numerous studies chronicling successes and failures of civil society, and even cultures, as forces for societal well-being or backwardness (e.g., Bray, Sanchez, & Murphy, 2000; Conde, 1974; Landes, 2000; McIlwaine, 1998; Merchant & Rich, 2003; Montaner, 2000; Neace, 1998; Selverston-Scher, 2002; Wise & Waters, 2001). These and many other studies that focus on trust, social capital, and civil society tend to emphasize the benefits of such conditions, particularly for people at the lower end of the socio-political-economic scale. Their focus is most often on raising and sustaining economic, social, and environmental well-being. Overlooked, although at times implied, is the potential for small entrepreneurs to be creators of trust and social capital, in turn leading to elevated levels of civil society with positive impacts both horizontally and vertically (Neace, 1999) within their cultures.

Not unexpectedly, with popularity comes diversity, including research and observations that are often contradictory (Hirschman, 1982; Locke, 1690). As Rubio (1997) and McIlwaine (1998) noted, not all social capital is good, and neither are cultures in terms of long-term well-being for their peoples, which has been the case for much of Latin America (Mendoza, Montaner, & Vargas-Llosa, 2000). But, scholars generally agree that higher levels of trust, social capital, and civil society results in higher levels of well-being in those institutions, communities, and cultures that have generated and sustained these characteristics compared to those lacking in these qualities (Bebbington, 1997; Cox, 1995; Fukuyama, 1995a).

Latin America is not some monolithic entity. Latin America is very diverse along most human dimensions: ethnicity, language, culture, polity, history, geography, climate, and social and economic well-being. Yes, there are some common threads. Montaner (2000) identifies several elite groups that have contributed to the lack of or backwardness of economic development in Latin America: the polity-corrupt and wrong-headed politicians; the military—often imposing their own systems of occupation and social justice; the business elite—protecting their privileged

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