

**San Diego-Tijuana Region
Metropolitan Economic Strategy
Global Urban Development**

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I. Introduction

The case of the San Diego-Tijuana metropolitan area highlights how economic growth occurs across political boundaries. The border that runs through the region is the most-crossed national border in the world, with a particular boom in trade coming after the signing of the North American Free Trade Agreement (NAFTA). The economy of San Diego is complementary to that of Tijuana – the former has the advantage of an exceptional quality of life (San Diego was named one of America’s “Most Livable Cities” in 2004¹) and a high concentration of highly educated people and dynamic industry networks. Tijuana, on the other hand, has become popular with firms that want to distribute to the Mexican and American markets without incurring high labor costs or export duties.

San Diego’s largest university, San Diego State University, has had an important impact on the regional economy because it brings talented professors and researchers to the area. Of note are the University’s research contributions to the area of regional studies (through the Institute for Regional Studies of the Californias). The University of California-San Diego (UCSD) is known for its contributions in high technology research through the California Institute for Telecommunications and Information Technology, UCSD CONNECT, and Global CONNECT as well as its regional planning studies conducted by the Regional Workbench Consortium and the San Diego Dialogue. Together with the regional planning organization known as the San Diego Association of Governments (SANDAG), leaders from the local universities, business community, and government have been gradually deepening the degree of cooperation between San Diego and Tijuana.

What began as joint planning over the region’s most precious resource – water – spread to the point that SANDAG created a Borders Committee and later the Committee on Bi-national Regional Opportunities (COBRO) in 1997. As part of the region’s metropolitan economic strategy, SANDAG also stresses the “three e’s” of economy, environment, and equity as the key to increasing the prosperity on both sides of the border.² Aside from planning organizations, private firms also treat the bi-national region as one metropolitan area; their international employees often live in San Diego and commute to work in Tijuana, where they oversee or manage maquiladoras.

The metropolitan economic strategy of the border region currently focuses on three key assets – a natural deep port, a university system that attracts the nation’s best and brightest researchers, and a quality of life that is enhanced by the region’s many parks, beaches, and museums. Although the average years of schooling in Tijuana may be much less than that of San Diego, Tijuana does have a more educated workforce than Mexico in general (compare 6.6 years of schooling in Tijuana to 4.7 years in Mexico).³ These assets create an environment conducive to the bi-national region’s most dynamic industries – biotechnology in San Diego and manufacturing in Tijuana – and they have helped shelter the region from economic decline due to military cutbacks. In the future, however, the

¹ From America’s Most Livable Cities website. <http://www.mostlivable.org/cities/sandiego.html>

² From Executive Summary of the Regional Comprehensive Plan. http://www.sandag.org/index.asp?projectid=1&fuseaction=projects_detail

³ From SDSU Institute for Regional Studies of the Californias. <http://www-rohan.sdsu.edu/~irsc/tjreport/tj3.html>

population will be more evenly distributed across the border and more attention will have to be paid to the problems that come with rapid population growth in Tijuana. Globalization has created other options, such as China, for those firms that seek nothing more than cheap labor; a future metropolitan economic strategy needs to focus on attracting more dynamic jobs to the Mexican side of the border. These jobs will demand a skilled, talented, and educated workforce that would be rewarded with higher wages.

II. Overview

The cities of San Diego and Tijuana are located on the Pacific coast of North America on the Mexico-US Border. With the exception of the border zone, which is a no-mans land of barbed wire and fences, the two cities and their respective counties bump up against each other. With three entry points in the region, it is the world's busiest transnational border crossing. The San Diego-Tijuana region is comprised of four geopolitical units according to the OECD. These are San Diego County (California), and the municipalities of Tijuana, Tecate, and Playas de Rosarito (Baja California). The population of the area totals approximately 4.3 million with 2.9 million in San Diego county and Tijuana, Tecate, and Rosarito totaling 1.4 million. Both sides of the border have attracted many people to the area recently. In the 1980s San Diego grew by 30% and Tijuana by 66%.

The huge natural harbor of San Diego encouraged settlement there in the 18th and 19th centuries and continued to play a significant role in the economy with the establishment of the US' s largest naval base on the West coast. Until recently the military forces stationed in San Diego were one of the largest industry networks in the region. Although the staff station in the area has been dramatically reduced in the last decade, the military industrial complex still contributes significantly to the regional economy. Tijuana came into existence in 1889. A tiny town at the time it possessed approximately 700 inhabitants in 1910. This changed both as the California real-estate boom occurred and then later under Prohibition. From the beginning Tijuana became almost inextricably linked to San Diego and southern California.

The earliest documented bi-national cooperation in the region was the formation of the International Boundary Water Commission (IBWC) in 1889. The organization became responsible for implementing and executing treaties and other agreements between the two countries. Since then the region has come together more closely across the border with direct communication links between the mayors' offices in San Diego and Tijuana.

The economic ties across the border began with American tourism seeking a place to drink and gamble during prohibition. As the US entered the Great Depression Tijuana suffered as well. Today one of the most well known features of Tijuana is the maquiladora industry. Due to the significant difference in cost of labor across the border, Mexico and its border towns in particular, has become crucial in providing the US with low-cost goods. The Bracero program of 1942 was the first US policy designed to provide access to cheaper Mexican labor. The program allowed Mexicans to enter the US temporarily for agricultural jobs. The second major legislation to forever change the

nature of the border was the establishment of the Border Industrialization Program in Mexico. This program gave rise to the maquiladora industry.

III. Population growth trends and projections.

The San Diego-Tijuana region expects to receive another million people on the US side and another million on the Mexico side by the year 2020. Looking towards the future it is clear that the projected population growth will have to be planned for carefully. Two factors will decide how smoothly the next 2 million people are added. One is housing and the other is traffic. Although the overall average of housing units per acre is 7.7, current development is proceeding at an average of just 3.4 units per acre. This is not a sustainable growth pattern. Secondly, while San Diego already possesses some of the country’s worst traffic, the region will be unable to handle the projected increase of cars on the road. Necessary planning will include extension of public transportation services and higher density housing. As the table below shows, the majority of projected population growth comes from Tijuana, making it necessary for any long-term transportation plans to account for a future where there are about the same number of people on both sides of the border.

Projected Population Growth and Distribution in the Metropolitan Area

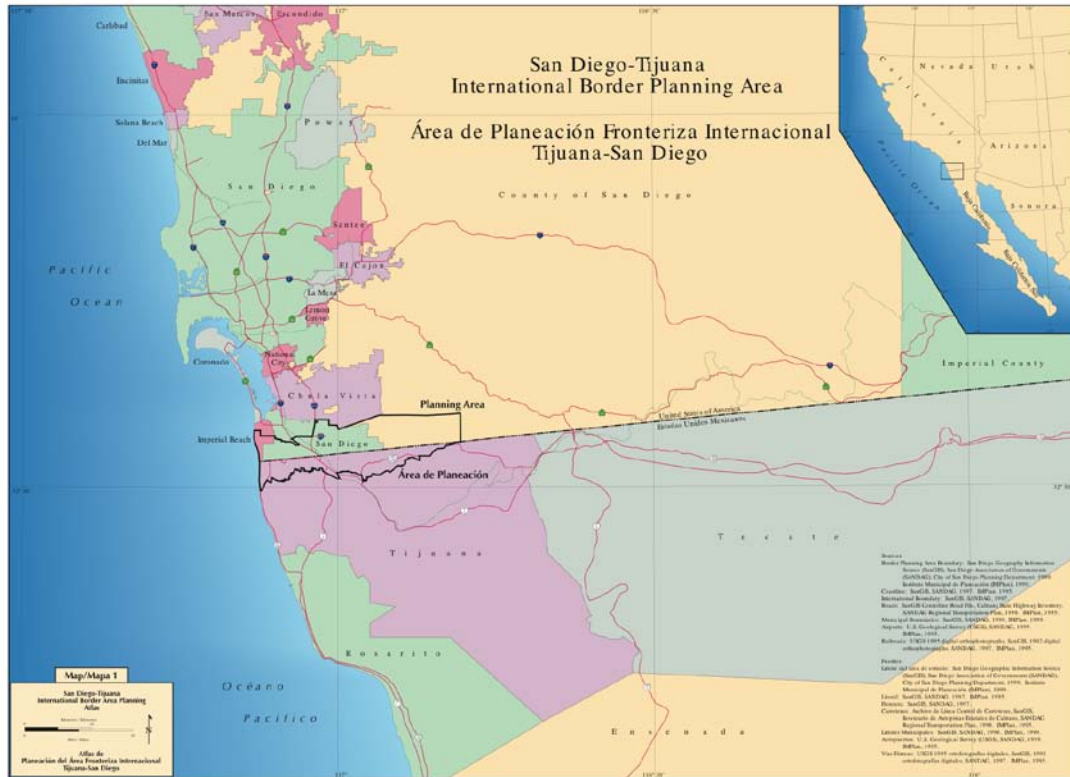
| | San Diego County | Tijuana Municipality | Total | Portion of Total in San Diego |
|------|------------------|----------------------|-----------|-------------------------------|
| 1970 | 1,358,000 | 341,000 | 1,699,000 | 80% |
| 1980 | 1,862,000 | 462,000 | 2,324,000 | 80% |
| 1990 | 2,498,000 | 747,000 | 3,245,000 | 77% |
| 2000 | 2,946,500 | 1,409,634 | 4,256,134 | 69% |
| 2010 | 3,437,700 | 2,255,833 | 5,693,533 | 60% |
| 2020 | 3,853,300 | 3,822,116 | 7,675,416 | 50% |

From San Diego – Tijuana International Border Planning Atlas. <http://www-rohan.sdsu.edu/~irsc/atlas/text/popeng.html>

IV. Geographic Characteristics and Administrative Structure

The San Diego-Tijuana region is located on the Pacific Coast of North America on the Mexico-US border. It features the US’s largest deep water port on the West Coast. The International Border Planning Area, defined by the San Diego State University, includes 49,500 acres and extends 19 miles inland to Otay Mesa.

The San Diego-Tijuana Border Region (outlines in black)



Source: San Diego State University Institute for Regional Studies of the Californias 2000. Retrieved on May 13, 2004 from <http://www-rohan.sdsu.edu/~irsc/atlas/maps/map1.pdf>

The administration of the region is paralleled on both sides of the border with federal, state, and local governments. However, the two region's governance structures differ greatly – the U.S. is relatively decentralized whereas Mexico is highly centralized. For example, the entire San Diego area is one county but its separate special districts for many issues (e.g. trash collection and fire protection) make decision-making too fractured.⁴ In Mexico, Tijuana is considered a municipio (municipality), and as such it encompasses seven administrative districts, or delegaciones. These are Playas de Tijuana, Zona Central, Mesa de Otay, San Antonio de los Buenos, De la Mesa, and La Presa.⁵

“Cross-border strategies for cooperation on economic, social, cultural, or political issues require each side to have some understanding of their counterpart across the border. Without such understanding, the possibilities for cooperation remain undiscovered. In addition, cross-border strategies will be carried out less efficiently without such knowledge because the involved parties will spend time looking for the

⁴ Neal Peirce and Curtis Johnson, San Diego Case Study in *Border Crossers*. <http://www.academy.umd.edu/publications/Boundary/CaseStudies/bcssandiego.htm>

⁵ From SDSU Institute for Regional Studies of the Californias. <http://www-rohan.sdsu.edu/~irsc/tjreport/tj1.html>

right person or agency to contact.”⁶ While San Diego has control of its own infrastructure improvements, Tijuana historically did not.

The difference is that in Mexico there is no market for municipal bonds, so all appropriations for infrastructure improvements (which is what Tijuana needs most to accommodate its rapid population growth) originate at the state or federal level. This changed in 1994, however, when Tijuana was allowed (after approval from the state government) to elect a special assessment to build infrastructure in the municipality.⁷ The Plan de Activacion Urbana (Urban Activation Plan), raised \$117 million for infrastructure improvements through local taxes – something that was unheard of in the centralized, PRI-dominated atmosphere of Mexico in 1994. At the time, NAFTA contributed to a new globally-oriented atmosphere in which local leaders realized that without adequate roads and infrastructure, Tijuana could miss out on economic growth.⁸

V. Bringing the cities and communities of San Diego together.

Regional planning in San Diego began in 1966 with the founding of the Comprehensive Planning Organization (CPO) within the county administration under a state authorized joint powers agreement. The CPO was then designated by the California governor as the region’s Metropolitan Planning Organization (MPO) in 1970. Throughout the decade, the CPO’s responsibilities continued to expand; in 1980 it was renamed the San Diego Association of Governments (SANDAG), and by then it oversaw regional planning for transportation and housing, and provided technical assistance to members, criminal justice research, implemented federal and state clean air acts, and served as the areawide clearinghouse for federal and state grant reviews.⁹

Currently, SANDAG is made up of mayors and city council members from all of the region’s local communities, as well as representatives from other specific local authorities (e.g. the Unified Port District and the Sand Diego County Water Authority) and the Consul General of Mexico in San Diego. To encourage citizen participation, SANDAG also has a Public Involvement Program, which holds monthly forums where the public can work with the Board of Directors, the Executive Committee, the Transportation Committee, the Regional Planning Committee, the Borders Committee, and the new Public Safety Committee.

As regional planning expanded across the border, the Committee on Bi-national Regional Opportunities (COBRO) was established (in 1997) to advise the Borders Committee on short and long-term bi-national issues and actions; provide recommendations regarding bi-national border-related planning and development; and identify ways to assist and coordinate with existing efforts in the bi-national area.¹⁰ That

⁶ “Chapter 4: Political Institutions.” Economic Profile of the San-Diego-Tijuana Region: Characteristics for Investment and Governance Decisions. Borderlink 1994. p 21
<http://www.borderecweb.sdsu.edu/bordpub/brdlnk94.pdf>

⁷ *ibid*

⁸ Kevin Hall. “\$117 Million Project Planned to Improve Tijuana Roads.” Journal of Commerce. April 19, 1994. Accessed through Lexis-Nexis. http://web.lexis-nexis.com/universe/document?_m=5fa1de2b789277db0646a0066098ff44&_docnum=51&wchp=dGLbVzb-zSkVb&_md5=65d155ab5dbfd9239cd5cb22b6f59925&taggedDocs=3CF1.12Z1.4364A423

⁹ From SANDAG history. <http://www.sandag.org/index.asp?fuseaction=about.history>

¹⁰ *ibid*

same year, COBRO facilitated the creation of the Border Water Council, which is made up of technical specialists from agencies on both sides of the border. The Council meets regularly to share information and work together on water supply issues, and is an official group in the Border Liaison Mechanism (BLM), which will be described below.¹¹

VI. The Role of the Central Governments

The U.S. and Mexican federal governments realized that they could not solve all local trans-border problems and that there is a need for local authorities in both countries to interact directly on issues of mutual concern. Accordingly, in 1992 Mexico and the United States created the Border Liaison Mechanism (BLM). Established in the San Diego-Tijuana region in 1993, the BLM enabled the local consul generals of Mexico and the United States to convene the three levels of government from both sides of the border to address important issues. For the first time, local governments were enabled to directly work on bi-national issues. The initial committee of the BLM worked on border crossing issues at the ports of entry and later committees were established for public safety and mutual aid, migration and consular protection, water, culture, and education.¹²

As Neal Peirce and Curtis Johnson found, however, both the US (out of security concerns, which were made worse after September 11) and Mexico (out of pride over national sovereignty, and in danger of worsening now that PRI candidate Jorge Hank Rhon has been elected¹³) are wary about the extent of cross-border collaboration. “No national government can be as attuned to the economic prosperity, the personal safety, the health of neighborhoods, the environment of a region as the people who live there. The more leaders from San Diego and Tijuana can meet, discuss issues in depth, forge compacts and understandings, the stronger the region will be—and the more national authorities will be willing to listen.”¹⁴

VII. The Role of Universities in Governance Initiatives

University involvement began at UCSD because of the school’s strong leaders who saw an opportunity to give back to the community through UCSD’s status as a land grant institution with a statutory responsibility. According to Peirce and Johnson, it was the Associate Vice Chancellor of UCSD Extension Dr. Mary Walshok’s experience as a Kellogg Foundation Fellow that motivated her to pursue the idea of a University extension program that truly encouraged regional economic development. Around the early 1980s, the collapse of the real estate and banking industries on the West Coast, the

¹¹ *ibid.* see also “Bi-national Projects.”

<http://www.sandag.org/index.asp?projectid=213&fuseaction=projects.detail>

¹² SDSU Institute for Regional Studies of California, www-rohan.sdsu.edu/~irsc/atlas/text/geveng.html

¹³ “PRI Wins in Tijuana.” <http://www.signonsandiego.com/news/mexico/20040808-9999-1n8mexweek.html>

¹⁴ Neal Peirce and Curtis Johnson. The Millennium Project. <http://www.sandiegomag.com/millennium/>

failure of popular business attraction strategies that focused on large companies and research consortiums, and the layoffs from cuts in defense spending after the Cold War all created a sense of economic and social urgency in the region. It was this attitude that hurt the community elites and created a leadership vacuum that UCSD was ready to fill.¹⁵

A. UCSD CONNECT

The UCSD Extended Studies and Public Programs branch (also referred to as UCSD Extension) has been engaged in community and region-oriented studies and outreach programs for over 30 years.¹⁶ The courses offered are open to all qualified residents of the San Diego region, and are not limited to UCSD students. As early as 1985, Walshok and the local business community successfully expanded UCSD Extension to take a more active role in the development of links between high tech and life sciences entrepreneurs with necessary resources (e.g. technology, money, markets, management services, partners, and support services).¹⁷

The idea for UCSD CONNECT sprang from informal conversations between university leaders and the business community (who sat together at board meetings of the Economic Development Corporation) regarding the region's unsuccessful attempts to attract large corporations. The Board of the EDC realized that instead of focusing on attracting already large companies, it should take advantage of its local research connections to support the development of the regional start-up technology sector. Its diverse community advisory group included the director of the EDC, the Dean of UCSD Extension, the Dean of the Engineering Department, the CEO of a large telecomm company, the CEO of a biotech company, and a successful accountant to ensure that the organization's agenda would be broad and multidimensional.¹⁸ This was one of the very first regional initiatives to match businesses and resources, and its success in San Diego led to the creation of similar organizations in Scotland, Sweden, Denmark, and Norway.¹⁹

Walshok co-founded UCSD CONNECT and was active in the launching of Global CONNECT in 2003. Both organizations are entirely self-supporting; their money comes primarily from member dues and foundation grants. According to the organization's press release, "Global CONNECT will provide entrepreneurs and startups in member regions access to global capital providers and financial markets, research opportunities, corporate partners, and new customer channels. International corporations, universities, and research institutions will have a powerful new resource to link with emerging companies for partnership and collaboration."²⁰ Aside from the U.S. members are also from Australia, Germany, Canada, Mexico, France, New Zealand, Taiwan, and the United Kingdom.²¹

¹⁵ Neal Peirce and Curtis Johnson. San Diego Case Study in *Border Crossers*.

<http://www.academy.umd.edu/publications/Boundary/CaseStudies/bcssandiego.htm>

¹⁶ From UCSD Extension website. <http://www.extension.ucsd.edu/Programs/>

¹⁷ From UCSD CONNECT website. <http://www.connect.org/about/index.htm>

¹⁸ Neal Peirce and Curtis Johnson. San Diego Case Study in *Border Crossers*.

<http://www.academy.umd.edu/publications/Boundary/CaseStudies/bcssandiego.htm>

¹⁹ From UCSD CONNECT website. <http://www.connect.org/about/index.htm>

²⁰ From Global CONNECT website. <http://www.connect.org/globalconnect/pressrelease.htm>

²¹ From Global Connect website. <http://www.connect.org/globalconnect/members.htm>

According to Peirce and Johnson, “The boundary-crossing characteristics of CONNECT relate to differential resources and areas of expertise pertinent to technology commercialization and new business development. The second UCSD initiated regional collaborative, the San Diego Dialogue, is literally crossing the national boundaries of the United States and Mexico in its attempt to imagine and elucidate the dimensions of a bi-national region.”²²

B. The San Diego Dialogue

Walshok was also active in the push for local governance to adopt regionalism through the San Diego Dialogue, a nonprofit organization founded in 1991 to address regional policy issues by bringing together the knowledge of academics, business, government and civic leaders.²³ The San Diego Dialogue is often referred to as the organization of the late Dr. Charles Nathanson, the co-founder who then served as the Executive Director for over ten years.²⁴ The Dialogue is currently chaired by Augustine Gallego and has expanded from its initial focus on cross-border issues to include school reform, workforce development, and land-use planning strategies known as smart growth.²⁵

Both the Dialogue itself and the Case Study of San Diego conducted by Peirce and Johnson attribute the existence and success of these two UCSD-related initiatives to the foresight of several strong leaders. Cross-border governance was one of the first objectives of the Dialogue because its founders saw it as “the linchpin to everything else.”²⁶ In a conference entitled “Managing Common Borders” organized by the International Migration Policy Program of the Carnegie Endowment for International Peace, the stance of Nathanson and the Dialogue was made clear. He argued that the problems of the border region will be solved not by improving the border crossings or by increased funds from the federal government but by development of governance in the border region (including financial and technical capacity).²⁷ The Dialogue also credits its founders with the vision that prosperity requires a strong middle class on both sides of the border, and that such a goal cannot be met without the cooperation and support of both San Diego and Tijuana.

The Dialogue, like UCSD CONNECT, was born out of a feeling of despair. The difference is that in 1991 the problem was not a lack of economic growth, but a lack of leadership cooperation. Social planning and regional economic development at the time was stunted by the inability of people to overcome small, local special interests.²⁸ The University was seen as the ideal place to hold a forum that could be free of partisan politics. Instead of turning into just another special interest or advocacy group, the

²² Neal Peirce and Curtis Johnson. San Diego Case Study in *Border Crossers*.

<http://www.academy.umd.edu/publications/Boundary/CaseStudies/bcssandiego.htm>

²³ From San Diego Dialogue website. <http://www.sandiegodialogue.org/about.htm>

²⁴ From UCSD newsletter. http://www.sandiegobusiness.org/newsletter_template.asp?newsletterID=130

²⁵ From San Diego Dialogue website. <http://www.sandiegodialogue.org/about/execdir.html>

²⁶ *ibid*

²⁷ From summary of the conference. <http://www.ceip.org/files/events/NAmerConfReport.asp?p=6>

²⁸ Neal Peirce and Curtis Johnson. San Diego Case Study in *Border Crossers*.

<http://www.academy.umd.edu/publications/Boundary/CaseStudies/bcssandiego.htm>

Dialogue aims to develop and achieve a vision of the “common good” – and such a goal means discussing what is good for not only San Diego, but the entire San Diego-Tijuana metropolitan area.

The economic relationship between the two cities can be described in terms of dollars spent at the border. In 1987, for instance, the value of spending in the San Diego border zone that did not pass through federal customs was about \$340 million. As research conducted by the Dialogue shows, manufacturing in Tijuana had not yet taken off in the beginning of the 1990s. Employment in the sector stagnated from 1990 – 1991 at 60,000 workers,²⁹ and made up about 15% of the Gross Regional Product (\$329.4 million). Instead, the Mexican side of the border relied on tourism from San Diego and abroad for 28% of its GRP (about \$700 million). Tijuana’s total GRP in 1991 was \$2.3 billion, whereas the GRP of San Diego was about 20 times larger.³⁰ So, if Tijuana was going to grow, it would need the help of its neighbor city.

One example of the type of activity that the San Diego Dialogue has promoted in addition to encouraging regional, cross-border cooperation is the development of the Secure Electronic Network for Travelers Rapid Inspection (SENTRI) program. After September 11, both sides of the border faced the problem of how to improve security without slowing traffic and hurting the trade economy. The idea for SENTRI sprang from research conducted by the Dialogue in this respect, and the program allows frequent travelers to pre-register with the US or Mexican government and subject themselves to background checks.³¹ Special lanes were then opened up at border checkpoints that allow SENTRI-approved vehicles to pass through quickly. The Dialogue’s research was important because it showed that most border-crossers are regional residents who are crossing legally on their way to work or recreational trips. The SENTRI program took cooperation between the federal and local governments on both sides of the border, and since it reduced wait times from as much as an hour to only five minutes for SENTRI users it is now being considered for expansion.³²

C. Learning From Example – Local Government Initiatives

Despite the necessity of cooperation, however, there was initially little planning between the governments of the sister cities related to issues other than water use. San Diego City Council Member, Juan Vargas, made a comment in a 2000 report conducted by the Office of Advocacy of the U.S. Small Business Administration that exemplifies the attitude of the mid 1980s when the Otay Mesa border crossing was first opened:

“(Mexico and the San Diego area) didn’t do much planning together. For example, our road system on the border doesn’t hook up with the Mexican road system. When we opened the crossing at Otay Mesa (in 1985), we didn’t tell the Mexicans. This resulted in people crossing the border into dirt roads. Now we

²⁹ From “San Diego/Tijuana Manufacturing in the Information Age: Charts.” San Diego Dialogue. http://www.sandiegodialogue.org/cb_research.htm

³⁰ From SDSU Institute for Regional Studies of the Californias. <http://www-rohan.sdsu.edu/~irsc/tjreport/tj3.html>

³¹ From the Collaborative Regional Initiative Network website. <http://www.calregions.org/civic/partners/south-sdd.html>

³² *ibid*

have monthly meetings. We coordinate. Mexico tells us what they are planning, and we tell them what we are planning.”³³

Meetings between government officials take place through COBRO and SANDAG, and it is no coincidence that the mayor of Tijuana created the first governance office of its kind in San Diego in 1998, just after COBRO was founded.

Other initiatives, like the City of the Future project, were commissioned to devise new ways to encourage growth without any particular answer in mind. In April of 1993, Mayor Susan Golding of San Diego commissioned the Advisory Committee on the City of the Future to examine the importance of information technology on San Diego’s future, recommend steps to be taken to encourage the development of such an industry, and build community awareness of the “city of tomorrow” concept.³⁴ The committee’s recommendations, which although directed primarily at telecommunications and information technology, stressed the same values as the SANDAG metropolitan economic strategy that would come ten years later. Establishing private/public partnerships, creating a federal/state funding task force, maximizing the available human resources, and blurring the borders with Tijuana were all mentioned by the committee. In addition, the City of the Future Task Force recommended that the city San Diego take the leadership initiative regarding telecommunications coordination with Tijuana. “One of the most disturbing problems about the development of community-wide systems of any kind are that they tend to stop at political boundaries, whether they be municipalities or international borders, such as the one San Diego has with Tijuana. The movement of people and the conduct of business do not recognize these arbitrary geopolitical borders.”³⁵

The SDSU International Center for Communications (ICC) chaired, staffed, and wrote the report for the City of the Future Advisory Committee/Task Force, and in 1996 they unanimously adopted a resolution to support the recommendations. This meant that the ICC agreed to promote a border-free telecom zone to create the information infrastructure necessary for Tijuana, and thus the entire metropolitan area, to compete in the new economy.

The ICC also worked with the SDSU broadcasting service KPBS to launch Envision San Diego, a new televised civic engagement forum that will host conversations about the region’s future. One goal of Envision San Diego is to involve people from all economic and ethnic groups in the region.³⁶ SDSU’s president Stephen Weber is also currently trying to expand the University’s involvement through the San Diego Youth Civic League, an idea of his that has been discussed in newspapers and supported by Peirce³⁷ but has yet to be put into operation.

<http://www.calregions.org/civic/partners/south-sdd.html>

³³ From Office of Advocacy website. “Developing High-Technology Communities: San Diego” <http://64.233.179.104/search?q=cache:i9oFZSB7Ux0J:www.sba.gov/advo/research/rs198tot.pdf+%22san+diego+dialogue%22+co-founders&hl=en>

³⁴ From City of the Future website. http://www-rohan.sdsu.edu/dept/intlcomm/cof_info.html

³⁵ *ibid.* under “Blur Borders.”

³⁶ Richard Louv. “2004: San Diego’s year of civic revival?” *San Diego Union-Tribune*. Oct 26, 2003. http://www.signonsandiego.com/news/metro/louv/20031026-9999_mz1e26lou.html

³⁷ See posting on Citistates website. <http://www.citistates.com/blogs/homepageblog/archives/000074.html>

VIII. The Metropolitan Economy

The San Diego region's economic output was about \$126.2 billion in 2003. On the other side of the border, Tijuana's was \$10.1 billion in 2002. Per-capita, this is among Mexico's highest. In 2002, the San Diego metropolitan area (excluding Tijuana) had a higher growth in gross regional product (GRP) than any other metropolitan region – GRP grew by 5.5% to outgrow Phoenix's 5% growth, the 4.9% growth in Orange County, CA; 3.3% growth in Houston, TX; and 3.6% growth in Oakland, CA.³⁸ In terms of population, San Diego county ranks third in California.

San Diego County Personal Income Data

| | 1975 | 1980 | 85 | 90 | 95 | 2000 | 2002 |
|-----------------------|------------|------------|------------|------------|------------|------------|-------------|
| Total Personal Income | 10,654,022 | 20,820,226 | 35,182,397 | 52,386,631 | 61,744,311 | 92,654,006 | 101,292,563 |
| % Growth* | | 95.42% | 68.98% | 48.90% | 17.86% | 50.06% | 9.32% |
| Per Capita | 6,589 | 11,100 | 16,548 | 20,852 | 23,533 | 32,797 | 34,872 |
| % Growth * | | 68.46% | 49.08% | 26.01% | 12.86% | 39.37% | 6.33% |

Data from US BEA website.

<http://www.bea.gov/bea/regional/reis/action.cfm?catable=CA30&areatype=06000&years=2002,2000,1995,1990,1985,1980,1975&fips=06073&format=htm> *Growth rates are calculated over each 5-year period.

The US side of the region has recently experienced a significant decrease in its military sector because of the large-scale transfer of personnel. Fortunately, San Diego is not dependent on its military connections for growth. The regional economy has been undergoing significant restructuring over the last decade to turn San Diego into an export-driven economy that focuses on dynamic industry networks. The San Diego Association of Governments (SANDAG) considers employment networks to be the future of the regional economy. These networks take advantage of area's three biggest assets – its growing port, its high concentration of college-educated people and professionals, and its attractive environment that creates a good quality of life. These assets are used to their fullest potential through bi-national planning because, as Neil Whiteley-Ross, vice president of the San Diego Economic Development Corp said in 1994, “When San Diego launches trade missions to Asia and other parts of the globe, it is marketing both sides of the border. Our job is to market the region. We're going out there selling the San Diego-Tijuana region.”³⁹

³⁸ From San Diego Source: Sourcebook. http://sourcebook.sddt.com/2004/Listings_EconomicStatistics.cfm

³⁹ Kevin Hall. “\$117 Million Project Planned to Improve Tijuana Roads.” *Journal of Commerce*. April 19, 1994. Accessed through Lexis-Nexis. http://web.lexis-nexis.com/universe/document?_m=5fa1de2b789277db0646a0066098ff44&_docnum=51&wchp=dGLbVzb-zSkVb&_md5=65d155ab5dbfd9239cd5cb22b6f59925&taggedDocs=3CF1,12Z1,4364A423

A. Assets

1. Unified Port of San Diego

San Diego has three main piers, two of which provide cargo facilities while the third serves cruise ships (e.g. Carnival, New Holland, Disney, Norwegian, Radisson Seven Seas, Royal Caribbean, and Windstar Cruises). The Tenth Avenue Marine Terminal and the National City Marine Terminal encompass a combined total of 219 acres. San Diego's mild climate makes the port conducive to handling all types of cargo, from perishables to automobiles. It also boasts of an uncongested location only 96 nautical miles from Los Angeles and 15 miles from the Mexico border. The shipping industry has been growing steadily – total bulk tonnage from storage facilities at the 10th Avenue terminal has increased from 157,000 metric tons in 1999 to 744,000 metric tons annually.⁴⁰ The Port is currently pursuing an aggressive international marketing effort in order to draw more business from Latin America, Mexico, Southeast Asia, Australia, New Zealand, and Canada. The nearby maquiladora industry in Tijuana provides San Diego with a niche market that serves Asian companies that need to transport cargo to/from their manufacturing base.

- Investments in the Port

To meet the growing demands of the shipping industry, the Unified Port of San Diego has undertaken two development plans. The Chula Vista Bayfront Master Plan (CVBMP) is set to be completed in August of 2005, and it seeks to unite a 300-acre area in Chula Vista into one “world-class bayfront.”⁴¹ This will involve integrating the port with the surrounding Chula Vista area, creating future market opportunities, and enlisting both public and private participation.

The North Embarcadero Visionary Plan (NEVP) is a series of extensive public infrastructure improvements that began in 1998. These include the maximization of public parking facilities, the repaving of roads and addition of turning lanes, and the creation of a new pier at Grape Street. Such improvements are also expected to lead to future potential expansion of the cruise ship service at the B Street Pier.⁴² San Diego currently sees 190 cruise ships per year. In 2003 the number of passengers reached 328,000, nearly double the number of cruise passenger in 1999 according to the San Diego Convention and Visitors Bureau.⁴³ Like the CVBMP, the NEVP encourages public involvement. Its funding is entirely public, drawing equally from both the Port and Center City Development Corporation (CCDC) budgets.

⁴⁰ From Port of San Diego website. See “About Us” and “Annual Report.” www.portofsandiego.org

⁴¹ *ibid*

⁴² From Port of San Diego Website. <http://www.portofsandiego.org/projects/nevp/>

⁴³ From editorial in San Diego Convention and Visitors Bureau website. http://www.sandiego.org/editorial_detail.asp?id=100

2. Workforce

One of the main unifying factors of the San Diego – Tijuana metropolitan area is its mobile workforce. According to a 1998 labor market study conducted by economist Millicent Cox, 30,000 residents of Tijuana work across the border in San Diego; this is 6.5% of the 457,900 employed people in Tijuana. The comparable figure for San Diego border crossers is 10,000 out of 1,180,100 workers, or 0.8%.⁴⁴ The net flow of labor moves towards San Diego, and Cox found that some of the people crossing into Tijuana to work were foreigners hired to manage global maquiladoras. This shows that firms are taking the quality of life in San Diego into account even as they evaluate the assets in Tijuana.

The labor market in Tijuana is somewhat polarized, with the bulk of the highly educated population taking service jobs in the city and leaving the uneducated to work in the maquiladoras. The area is home to two technical schools with a combined enrollment of 2,900 students, plus 11 colleges and universities with a total enrollment of 16,582 undergraduate and 1,559 graduate students.⁴⁵ Both the quality and quantity of higher education in Tijuana are dwarfed by that of its neighboring city, however. San Diego is home to San Diego State University (SDSU), which has an enrollment of almost 34,000 students, offers 78 undergraduate and graduate majors/degrees, and awarded over \$145 million in grants to faculty members working on 1,500 research projects in 2003.⁴⁶ The University of California at San Diego (UCSD), has an enrollment of just over 23,000 students and was ranked 10th in the nation for its faculty and graduate resources by the National Research Council. The university spends \$627 million per year on research, and receives 25% of its \$1.8 billion budget from government funding for research.⁴⁷ According to UCSD, its faculty and alums have spun-off almost 200 locally based companies, including a third of the country's biotech companies. The university is San Diego's largest private employer, paying out \$71 million to 22,000 employees and making San Diego a hub for innovative research and development.⁴⁸

In addition to being home to large public universities, there is also the private Roman Catholic University of San Diego (USD). USD has an enrollment of over 7,200 students in 60 graduate and undergraduate programs. Unlike UCSD, the university's graduate programs do not conduct technology research – the graduate school departments are law, business administration, education, nursing, and arts and sciences. However, the Marine and Environmental Studies program conducts research in conjunction with the Hubbs-Sea World Research Institute and the Leon H. Hubbard Hatchery.⁴⁹ Two California universities are ranked in the top 100 according to US News and World Report for 2004 – UCSD is 32nd and USD is 99th.

⁴⁴ Millicent Cox. Cross-Border Labor Market Data for Economic Development Analysis: The experience of Baja California/California. Proceedings of the Joint IASS/IAOS Conference Statistics for Economic and Social Development. September, 1998. <http://www.electriciti.com/mcox/cblim.pdf>

⁴⁵ Enrollment is based on 1999 data from the CB Richard Ellis Co.

⁴⁶ From SDSU Graduate Admissions website. <http://gra.sdsu.edu/Graduate/admissions/whychoosesdsu.html>

⁴⁷ From UCSD website. <http://ucsdnews.ucsd.edu/about/index.asp>

⁴⁸ *ibid*

⁴⁹ From USD website. "Graduate Bulletin." <http://www.sandiego.edu/about/gradbulletin/as/msms.html>

San Diego has a total of over 30 schools offering two-year degrees, two of which are specifically oriented towards technology training, and five professional schools that offer degrees in law, psychology, architecture, and management.⁵⁰ As the table below shows, the region is above the national average in terms of higher education because of the high concentration of colleges and universities, but a smaller than average percentage of San Diego students graduate high school. High school dropout is a problem that seriously affects the quality of life of the entire region – it reduces people’s job opportunities and limits the worker to low skilled and low paying jobs. According to the San Diego Sourcebook, 7.9% of the population has below a 9th grade education and 9.5% of the population attained some high school.⁵¹

Educational Attainment as a Percent of the Population over 25

| | San Diego | United States |
|------------------------------|-----------|---------------|
| High School or more | 82.6% | 84.6% |
| Some College or more | 52.8% | 52.5% |
| Bachelor’s Degree or more | 29.5% | 27.2% |
| Bachelor’s Degree | 18.7% | n/a |
| Graduate/Professional Degree | 10.9% | n/a |

From the San Diego Source. http://sourcebook.sddt.com/2004/Listings_EconomicStatistics.cfm

One likely explanation for the relatively large portion of uneducated workers is related to labor migration and immigration from Mexico. A study conducted by the Migration Policy Institute found that 11% of all Mexican immigrants to the United States had no formal education, an additional 36% has less than a high school education, and 23% had some high school but did not graduate.⁵² These numbers reflect all Mexican immigration to all of the United States, but Tijuana residents are significantly better educated than the national average and less educated than San Diegans. For instance, the average years of schooling are 6.6 years in Tijuana and 4.7 years for Mexico. 54.3% of Tijuana residents have received at least some high school (post-primary) schooling.⁵³

- Bi-national Efforts to Improve Public Education

Migrant Education:

The California Project involves a partnership between San Diego’s Office of Bilingual Education and the Mexican Secretariat of Education to increase the literacy of migrant parents and their children.⁵⁴

In 1991, Excellence and Justice in Education (EJE) was founded to encourage parent involvement and provide education to migrant workers and their families in San Diego. Composed of Hispanic parents, students, teachers, and community leaders in the El Cajon Valley Union School District, EJE is partnered with Tijuana-based Escuela para Las

⁵⁰ Based on listings in online yellow pages/directory. <http://sandiego.areaconnect.com/city-colleges.htm>

⁵¹ San Diego Source: Sourcebook. http://sourcebook.sddt.com/2004/Listings_EconomicStatistics.cfm

⁵² From Migration Policy Institute. <http://www.migrationinformation.org/USfocus/display.cfm?ID=234>

⁵³ From SDSU Institute for Regional Studies of the Californias. <http://www-rohan.sdsu.edu/~irsc/tjreport/tj3.html>

⁵⁴ From <http://www.icfdn.org/aboutus/publications/blurrborders/21education.htm>

Familias (Schools for the Families, or EPF). The organization's funding has come from the Neighborhood Civic Grant of the San Diego Foundation and another grant from the San Diego Social Venture Partners. With this money, EJE is engaged in the development of the Cesar Chavez Parent Center as well as programs to teach migrant parents about the school system, bilingual education, and special education.⁵⁵ A common problem in migrant families is that the parents are unfamiliar with the workings of American public schools, do not speak English, and therefore have a trouble getting involved in their children's education. By helping such parents, EJE is working to improve the educational attainment of their children.

Loyola Library:

Located in the Tijuana branch of the Universidad Iberoamericana, this library was inaugurated in 2003. It has a "neighborhood bus" that makes books available to the community. The bus was donated by the Tijuana Chamber of Commerce, but most funding for this \$2.4 million facility came from both sides of the border from charitable foundations, universities, religious organizations, and the business community.⁵⁶

Outreach Español:

The Timken Museum of Art founded Outreach Español in 1997 to provide cultural education to Tijuana public school students – the program charters buses to bring the students to San Diego's Timken museum for a day, and as of 2001 it had served 4,000 children. In 2004, the program was expanded to include students from Rosarito, Mexico. Funding for the program, which operated on a \$30,000 annual budget, comes from sources as diverse as U.S. Bank, California Casualty, the Junior League of San Diego, Qualcomm, Calitur of Tijuana (they provide buses at a reduced rate), and the Tijuana municipal government.⁵⁷

Sister Schools of San Diego:

Sister Schools of San Diego takes a globally-oriented approach to education, working to prepare students to "live in and contribute to a culturally diverse world."⁵⁸ In Tijuana, the organization works with two primary schools, six secondary schools, three prep schools, and the Universidad Iberoamericana. These schools collaborate with seven San Diego schools in projects such as the Sister Libraries, in which students created books about their lives and cultures and then exchanged them with students across the border and in other sister schools abroad. The Sister Schools organizations began as a single program at San Diego's Morse High School in 1998, and quickly expanded to over 50 schools in 11 different countries.⁵⁹

⁵⁵ From EJE website. <http://www.geocities.com/enlaceje/>

⁵⁶ From <http://www.tij.uia.mx/uia/proyectos/>

⁵⁷ James Steinberg. "Schoolchildren get a One-of-a-Kind Experience Thanks to Timken's Spanish Outreach Program." *The San Diego Union-Tribune*. July 13, 2001. http://web.lexis-nexis.com/universe/document?_m=d951458c9cfd72e74f0edf07cc26bbdc&_docnum=5&wchp=dGLbVtb-zSkVA&_md5=e9d4341101f7812c16e8328115f3689d&taggedDocs=6888Z1.48

⁵⁸ From Sister Schools of San Diego website <http://www.sisterschoolsofsandiego.org/c/@5iI1xTBbMDoHo/Pages/schools.html>

⁵⁹ Ibid

3. Quality of Life

San Diego was named one of the 30 “Most Livable Cities” in America in 2004, as well as one of the “Best Walking Cities in the U.S.”⁶⁰ The region has a temperate climate, rich environment, and a variety of parks, museums, and cultural attractions. Balboa Park, for instance, is the region’s main entertainment and cultural complex. Built in the style of old Spanish missions, it includes the San Diego Zoo, fifteen museums, fourteen gardens, a botanical building, and an outdoor concert pavilion. The region also has a variety of parks and beaches, which contribute to its marine culture.

Since 1991, San Diego County has become a much safer place to live – the number of instances of crime has been cut in half from almost 94,000 to 46,000 as measured by the California Crime Index.⁶¹ The “City of Villages” strategy is San Diego’s latest program for investment in the quality of life. It promotes neighborhood safety and livability through pedestrian-friendly street design, traffic calming, crime prevention efforts and interconnected and balanced pedestrian, bicycle and transit opportunities.⁶² The SANDAG Regional Comprehensive Plan (RCP), which was released in June of 2004, involves more regional, cross-border planning than the City of Villages, and focuses on achieving cooperation through financial incentives. The RCP was created with input from residents and local representatives in San Diego and Tijuana and emphasizes what it calls the “three e’s” to sustainable development: economy, environment, and equity.

- Bi-national Efforts to Improve the Overall Quality of Life

Regional Workbench Consortium:

This organization is currently working on the Colonia Diez De Mayo project, which aims to mobilize resources from within the community to invest in improving the low-income area of Tijuana which bears the project’s name. The Mexican government classifies the Colonia Diez De Mayo area as “irregular housing”. The Consortium draws from members of the community, UCSD, the San Diego Government, and industry leaders.⁶³

Southwest Center for Environmental Research and Policy (SCERP):

The SCERP was created in 1989 out of the recognition by academia of the threats and problems that can come with unchecked growth along the US-Mexican border. SCERP is made up of 5 American Universities and 5 Mexican Universities in all of the border states, but the headquarters are in San Diego. SCERP engages in and encourages bi-national cooperation in research and policy development related to the environment, health, social welfare, and the regional economy. “By interpreting the results of unbiased scientific inquiry, SCERP provides the motivation to adopt comprehensive, regional, and

⁶⁰ From City of San Diego. <http://www.sannet.gov/cityofvillages/>

⁶¹ From SANDAG 2000 Annual Crime Report. http://www.sandag.org/uploads/publicationid/publicationid_696_904.pdf

⁶² From America’s Most Livable Cities website. <http://www.mostlivable.org/cities/sandiego.html>

⁶³ From http://www.regionalworkbench.org/databank/project_all.php?pid=10&pName=Colonia%20Diez%20De%20Mayo

long-term policies and solutions.”⁶⁴ Two Tijuana projects in progress give an idea of the range of issues studied by SCERP - "Sustainable Architecture of Arroyo Alamar, Tijuana, Baja CA, Mexico" and “Cultural Ecology and the Indigenous Landscape of the Tijuana River Watershed.”

B. Additional Bi-National Development Projects & Committees

The cities of San Diego and Tijuana share many common economic development interests and projects. Officials from local, state and federal governments, and business communities of both sides of the U.S.-Mexico border meet on a regular basis to discuss these plans through the following channels.⁶⁵

Bi-national Economic Development Forum:

This forum is conducted twice a year by the cities of San Diego and Tijuana to discuss and propose plans on bi-national economic development.⁶⁶

Bi-national Planning and Coordination Committee:

The cities of San Diego and Tijuana have entered into an unprecedented partnership to facilitate the development of new relationships and the exchange of important program information.⁶⁷

Bi-national Production Marketing/Development:

The cities of San Diego and Tijuana are coordinating with the Otay Mesa Chamber of Commerce and the San Diego-Tijuana Economic Development Corp. to form specific marketing and business expansion and retention initiatives.⁶⁸

Network Development Plan:

The plan promotes the development of bi-national enterprises in the core networks of telecommunications, environmental sciences, electronics manufacturing and tourism.⁶⁹

International Gateway of the Americas:

The proposed redevelopment project would improve transportation, image, land-use planning, and infrastructure development with community involvement in the area surrounding the San Ysidro border crossing. The plan includes the San Ysidro Gateway/Puerto Mexico project, which would transform the border crossing with better customs services and improved access. The project is overseen by the City's Redevelopment Agency.⁷⁰

⁶⁴ From SCERP website. <http://www.scerp.org/>

⁶⁵ From SANNET website. “Binational Projects.” <http://www.sannet.gov/economic-development/international/bination.shtml>

⁶⁶ ibid

⁶⁷ ibid

⁶⁸ ibid

⁶⁹ ibid

⁷⁰ ibid

Joint Tourism Promotion:

A working group with San Diego Convention and Visitors Bureau and Tijuana authorities is developing joint tourism publicity and destination promotion for the San Diego-Tijuana region.⁷¹

San Diego/Tijuana Bi-national/Recycling Market Development Zone:

The San Diego/Tijuana Bi-national Recycling Market Development Zone involves the investigation of the recycling industry in Tijuana and San Diego, research on customs regulations regarding recyclable materials, and a feasibility study on forming a Recycling Market Development Zone in Tijuana parallel with one on the U.S. side of the border.⁷²

Hazmat Emergency Accord:

Signed in October of 2003 by the mayors of each city, the Hazmat Emergency Accord is meant to open up the lines of communication across the border in times of crisis. It considers mutual terrorist threats, as well as natural disasters, as situations where both cities would benefit from a collaborated defense effort. Part of the agreement also specifies that the relevant response teams from each city partake in training exercises.⁷³

Memorandum of Understanding (MOU):

Signed in October of 2000 by the San Diego Regional Chamber of Commerce, along with thirteen of Tijuana's most prosperous organizations, the MOU includes a working program with the Consejo de Desarrollo Economico of Tijuana. It covers industry clusters in healthcare, financial services, defense manufacturing procurement, and software.⁷⁴

Collaborated Police Efforts:

The city of Tijuana buys functional police cars from the San Diego Police Department (SDPD). The cars are then put to use in the most troubled parts of Tijuana, and their sale is also an extra source of revenue for the SDPD.⁷⁵ Another sign of regional cooperation arose in February of 2004 – American tourists in Tijuana can now call 911, hail a SDPD officer, and have their case investigated by SDPD detectives.⁷⁶ The agreement between the two police department only applies to especially serious cases such as rape. Previously, victims alleged that they did not receive adequate police support, and that the U.S. officers were of no help from across the border. This reform in law enforcement strategy will most likely boost local tourism for Tijuana as it provides an added sense of security to American travelers.

⁷¹ *ibid*

⁷² *ibid*

⁷³ From <http://www.thesandiegochannel.com/news/2580961/detail.html>

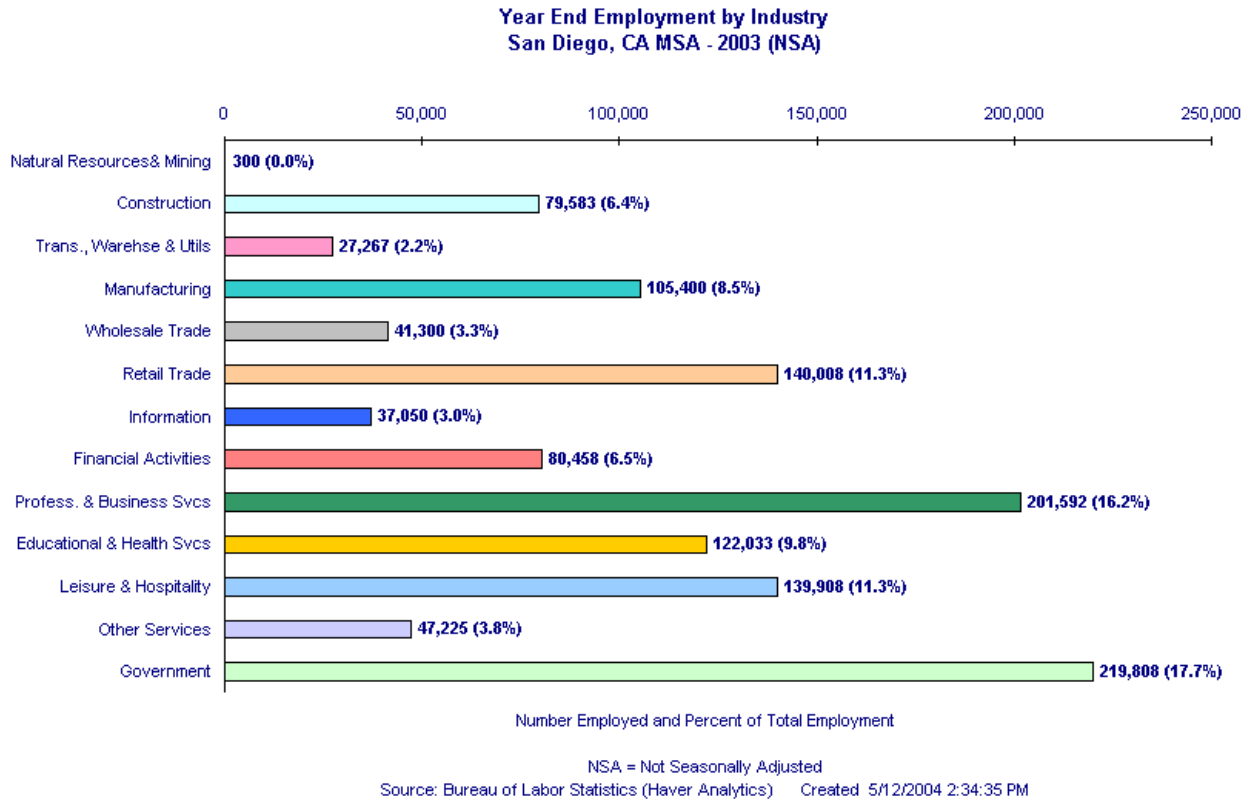
⁷⁴ From <http://www.hispanicvista.com/html/001010sd.html>

⁷⁵ From <http://www.thesandiegochannel.com/news/1618480/detail.html>

⁷⁶ From <http://www.thesandiegochannel.com/news/2841058/detail.html>

C. Industry Networks

The San Diego region contains one third of all the biotechnology employees in the state, and employs 38% of those in the nation. The demand for new employees continues to grow in the US and San Diego's high concentration of biotech firms and research universities is expected to rake them in. Currently the majority of employment is in the service industries, which encompass untrained as well as business services.



From FDIC: RECON website. http://www2.fdic.gov/recon/show_gif.asp?type=Chart&name=I307320.gif

The following table compares employment in San Diego's industries with the national share of employment for each industry. In other words, industries with a LQ value greater than one are those in which San Diego employs a greater proportion of people than the country – these are the metropolitan area's dynamic industries. They are construction; financial services; information; professional, scientific, and technical services; leisure and hospitality services; and government.

San Diego Employment by Industry, for the First Quarter of 2004

| Industry | 2004 Q1 LQ | Industry | 2004 Q1 LQ |
|---|-------------------|---|-------------------|
| Natural Resources/ Mining | 0.06 | Management of Companies | 1.21 |
| Construction | 1.33 | Admin & Waste Mgmt | 1.10 |
| Manufacturing | 0.76 | Education & Health Services | 0.76 |
| Information | 1.20 | Leisure & Hospitality Services | 1.22 |
| Financial Activities | 1.07 | Government | 1.05 |
| Professional, Scientific, & Technical Services | 1.57 | | |

From FDIC: RECON website.

http://www2.fdic.gov/recon/show_gif.asp?type=Table&name=I407320.gif

The complementary economy in Mexico is driven by its proximity to the border and its large pool of relatively cheap labor. These factors have encouraged the expansion of the maquiladora and tourism industries. Aside from these two networks, Tijuana earns some of its GDP from the 30,000 daily commuters who work in San Diego. Tijuana's low unemployment rate of 0.9% in 1996 (when the San Diego Unemployment rate was 5.2%) could easily be interpreted as a sign that there are plenty of jobs available in Tijuana, even if they are low-paying and low-skilled.⁷⁷ A report conducted by SDSU explains that this figure is misleading, however, because of the very high turnover in many maquiladoras and differences in the way the Mexican government determines employment. By US standards, the report estimates that the actual unemployment in Tijuana was about 10%, whereas the unemployment rate for Mexico was twice as much.

1. Manufacturing/Maquiladoras:

The maquiladora industry is composed of twin plants with production on the US or overseas side and assembly on the Mexican side. Tijuana is one of the world's leading television manufacturing sites, assembling 11 million television sets in roughly half of the city's 700 maquiladoras. Nearly 150,000 workers, a third of the workforce, are employed in a maquiladora. Low wages, accessibility to the U.S. market, and few export duties are what creates an incentive for foreign firms to set up maquiladoras in Tijuana.⁷⁸

Many of the firms in Tijuana are Asian electronics and car companies, such as Toyota and Hyundai. These firms are drawn to the metropolitan area because it provides them with easy and inexpensive access to North American markets while keeping production costs low. Hyundai, for instance, has had its North American Headquarters in San Diego and its trailer manufacturing plant in Tijuana, since 1990. As the general maquiladora industry was slowing down in 2001, this firm expanded production, increased its payroll by 500 workers, and set up its own fabrication shop that requires the use of skilled labor.

⁷⁷ From SDSU. "Employment and Personal Income." In Tijuana report. <http://www-rohan.sdsu.edu/~irsc/tjreport/tj5.html>

⁷⁸ From <http://www.teamnafta.com/cities/Tijuana/TIJUANA.html>

As new technology firm like Samsung locate production in Tijuana, the market wage for skilled workers is driven up.⁷⁹ For the income and quality of life of Tijuana residents to increase, more of these skill-intensive dynamic manufacturing companies need to be drawn into the region.

In addition, the automotive manufacturer Toyota began to establish its own supplier park in 2003, an investment that will employ 80 people and be operated by Toyota's Mexican subsidiary, CAMEX. The idea behind the supplier park is to provide one central location for the sub-assembly and sequencing of truck parts as Toyota simultaneously expands its main truck plant. The factory will increase its production of Toyota Tacoma's from 20,000 to 30,000 units annually and continue making 180,000 truck beds for use in its plant in Fremont, CA. Prior to the expansion, Toyota employed 460 people in its one factory – the joint expansion of Tacoma production and construction of a supplier park will increase that number to 780 jobs.⁸⁰

Employment in Maquiladoras by Industry:

| | |
|-----------------------|-------|
| Electronic Components | 31.7% |
| Plastic Injection | 8% |
| Other Manufacturing | 7.8% |
| Precision Equipment | 7.1% |
| Furniture | 6.6% |
| Other | 38.8% |

Tijuana's proximity to the US market was one factor that attracted business at a growth rate of up to 233 percent during the 1990s. Because of this dependence on American demand, however, maquiladoras then suffered from the US recession and the simultaneous appreciation of the peso, laying off 60,000 of Tijuana's workers between 2000 and 2002.⁸¹ The economic recovery that began late in 2003 is generally attributed to the increase in US demand, as well as reforms in the central government and tax codes that benefit the maquiladora sector. For instance, President Vicente Fox repealed the 4% salary tax and reduced the corporate tax by 3 percentage points (from 35 to 32).⁸²

⁷⁹ "Hyundai- New Name, New Markets." *Trailer/Body Builders*. Aug 1, 2001. Accessed through Looksmart.com website.

http://www.findarticles.com/p/articles/mi_m0HFC/is_2001_August_1/ai_77870388/pg_2

⁸⁰ From Toyota website. <http://www.toyota.co.jp/en/news/03/0818.html>

⁸¹ Leonel Sanchez. "Factories feel the heat; Struggling maquiladoras need government reforms in order to compete, report says." *The San Diego Union-Tribune*. Aug. 6, 2003.

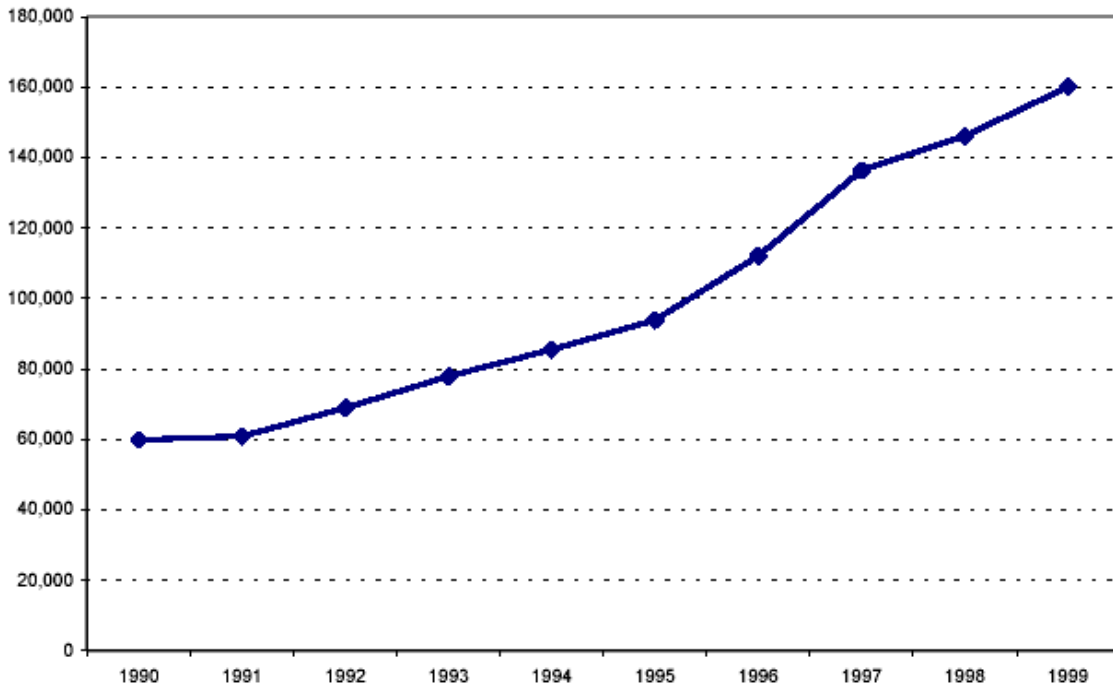
⁸² Diane Lindquist. "A Welcome Recovery; Slight gain in output cheers Mexico's beleaguered maquiladora industry." *The San Diego Union-Tribune*. March 11, 2004.

Proliferation of Maquiladora Industry for all of Baja California



From the Instituto Nacional de Estadística Geografía e Informática. <http://www.inegi.gob.mx/inegi/default.asp>

Maquiladora Employment in Tijuana, 1990-1999



From "San Diego/Tijuana Manufacturing in the Information Age: Charts." Research conducted by the San Diego Dialogue. http://www.sandiegodialogue.org/cb_research.htm

Spatial Distribution of Manufacturing in Baja California

| | Number of Plants | Number of Employees |
|-----------------------|------------------|---------------------|
| Baja California Total | 909 | 213,465 |
| Tijuana | 575 | 140,633 |
| Mexicali | 138 | 50,151 |
| Ensenada | 83 | 13,782 |
| Tecate | 113 | 8,899 |

From Tijuana Economic Development Council, www.tijuana-edc.com/deitac/manufacturinginformation.com

2. Tourism

Primarily, the focus of this network is hotels and other lodging places. There are a total of 6,868 firms in San Diego alone employing 52,202 with an average pay of \$12,798, an increase of \$102. This network has been a mainstay in the San Diego region, acting as a stabilizer throughout the recession. While the average wage is relatively low, it remains this region's largest financial contributor.⁸³

3. Biomedical Products

The Biomedical Products network is a knowledge intensive industry that produces instruments and other apparatus primarily for the medical field. The San Diego region is a world leader in this field in both manufacturing and innovation.

More than 130 firms belong to this network employing 6,431. The average payroll per person is \$39,431 with an Employment Concentration Factor of 2.14 greater than the national average. The largest employment sectors in the network are Surgical and Medical Instruments (2,806), and Ophthalmic Goods (2,110). There are two support organizations, BIOCUM and UCSD Connect. These two organizations foster collaboration within this and other related networks, such as the Biotechnology and Pharmaceuticals network.⁸⁴

4. Biotechnology and Pharmaceuticals

A June 2004 study conducted by the Milken Institute named San Diego as the number-one region in the country for biotechnology. The study gave each metropolitan area a number rating – after San Diego's score of 100, the next highest competitors were Boston (95.1), Raleigh-Durham-Chapel Hill (92.5), San Jose (87.8), and Seattle-Bellevue-Everett (83.8). The rating accounted for R&D inputs, risk capital, human capital, biotech workforce and current impact of the network on the regional economy.⁸⁵

This network includes industries, which are engaged in researching, manufacturing or processing biological, chemical and medical products. Medical and industrial chemicals and preparations are included in this grouping.

This network employs 21,725 San Diegans in 489 firms. This figure has nearly doubled since 1990. Although employment has increased, real wages have decreased, but

⁸³ Regional Technology Alliance: San Diego, <http://sdrta.org/research.php?action=networkdata&menu=3> accessed May 13, 2004.

⁸⁴ From SANDAG, <http://cart.sandag.cog.ca.us/network/networkinfo.html> accessed May 13, 2004.

⁸⁵ "New Milken Study Taps San Diego as the Top U.S. Biotech Cluster." June, 2004. San Diego Regional Economic Development Corporation. http://www.sandiegobusiness.org/newsletter_template.asp?newsletterID=227

only slightly. The current average wage in this network is \$49,109, down \$11 from 1990. This network's Employment Concentration Factor is 2.07 times greater than the national average. The largest employment sectors in this network are Commercial Physical Research (8,611) and Non-Commercial Research Organizations (5,883). Industrial Organic Chemicals and Commercial Physical Research have the highest average payroll, at \$61,657 and \$61,136, respectively.

5. Business Services

This network includes industries that provide a variety of services to local business establishments, including management, legal, and personnel supply services.

This network continues to gain importance as an integral part of the region's employment. In 1996, it employed 61,770 in 7,543 firms. This is an employment increase of nearly 30 percent. However, while the payrolls have increased, the real wages have not. The average wage for this network is \$30,114, down \$512 from six years before. This network's Employment Concentration Factor is 1.15 times greater than the national average. The largest employment sectors are Help Supply Services (20,147) and Business Services NEC (10,497). Temporary employment agencies are included in the HSS sector and may distort the true employment figure.

6. Communications

This network includes industries primarily engaged in researching and manufacturing communications related products. The network also includes industries that provide point-to-point communications services such as cellular phone and beeper services.

This network has grown by over 65 percent in the last six years, reaching 11,430 employees. The network's average payroll is \$48,000. The largest employment sector is Radio and TV Communications (2209). The sectors with the highest average pay are Telephone and Telegraph Apparatus (\$63,890) and Communications Equipment, NEC (\$62,837).

7. Computer and Electronics Manufacturing

This network includes industries that manufacture and assemble electronic components and products. The emphasis is on high technology and computer-related products and their input components. This network's regional employment is 8,867, a gain of 1,100 jobs in the last six years. There are 372 firms and the network's Employment Concentration Factor is 1.83. The average wage for this network is \$48,804, a decline of \$381 since 1990. The largest employment sectors are Household Audio-Visual Equipment (4,500), Computer Peripheral Equipment, NEC(3,315). The highest paying employment sector is Electronic Computers, paying an average of (\$103,000).

8. Defense and Transportation Manufacturing

This network includes industries engaged in manufacturing or assembling aircraft, ships, boats, and defense-related products such as guided missiles. As a result of decreased defense spending, this network's focus has shifted toward more civilian and high-technology types of output. This network has been hit hard by a shifted focus of national defense spending, losing 20,000 jobs from 1990 to 1996, from 39,114 to 18,571.

However, this network is still strong in the San Diego region, with an ECF of 2.6. The average salary for this network is \$43,120 with the highest paying industries being Guided Missiles and Space Vehicles (\$87,060) and Aircraft (\$53,120). The largest employment sectors are Ship Building and Repairing (6,912) and Aircraft Parts and Equipment, NEC (4,558).

9. Entertainment and Amusement

This network includes industries engaged in arranging and providing amusement, recreation, and entertainment services. This network has been a stabilizing force during this region's recession. There are 1,065 companies in this sector, employing a total of 20,462 workers making an average of \$26,997, up \$1,609 from 1990.

10. Environmental Technology

This network is an emerging one, comprised of industries that manufacture products with environmental applications. This network grew, approximately 33 percent from 1990 to 1996 and presently employs more than 4,100 people working in 132 firms, earning an average of \$38,765, with an ECF of 1.64. The largest employment sectors are General Industrial Machinery, NEC (1,172) and Process Control Instruments (960). The highest paying industries are Analytical Instruments (\$48,910), and Measuring and Controlling Devices (\$46,500).

11. Financial Services

This network includes industries engaged primarily in deposit banking, extending credit in the form of loans, and exchange of securities and commodities. This sector experienced a significant loss in employment from 1990 to 1996, losing over 5,000 jobs settling at 10,257 workers in 1,530 firms, earning an average salary of \$43,595 each. Despite its decline, this network's Employment Concentration Factor is 1.23 times greater than the national average. The largest employment sectors are the Mortgage Bankers and Loan Correspondents (3,000) and Federally Chartered Credit Unions (1,580). The highest paying industries are Investment Advice (\$93,100) and Mortgage Bankers and Loan Correspondents (\$46,330).

12. Fruits and Vegetables

This network includes industries engaged in the production and maintenance of fruit, melons, tree nuts, and vegetable crops. This network too was a stabilizer during the recession and offers an interesting diversity to our region's high-tech economy. It is, however, a fragile industry needing some protection. There are 783 employees working in just 17 firms and many of these workers are seasonal, earning an average pay of \$13,314, up about \$200 from 1996. Avocados and strawberries are the region's historic crop, with apples a close third. Harvesting these crops creates the biggest demand for workers, but approximate figures per crop are not available.

13. Horticulture

This network includes industries engaged in the production and maintenance of ornamental plants, nursery crops, and food crops (under cover). There are 233 firms in

this network employing 4,626 employees. The average wage for this network is \$17,478, up \$170 from 1990.

14. Medical Services

This network includes industries primarily offering health services to the general public through hospitals and other medical facilities. This is one of the region's largest networks, with a total employment exceeding 57,000, with an average wage of \$36,360. There are a total of 5,279 firms. This network's ECF is .86 above the national average. This network's largest employment sectors are General Medical and Surgical Hospitals (17,740) and Offices and Clinics of Doctors of Medicine (15,160).

15. Recreational Goods and Manufacturing

This network includes industries that manufacture recreation, sporting and athletic goods, such as golf equipment. This is the fastest growing network in the region, growing over 107 percent from 1990 to 1996. A total of 5,979 employees work in the field at 265 firms. The average wage for this network is \$37,713, a gain of 42 percent. The largest employment sector is Sporting and Athletic Goods, employing 5,100.

16. Software and Computer Services

This network includes industries that provide computer and software-related services. Services such as computer programming, prepackaged software and software development are among the types included. This sector is relatively young for the San Diego region. Originally created as a support institution for the defense industry, many employees were displaced due to defense cutbacks. Many of these displaced software workers became entrepreneurs and launched several small software companies. Now, of the 15 networks, this network boasts the highest average pay (\$85,570), an increase of 40% in the last six years. There are a total of 647 firms employing 13,640 people. This network's ECF is 1.29 times greater than the national average.

17. Uniformed Military

The Uniformed Military network is comprised of all enlisted, non-civilian military personnel. It is export-oriented because it brings in significantly more tax dollars than the region pays. This network includes all uniformed military personnel.⁸⁶

San Diego County has ten military bases in the area, whose total contribution to the economy is about \$10 billion per year according to the Southern California Attorney General's Office. This money comes from outside the region, and may fluctuate according to the nation's defense priorities. The military directly employs over 500,000 people in the region, spread out among Naval Station-San Diego, Sub Base-San Diego, Naval Air Station-North Island, Naval Air Station-El Centro, Marine Corps Air Station-Miramar, U.S. Marine Corp Base-Camp Pendleton, and the Space and Naval Warfare Systems Command (SPAWAR). San Diego has the largest concentration of Navy and Marine Corps installations in the world.⁸⁷

⁸⁶ From SANDAG, <http://cart.sandag.cog.ca.us/network/networkinfo.html> accessed May 13, 2004.

⁸⁷ From US Dept of Justice, Attorney General's Office.
<http://www.usdoj.gov/usao/cas/text/HISTORY.HTM>

IX. Challenges Facing the Metropolitan Area

There are four primary factors that are restricting the San Diego-Tijuana region's quality of life, and thus its economic growth. They are economic inequality, inadequate education, poor land-use strategies that keep housing and transportation costs high, and an infrastructure that has not kept up with the growth of Tijuana.

1. Economic inequality within the region and across the border

The largest and over-arching challenge for future development strategies is economic inequality. Dr. Manuel Pastor, of the University of California at Santa Cruz, performed an econometric analysis of 74 metro regions around the country. His studies suggest that poverty reduction in city centers leads to more rapid income growth in a region for all of its residents. Although incomes have risen across the board in California, the income gap has widened over the last couple of decades because incomes have risen faster at the top of the distribution. This can be seen in the distribution of adjusted gross income from tax returns with the top 20 percent of returns rising and the lower 80 percent falling. The distribution of incomes and other measures of wealth standards is also disproportionate when race and ethnicity are factored in. While not particularly surprising, this demonstrates the need for improvements to be aimed at ethnic communities, in particular at Hispanics who now compose a plurality of the population.

Although the San Diego-Tijuana metropolitan area crosses national boundaries, development and planning is still somewhat divided. As the table below shows, there is a large gap in the municipal budgets on each side of the border. Quality of life indicators such as the percent of the population with electricity, healthcare workers per capita, and population density all reflect the social inequality between the two cities. The implications of the Pastor study for this metropolitan area are that San Diegans have a vested interest in helping achieve a higher standard of living in Tijuana.

| Comparison of Tijuana and San Diego | | |
|---|-----------|-----------|
| | Tijuana | San Diego |
| Area in square kilometers | 1,393 | 10,891 |
| Total population (estimated 1995) | 1,237,000 | 2,835,200 |
| Inhabitants per square kilometer | 710.2 | 260.3 |
| Births per 1,000 inhabitants(1992) | 31.6 | 19.3 |
| Mortality per 1,000 inhabitants | NA | 6.9 |
| Infant mortality per 1,000 inhabitants(1992) | 26.9 | 7.1 |
| Number of nurses per 1,000 inhabitants | 1.8 | 8 |
| Number of physicians per 1,000 inhabitants | 1.1 | 2.7 |
| Percent population with electricity(1992) | 85.8 | 99 |
| Libraries(1993) | 18 | 91 |
| Paved roads (kilometers, 1994) | 332,624 | 1,602,597 |
| Solid waste generation(tons per day, 1995) | 710 | 2,500 |
| Per capita solid waste generation per day (kilos) | 0.7 | 0.9 |
| Municipal budget(US\$ millions, 1995) | 49 | 3,031 |
| | | |

Source: *Plan Municipal de Desarrollo 1996-1998* (Tijuana: COPLADEM)

From the SDSU Institute for Regional Studies of the Californias. <http://www-rohan.sdsu.edu/~irsc/tjreport/tj9.html>

2. Improvement of the public education system

Inadequate levels of education, in particular high skill training, are both a problem and a key to the solution of the inequality problem on both sides of the border. In San Diego county education reform should be aimed at two areas - increasing the performance of students in low-income schools, and workforce development. The San Diego area's commitment to the high tech industry, and the Biomedical industry in particular, was the impetus for the development of High Tech High, a charter school underwritten by forty companies in San Diego.

The state of California is notorious for its large budget deficit left by former governor Gray Davis, which current governor Arnold Schwarzenegger and the state legislature are in the process of reducing. For San Diego, budget cuts could mean a restructuring of public K-12 education because the California Performance Review Team has recommended to eliminate county-wide offices of superintendent and board of education in order to save an estimated \$4.1 billion. San Diego has 42 different school districts and 7,500 special needs students in schools run by the county board, according to the local North County Times newspaper. Without a county-wide planning body, the

implementation of educational programs and teacher training face the challenge of finding a new, more inexpensive way to operate.⁸⁸ Fortunately, \$11 million in “equalization money” will go back to San Diego’s school districts, which have traditionally suffered from a gap in funding

Tijuana’s economy is anchored by the maquiladora industry, whose low value-added production faces competition from other pockets of low-skill labor in southern Mexico and abroad. In order to maintain and increase the competitive advantages of the area, movement to high-skill value-added processes is necessary. This should provide several benefits, both increased incomes and reduction of the high turnover rates in the factories. In order to move from low-skilled, low wage jobs to skilled jobs with above-market wages, Tijuana needs to ensure that its population (and especially children, who will make up the region’s future workforce) receive a quality education. Currently, Mexico’s factories have some of the lowest wages in the world at an average \$1.50 per hour as compared to the US’s more than \$17.00 per hour.

3. The housing-transportation problem

The third challenge to economic growth is the improvement of living conditions. The San Diego region is quickly filling up available land while housing prices continue to rise. It is currently the least affordable housing market in Southern California, where average incomes and average housing costs do not match. The California Association of Realtors (CAR) pointed out in 2000 that only 22 percent of the households in the area could afford to buy a median-priced home whereas the national rate was 65 percent of households. The median price of a resale home is now above \$400,000 and new homes cost over \$500,000 on average.⁸⁹ The 102-year-old manufacturer Buck Knives provides an example of what the region risks losing if the cost of living is not reduced. The company announced in June of 2004 that it plans to relocate from San Diego to Post Falls, Idaho, where it will create 200 new jobs and save \$1.2 million a year in operating costs. Idaho’s lower worker’s compensation costs and cheaper electricity were two reasons cited for the move.⁹⁰

What may not be obvious is that in addition to the fact that unusually high living expenses raise the cost of firms to relocate to San Diego, the housing boom exacerbates traffic across the region. Workers have to live further and further away from their jobs in order to find affordable homes, and this adds to the number of commuters on the area’s main highways. Because developers are building suburban homes faster than the highways can be expanded or extended, residents are faced with the burden of longer and more congested daily commutes. As Duane Roth, Co-chair of SANDAG’s Community Housing Board, said in San Diego Magazine, “We need a vision for the next phase of San

⁸⁸ David Fried. “Educators Worry What Budget Plan Would Mean For Schools.” *North County Times*. Aug 2, 2004. http://www.nctimes.com/articles/2004/08/03/news/top_stories/21_18_548_2_04.txt

⁸⁹ From “Smart Growth vs. No Growth.” San Diego Magazine. Nov 20, 2003. http://www.sandiegobusiness.org/article_template.asp?ArticleID=199

⁹⁰ “San Diego’s Buck Knives Preparing for Idaho Move.” *North County Times*. June 22, 2004. http://www.nctimes.com/articles/2004/06/23/business/news/20_00_456_22_04.txt

Diego's growth. We need social acceptance of the smart-growth concept. [Housing] is going to have to go up, it's going to have to get denser, because we can't keep pushing people farther and farther out and clog more freeways."⁹¹

Tijuana faces its own housing problems. The housing deficit is estimated at some 77,500 units (5% of the population) and 40 percent of the housing units are considered substandard. Poor home financing options and lack of affordable supply are the two major factors contributing to the housing deficit.

4. Tijuana's infrastructure is in need of improvement.

On the Mexican side of the border, greater control over taxes and planning needs to be yielded to the Municipality of Tijuana. In addition, the federal government could alleviate some of the challenges that face the city by providing funding. The area requires an improved transportation system with roads needing repair, upgrade, and construction as well as a renovation of sewage and water treatment facilities. The U.S. Environmental Protection Agency (EPA) currently works with the Mexican Comisión Estatal de Servicios Públicos de Tijuana (CESPT, the local wastewater/ public service agency) to address problems with the local water infrastructure. Two examples of ongoing collaboration are the Tijuana Sewer Rehabilitation Project (which is commonly called "Tijuana Sana," or Healthy Tijuana) and the Tijuana Master Plan for Water and Wastewater Infrastructure.⁹²

The Sewer Rehabilitation Project began working on its four year, \$43 million project in 2002 through equal funding from the EPA and the CESPT (\$18 million) and a North American Development Bank loan to the EPA for \$6 million. The project expects to repair about 131,000 m of the most deteriorated sewage pipe, which makes up 7% of the entire system. The repair is designed to alleviate the problem of sewage overflow, which was at its worst in 1998 due to excessive rains from El Nino.⁹³ Since the Tijuana River flows north, any water contamination that occurs from Tijuana's poor infrastructure will be carried into San Diego. Tijuana is too financially constrained to fully fund its own repairs, so bi-national cooperation is in the best interest of both sides of the border. For instance, in 2000 there were 202 days of beach closings in San Diego County due to sewage-contaminated water from 44 separate instances. In 2001 these values increased to 217 closings and 50 instances, which shows the necessity of the Sewer Rehabilitation Project. In 2002 there were 103 sewage-related beach closings, and the number of sewage incidents fell to 35.⁹⁴

⁹¹ From "Smart Growth vs. No Growth." San Diego Magazine. Nov 20, 2003.

http://www.sandiegobusiness.org/article_template.asp?ArticleID=199

⁹² From the EPA website. <http://www.epa.gov/region09/water/tijuana/>

⁹³ From County of San Diego Department of Environmental Health.

<http://www.sdcountry.ca.gov/deh/lwq/beachbay/index.html>

⁹⁴ *ibid*

X. Conclusion

SANDAG's 2004 Regional Comprehensive Plan begins with an appropriate quote for any metropolitan economic strategy; "You cannot escape the responsibility of tomorrow by evading it today."⁹⁵ The IBWC of 1889 was the first bi-national organization that recognized the truth of this statement when it came together to, as its name indicates, oversee water use and planning. Since then, bi-national cooperation has extended to education, environmental protection, public safety, tourism, and economic development.

The two cities are so close to each other that on a clear night one can see the lights of Tijuana from the hilltops in San Diego proper.⁹⁶ Because of both labor mobility and this geographic proximity, San Diego cannot afford to ignore problems in Tijuana. For instance, sewage-related incidents that result from Tijuana's deteriorated infrastructure often contaminate San Diego's beaches. An education system that leaves many adults unprepared for the workforce also creates problems for San Diego as Mexicans move north.

Although San Diego brings innovative researchers to its universities and has 1.5 times the national concentration of businesses involved in technical services, the benefits of San Diego's educational assets have yet to spill over across the border. Inequality, housing shortages, and transportation congestion are three more challenges that need to be confronted by an effective metropolitan economic strategy.

Traditionally, the local universities of UCSD and SDSU led the way in region-wide governance issues. Since then, the SANDAG Regional Comprehensive Plan has begun to embrace bi-national efforts related to water and the environment, but more importantly the RCP seeks to create a framework within which future planning can take place. "It creates a regional vision. It provides a broad context in which local and regional decisions can be made that foster a healthy environment, a vibrant economy, and a high quality of life for all residents. It balances regional population, housing, and employment growth with habitat preservation, agriculture, open space, and infrastructure needs. It moves us toward a sustainable future – a future with more choices and opportunities for all residents."⁹⁷

⁹⁵ Abraham Lincoln, found in Executive Summary of RCP.

<http://www.sandag.org/index.asp?projectid=1&fuseaction=projects.detail>

⁹⁶ personal account

⁹⁷ Executive Summary of RCP. <http://www.sandag.org/index.asp?projectid=1&fuseaction=projects.detail>

XI. Appendix

EXAMPLE OF SUCCESS STORIES IN TIJUANA:

These U.S., Japanese, Korean, Taiwanese and European companies have successfully operated in Tijuana for over 20 years.

| Company: | Number of Employees: | Plant (Size) / Sq.Ft. | Main Products: |
|--------------------------|----------------------|-----------------------|------------------------------------|
| Sony | 4,500 | 500,000/1 | TVs, Monitors, VRCs, Play Stations |
| Samsung | 3,600 | 1,800,000 | TVs, Monitors, VRCs, MW Ovens |
| Matsushita | 4,080 | 400,000 | TVs, Components, Batteries |
| Sanyo | 2,730 | 3,000,000 | TVs, Batteries, Refrigerators |
| Hyundai | 1,900 | 800,000 | Freight Containers |
| Douglas | 2,200 | 400,000 | Furniture |
| Leviton | 1,800 | 100,000 | Connectors |
| International Rectifiers | 1,700 | 250,000 | Semiconductors |
| Mattel | 3,000 | 322,800 | Toys |
| Hitachi | 3,990 | 175,000 | TVs |
| Pioneer | 1,235 | 350,000 | Speakers |
| ADI | 900 | 160,000 | Monitors |
| Honeywell | 1,400 | 269,000 | Electric Components |
| Cannon | 650 | 230,000 | Printers, Copiers |
| JVC | 1,350 | 600,000 | TVs |
| Maxell | 500 | 100,000 | Cassettes, Floppy Disks |
| Prosonic | 1000 | 150,000 | Speakers |
| Hughes Network | 300 | 60,000 | SDT Boxes |
| Kyocera | 1,080 | 120,000 | Semiconductors |
| Delta | 350 | 200,000 | Monitors |
| Phillips | 2,075 | 150,000 | Electronic Ballasts |
| Bose | 600 | 100,000 | Amplifiers, Tuners, Speakers |

From Tijuana EDC. <http://www.tijuana-edc.com/deitac/manufacturinginformation.asp>

**San Diego's Top 10 Imported Products from Mexico
January - December 2000**

| Port of Entry | RANK | PRODUCT DESCRIPTION | TRADE VALUE (\$) |
|--------------------------|-------------|--|-------------------------|
| Otay Mesa Station | 1 | TV Receivers, Color, including Video Monitors & Projectors, Whet or Not Incorp. Radiobroadcast Receivers or Sound or Video Recording or Reproducing Apparatus | \$1,882,735,536 |
| | 2 | Input or Output Units Whether or Not Presented with the Rest of A System And Whether or Not Containing Storage Units in one Housing in Data Processing | 881,888,884 |
| | 3 | Special Transactions and Commodities, not classified according to kind | 502,739,826 |
| | 4 | Transmission Apparatus for Radiotelephony, Radiotelegraphy, Radio broadcasting or Television, not Incorporating Reception Apparatus | 458,359,072 |
| | 5 | Instruments and Appliances used in Medical, Surgical or Veterinary Sciences, N.E.S. | 307,371,532 |
| | 6 | Static Converters (E.G., Rectifiers) | 200,789,688 |
| | 7 | Trailers and Semi-Trailers for the transport of goods, N.E.S. | 155,312,299 |
| | 8 | Parts of Television Receivers, Radiobroadcast Receivers, Transmission Apparatus for Radio Telephony, Telegraphy, Broadcasting or Television Etc. Parts of TV Rec, Radiobroad Rec, Sound Record, Etc. | 151,309,053 |
| | 9 | Tomatoes, Fresh or Chilled | 149,184,533 |
| | 10 | Vegetables, N.E.S. Fresh or Chilled | 144,735,048 |
| SAN DIEGO | 1 | Motor Vehicles For The Transport of Persons (Other Than Public Transport), N.E.S. | \$412,576,590 |
| | 2 | Special Transactions and Commodities Not Classified According To Kind | 3,083,790 |
| | 3 | Silica Sands and Quartz Sands | 2,122,875 |
| | 4 | Sands, Natural, other than Silica Sands and Quartz Sands | 932,955 |
| | 5 | Seaweeds and Other Algae | 497,975 |
| | 6 | Static Converters (E.G., Rectifiers) | 327,978 |
| | 7 | Mollusks and other Aquatic Invertebrates, Prepared or Preserved, N.E.S. | 286,272 |
| | 8 | Stranded Wire, Ropes, Cables, Etc. of Iron or Steel, Not Electrically Insulated | 191,855 |
| | 9 | TV Receivers, Color, including Video Monitors & Projectors), Not Incorp Radiobroadcast Receivers or Sound or Video Recording or Reproducing Apparatus | 160,972 |
| | 10 | Parts of Television Receivers, Radiobroadcast Receivers, Transmission Apparatus for Radio Telephony, Telegraphy, Broadcasting or Television Etc. Pts of TV Rec, Radiobroad Rec, Sound Record, Etc. | 77,288 |
| III. SAN YSIDRO | 1 | Articles of Iron or Steel, N.E.S. | \$ 78,153 |
| | 2 | Special Transactions and Commodities Not Classified According to Kind | 28,930 |
| | 3 | Seats, N.E.S., with Wooden Frames | 15,849 |
| | 4 | Seats, other than Garden Seats or Camping Equipment, Convertible Into Beds | 4,055 |
| | 5 | Solid or Cushion Rubber Tires, Interchangeable Treads and Tire Flaps | 480 |

Source: Trade Border Institute

**San Diego's Top 10 Exported Products to Mexico
January- December 2000**

| Port of Entry | RANK | PRODUCT DESCRIPTION | TRADE VALUE (\$) |
|--------------------------|-------------|--|-------------------------|
| OTAY MESA STATION | 1 | Television Picture Tubes, Color | \$817,113,685 |
| | 2 | Digital Monolithic Integrated Units | 323,946,848 |
| | 3 | Cathode Ray-Tubes, N.E.S. | 231,108,078 |
| | 4 | Articles of Plastics, N.E.S. | 202,315,954 |
| | 5 | Nondigital Monolithic Integrated Units | 155,091,725 |
| | 6 | Cartons, Boxes and Cases of Corrugated Paper or Paperboard | 145,847,918 |
| | 7 | Articles of Iron or Steel, N.E.S. | 141,848,335 |
| | 8 | Soups and Broths And Preparations | 128,711,377 |
| | 9 | Padlocks And Locks (Key, Combination Etc.), Clasps and Frames With Clasps and Locks, of Base Metal; Keys for The Foregoing Articles, of Base Metal | 108,180,786 |
| | 10 | Parts of Television Receivers, Radiobroadcast Receivers, Transmission Apparatus for Radio Telephony, Telegraphy, Broadcasting or Television Etc. Pts of TV Rec, Radiobroad Rec, Sound Record, Etc. | 99,598,227 |
| SAN DIEGO | 1 | Motor Vehicles for the Transport of Persons (Other Than Public Transport), N.E.S. | \$1,764,648 |
| | 2 | Polyethylene, Having a Specific Gravity of Less Than 0.94, In Primary Forms | 921,529 |
| | 3 | Loudspeakers, Mounted in their Enclosures | 431,325 |
| | 4 | Parts of Television Picture Tubes and Other Electronic Valves and Tubes | 404,455 |
| | 5 | Golf Equipment | 393,422 |
| | 6 | Polyacetals, in Primary Forms | 362,600 |
| | 7 | Fishing Vessels; Factory Ships and other Vessels for Processing or Preserving Fishery Products | 350,000 |
| | 8 | Polyethylene, Having a Specific Gravity of 0.94 or more, In Primary Forms | 321,714 |
| | 9 | Polyamide-6, -11, -12, -6, 6, -6, 9, -6, 10 Or -6, 12, In Primary Forms | 289,685 |
| | 10 | Headphones, Earphones and Combined Microphone/Speaker Sets | 287,315 |

| Port of Entry | RANK | PRODUCT DESCRIPTION | TRADE VALUE (\$) |
|---------------|------|---|------------------|
| SAN YSIDRO | 1 | Transmission Apparatus for Radiotelephony, Radiotelegraphy, Radio broadcasting or Television, Incorporating Reception Apparatus | \$2,297,250 |
| | 2 | Parts and Accessories of Photocopying and Thermo copying Apparatus | 1,855,355 |
| | 3 | Parts, N.E.S., for Transmission Shafts and Cranks, Bearing Housings, Gears, Gearing, Ball Screws, Gear Boxes, Flywheels and Pulleys, Clutches, Etc. | 1,297,419 |
| | 4 | Soups and Broths and Preparations | 322,261 |
| | 5 | Methyloxirane (Propylene Oxide) | 288,527 |
| | 6 | Aluminum and Aluminum Alloy Plates, Sheets and Strip, over .2 Mm Thick | 273,855 |
| | 7 | Meat of Bovine Animals, Boneless, Fresh or Chilled | 171,620 |
| | 8 | Motor Vehicles for the Transport of Persons (Other Than Public Transport), N.E.S. | 168,470 |
| | 9 | T-Shirts, Undershirts, Tank Tops and Similar Garments, of Knitted or Crocheted Textile Fabrics | 159,535 |
| | 10 | Cartons, Boxes and Cases of Corrugated Paper or Paperboard | 157,822 |

Both Import/Export Charts found in San Diego Book of Facts.

http://www.signonsandiego.com/bookoffacts/bi-national_region/bi-national_index.html

XII. Bibliography

A Delicate Equation: Balancing San Diego's Pluses and Minuses, Julie Meier Wright, San Diego Regional Economic Development Corporation: San Diego, California (1/9/2004)

"About." UCSD CONNECT. 2004. USCD CONNECT. <http://www.connect.org/about/index.htm>

"About UCSD." University of California, San Diego. 2004. UCSD. <http://ucsdnews.ucsd.edu/about/index.asp>

"About Us." San Diego Dialogue. 2004. San Diego Dialogue. <http://www.sandiegodialogue.org/about.htm>

Bases Realignment and Closure, San Diego EDC April 20, 2004
http://www.sandiegobusiness.org/article_template.asp?ArticleID=177

Border Bulletin and the Folleto Fronterizo U.S.-Mexico Border Program
U.S. Environmental Protection Agency. Volume II, No. 9, Dec., 1999
1445 Ross Avenue Dallas, TX 752 02-27 33 Nelda Perez, Editor, Translator

"Chapter 4: Political Institutions." Economic Profile of the San-Diego-Tijuana Region: Characteristics for Investment and Governance Decisions. Borderlink 1994. p 21
<http://www.borderecweb.sdsu.edu/bordpub/brdlnk94.pdf>

"City of Villages." City of San Diego. 2004. City of San Diego. <http://www.sannet.gov/cityofvillages/>

"Clusters in the San Diego Region." Tijuana-Economic Development Corporation, City of Tijuana
<http://cart.sandag.cog.ca.us/network/networkinfo.html>

"Colonia Diez de Mayo." Project Detail. 2002. Regional Workbench Consortium.
http://www.regionalworkbench.org/databank/project_all.php?pid=10&pName=Colonia%20Diez%20De%20Mayo

COMPILATION OF ACTIONS AND ACTIVITIES GENERATED BY THE SAN DIEGO -TIJUANA REGION **Regarding BORDER WAIT TIMES AND THEIR ECONOMIC IMPACT, The Office of Bi-national Affairs, San Diego April 4, 2002**
<http://www.sdchamber.org/public/BorderWaitsCompilation.pdf>

"Countywide Crime Rates: Ten Year Trend." 2000 Annual Crime Report. 2001. SANDAG
http://www.sandag.org/uploads/publicationid/publicationid_696_904.pdf

Cox, Millicent. Cross-Border Labor Market Data for Economic Development Analysis: The experience of Baja California/California. Proceedings of the Joint IASS/IAOS Conference Statistics for Economic and Social Development. Sept, 1998. <http://www.electriciti.com/mcox/cblim.pdf>

"Developing High-Technology Communities: San Diego." Office of Advocacy. 2000. U.S. Small Business Administration.
<http://216.239.39.104/search?q=cache:i9oFZSB7Uxoj:www.sba.gov/advo/research/rs198tot.pdf+developin+high-technology+communities+san+diego&hl=en>

DiBona, Joanne. "Cruise Ship Industry Helps Buoy Local Economy." Editorials. April 25, 2003. San Diego Convention and Visitors Bureau. http://www.sandiego.org/editorial_detail.asp?id=100

"Economic Statistics." Sourcebook. 2004. The San Diego Source.
http://sourcebook.sddt.com/2004/Listings_EconomicStatistics.cfm

“Events.” International Migration Policy Program. 2004. Carnegie Endowment for International Peace. <http://www.ceip.org/files/events/NAmerConfReport.asp?p=6>
Excellence and Justice in Education. No date available. <http://www.geocities.com/enlaceje/>

Fried, David. “Educators Worry What Budget Plan Would Mean For Schools.” North County Times. Aug 2, 2004. North County Times. http://www.nctimes.com/articles/2004/08/03/news/top_stories/21_18_548_2_04.txt

Ganster, Paul. “Tijuana, Basic Information.” 1999. SDSU Institute for Regional Studies of the Californias. <http://www-rohan.sdsu.edu/~irsc/tjreport/tj1.html>

“Global CONNECT Members.” Global CONNECT. No date available. Global CONNECT. <http://www.connect.org/globalconnect/members.htm>

“Graduate Bulletin.” Graduate Admissions. 2004. University of San Diego. <http://www.sandiego.edu/about/gradbulletin/as/msms.html>

Grieco, Elizabeth. “Educational Attainment of the Foreign Born in the United States.” Migration Information Source. 2004. Migration Policy Institute. <http://www.migrationinformation.org/USfocus/display.cfm?ID=234>

Hall, Kevin. “\$117 Million Project Planned to Improve Tijuana Roads.” Journal of Commerce. April 19, 1994. Accessed through Lexis-Nexis. http://web.lexis-nexis.com/universe/document?_m=5fa1de2b789277db0646a0066098ff44&_docnum=51&wchp=dGLbVzb-zSkVb&_md5=65d155ab5dbfd9239cd5cb22b6f59925&taggedDocs=3CF1.12Z1.4364A423

“History.” About SANDAG. 2004. SANDAG <http://www.sandag.org/index.asp?fuseaction=about.history>

“Hyundai- New Name, New Markets.” Trailer/Body Builders. Aug 1, 2001. Accessed through Looksmart.com website. http://www.findarticles.com/p/articles/mi_m0HFC/is_2001_August_1/ai_77870388/pg_2

Ibanez, Viviana. “The San Diego Regional Chamber of Commerce Signs Historic Agreement in Tijuana.” Hispanic Vista. Oct 11, 2000. Hispanic Vista. <http://www.hispanicvista.com/html/001010sd.html>

“Issues, Impacts, and Social Solutions: Education.” Blurr borders. 2004. International Community Foundation. <http://www.icfdn.org/aboutus/publications/blurrborders/21education.htm>

Key Policy Issues for Nine Industry Networks, California Economic Strategy Panel February, 1996. <http://www.labor.ca.gov/panel/AddendumI.pdf>

Land Use & Regional Growth, Regional Comprehensive Plan, San Diego’s Regional Planning Agency <http://www.sandag.org/index.asp?projectid=1&fuseaction=projects.detail>

Lindquist, Diane. “A Welcome Recovery; Slight gain in output cheers Mexico's beleaguered maquiladora industry.” The San Diego Union-Tribune. March 11, 2004.

Louv, Richard. “2004: San Diego’s year of civic revival?” San Diego Union-Tribune. Oct 26, 2003. San Diego Union-Tribune. http://www.signonsandiego.com/news/metro/louv/20031026-9999_mz1e26louv.html

“Manufacturing Information.” Tijuana Economic Development Corporation, City of Tijuana <http://www.tijuana-edc.com/deitac/manufacturinginformation.asp>

Map 9. Employment 1997, SDSU Institute for Regional Studies of the Californias
<http://www-rohan.sdsu.edu/~irsc/atlas/text/empeng.html>

Map 14. Governance and Administrative Boundaries, Tonatiuh Guillén López & Glen Sparrow, SDSU Institute for Regional Studies of the Californias
<http://www-rohan.sdsu.edu/~irsc/atlas/text/goveng.html>

Network Data, Regional Technology Association
<http://sdrta.org/research.php?action=networkdata&menu=3>

“New Milken Study Taps San Diego as the Top U.S. Biotech Cluster.” June, 2004. San Diego Regional Economic Development Corporation.
http://www.sandiegobusiness.org/newsletter_template.asp?newsletterID=227

“New Policy Aids Troubled Tourists In Mexico.” The San Diego Channel. Feb 11, 2004. San Diego Channel. <http://www.thesandiegochannel.com/news/2841058/detail.html>

“Office History.” United States Attorney’s Office - Southern District of California. 2003. US Dept of Justice, Attorney General’s Office. <http://www.usdoj.gov/usao/cas/text/HISTORY.HTM>

Peirce, Neal and Curtis Johnson. “Dealing With Los Federales.” The Millennium Project. No date available. San Diego Magazine online. <http://www.sandiegomag.com/millennium/>

Peirce, Neal and Curtis Johnson. “San Diego Case Study: Building a Bi-National Knowledge-Based Economy.” Boundary Crossers. 1998. Accessed through the James MacGregor Burns Academy of Leadership. <http://www.academy.umd.edu/publications/Boundary/CaseStudies/bcssandiego.htm>

“Programs.” UCSD Extension. 2004. Regents of The University of California.
<http://www.extension.ucsd.edu/Programs/>

“Proyecto Biblioteco Loyola.” Proyectos. 2004. Universidad Iberoamericana Tijuana.
<http://www.tij.uia.mx/uia/proyectos/>

“Regional Comprehensive Plan.” Projects. 2004. San Diego Association of Governments.
<http://www.sandag.org/index.asp?projectid=1&fuseaction=projects.detail>

San Diego and Tijuana At a Glance, International Community Foundation
<http://www.icfdn.org/aboutus/publications/blurrborders/39Sandiegoandtijuanaataglance.htm>

“San Diego’s Buck Knives Preparing for Idaho Move.” North County Times. June 22, 2004. North County Times. http://www.nctimes.com/articles/2004/06/23/business/news/20_00_456_22_04.txt

“San Diego, CA.” America’s Most Livable Communities. 2004. Partners for Livable Communities.
<http://www.mostlivable.org/cities/sandiego.html>

“San Diego, CA.” Regional Economic Conditions. 2004. Federal Deposit Insurance Corporation.
<http://www2.fdic.gov/recon/index.asp>

“San Diego: City of the Future.” International Center for Communication. 1997. San Diego State University. http://www-rohan.sdsu.edu/dept/intlcomm/cof_info.html

“San Diego County Beach Closure Report: Three Year Summary.” Beach and Bay Status Report. 2003. County of San Diego Department of Environmental Health.
<http://www.sdcountry.ca.gov/deh/lwq/beachbay/index.html>

San Diego Scene, San Diego Metropolitan
<http://www.sandiegometro.com/2001/jul/dailyupdt18.html>

“San Diego/Tijuana Manufacturing in the Information Age: Charts.” San Diego Dialogue. 2004. San Diego Dialogue http://www.sandiegodialogue.org/cb_research.htm

“San Diego, Tijuana Team up to Protect Region.” The San Diego Channel. Oct 24, 2003. San Diego Channel. <http://www.thesandiegochannel.com/news/2580961/detail.html>

Sanchez, Leonel. “Factories feel the heat; Struggling maquiladoras need government reforms in order to compete, report says.” The San Diego Union-Tribune. Aug. 6, 2003.

SCERP. 2003. Southwest Center for Environmental Research and Policy. <http://www.scerp.org/>

Second Phase of the Bi-national Study Regarding the Presence of Toxic Substances in the Rio Grande/Río Bravo and its Tributaries Along the Boundary Portion Between the United States and México, Executive Summary, US EPA
http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/usmexico/riog_exs.htm

Secretaría de Desarrollo Económico, Gobierno Municipal de Tijuana
<http://www.tijuana.gob.mx/dependencias/desarrolloeconomico/>

Sharing the Benefits of Global Trade: Visions for the San Diego/Tijuana Region, The Forum Fronterizo Council, September, 2000

“Showcase: SENTRI Program.” CRI Regional Partners. 2002. Collaborative Regional Initiative Network.
<http://www.calregions.org/civic/partners/south-sdd.html>
Sister Schools of San Diego. 2003. Sister School of San Diego.
<http://www.sisterschoolsofsandiego.org/c/@5iI1xTBbMDoHo/Pages/schools.html>

“Smart Growth vs. No Growth.” San Diego Magazine. Nov 20, 2003. San Diego Regional Economic Development Corp. http://www.sandiegobusiness.org/article_template.asp?ArticleID=199

Smith, David Gaddis. “PRI Wins in Tijuana.” San Diego Union-Tribune. Aug 8, 2004. San Diego Union-Tribune. <http://www.signonsandiego.com/news/mexico/20040808-9999-1n8mexweek.html>

Steinberg, James. “Schoolchildren get a One-of-a-Kind Experience Thanks to Timken’s Spanish Outreach Program.” The San Diego Union-Tribune. July 13, 2001. http://web.lexis-nexis.com/universe/document?_m=d951458c9cfd72e74f0edf07cc26bbdc&_docnum=5&wchp=dGLbVtb-zSkVA&_md5=e9d4341101f7812c16e8328115f3689d&taggedDocs=6888Z1,48

“Tijuana.” Team Nafta. No date available. CB Richard Ellis.
<http://www.teamnafta.com/cities/Tijuana/TIJUANA.html>

“Tijuana Wants Old CHP Cars.” The San Diego Channel. Aug 16, 2002. San Diego Channel.
<http://www.thesandiegochannel.com/news/1618480/detail.html>

“Tijuana Water and Wastewater Projects.” US-Mexico Environmental Program: Border 2012. 2004. US Environmental Protection Agency. <http://www.epa.gov/region09/water/tijuana/>

The Cross-Border Region of San Diego/Tijuana, OECD Territorial Reviews

The Future Is Here, Neil Pearce

“Toyota Announces Second Expansion of Baja California Plant.” Company Press Release. Aug 15, 2003. Toyota Motor Company. <http://www.toyota.co.jp/en/news/03/0818.html>

“UCSD Loses Inspirational Leader.” UCSD newsletter. July, 2003. San Diego Regional Economic Development Corporation. http://www.sandiegobusiness.org/newsletter_template.asp?newsletterID=130
Unified Port of San Diego. 2004. Port of San Diego. www.portofsandiego.org

“Why Choose SDSU?” Graduate Admissions. 2004. San Diego State University. <http://gra.sdsu.edu/Graduate/admissions/whychoosesdsu.html>