Corridors and Clusters:
Opportunities for Technology-Based Economic Development in the San Diego-Baja California Region

June 2009

Prepared for:
The Woodrow Wilson International Center for Scholars and
El Colegio de la Frontera Norte's program on
"The US-Mexico Border: A Discussion on Subnational Policy Options"

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1.0 Introduction

As the nation and the world increasingly look to regions as the most efficient and effective platforms for economic growth, the characteristics of the few regions that span state or national boundaries become especially interesting. The San Diego-Baja California region is one such place. Over the last twenty-five years, each side of the San Diego-Baja California border has grown in extraordinary ways. Both have added more than 100,000 jobs in what are considered high value-added, globally competitive clusters; both have experienced growth and diversification of business services and managerial "know how"; both have significantly expanded research institutes and higher education institutions; and both enjoy a level of prosperity that exceeds that of other regions in Mexico and the United States.

In spite of this extraordinary parallel growth, there have been few deliberate efforts to identify the economic synergies in the crossborder region, or to develop integrated economic development strategies. This is surprising, given the enormous competitive challenges facing the key clusters on both sides of the San Diego-Baja California border. The assumption behind this paper is that often times solutions to competitive challenges lie in unlikely places, in counter-intuitive relationships and opportunities. This is often because of the lack of knowledge of the assets and capabilities of potential partners, as well as misperceptions of the character and aspiration of potential partners. This is most certainly the case in the San Diego-Baja California region, where two globally linked economies exist side by side, and where, in important ways, some synergies have been achieved. However, in other very significant ways, each is achieving less than their full potential because they are not leveraging the complementarities of their crossborder location. As Michael Porter so astutely observed in his 2001 Council on Competitiveness study of San Diego:

> "San Diego is not thinking hard enough about how to benefit from its proximity to Mexico. Baja California lies 14 miles from San Diego and the two regions inevitably affect each other. Yet, [few of the San Diegans we interviewed] discussed opportunities in Mexico. Those that did tended to do so superficially or to reflect on the fact that Mexico's role is not given sufficient weight on local decision making: '…There is a lack of regional partnership involving business, government and universities to create a research zone for innovative regions with Mexico'."[1]

This is somewhat paradoxical given the long history of links between the economies of Southern California and Baja California over the past decades, which were significantly accelerated by NAFTA in the 1990s. In spite of the evolution of both economies, as well as the increasing sophistication and globalization of the economic activities on the California-Mexican border, prevailing views of Mexico, even within San Diego, are often at best, ill informed, and at worse, stereotypic. Negative news headlines have colored US public and business perceptions of Mexico in disturbing ways. As important, the existing and potential synergies between these complimentary developments are less well understood. In a binational region with a population of approximately 6 million, whose per capita gross regional product on both sides of the border exceeds their national averages, and where a history of entrepreneurship and innovation has been at the core of both economies, it is important to continue to understand and leverage binational assets.

This paper begins with an overview of previous work on several crossborder high technology clusters where there is potential for enhancing global competitiveness by linking complementary assets and taking advantage of many of the binational region's inherent competitive advantages. It then

[1] Porter, Michael, *Clusters of Innovation Initiative: San Diego*, Council on Competitiveness, May 2001, p. 104.

presents some positive developments that are facilitating closer economic integration, mostly in terms of efforts to improve infrastructure at the border crossings, the primary bottleneck for crossborder trade. However, several significant challenges remain, which are then described in the section that follows. The paper concludes with recommendations for addressing these challenges.

2.0 Clusters of Opportunity in the Crossborder Region

Studies of crossborder economic synergies over the last decade revealed significant activity. A 2002 survey of 105 electronics and autoparts manufacturers in Tijuana and Mexicali found that, while there remains significant stratification in terms of the level of sophistication of maquiladoras and their place on the value chain, a large proportion offer cutting-edge high value-added services.[2] Those in the "technology frontier" constituted one-quarter to one-third of those surveyed. These firms have increased their quality standards, adopted lean manufacturing processes, developed a greater degree of decision making autonomy from their parent company, and use more skilled labor, particularly engineers. Table 1 shows the percentage of firms that are performing specific high value-added activities. This indicates that many Baja California manufacturers have developed the capabilities necessary to compete in a highly competitive global economy. These are also the capabilities that can complement many of the high technology firms in San Diego.

Table 1 Indicators of Industrial Upgrading

Activity	*Percentage Plants Actively Engaged*
R&D	27%
Product Design	20%
Product Testing	82%
Developed a Patent	11%

Source: Gerber & Carrillo, 2002

A Spring 2005 report, *Borderless Innovation*, presented promising evidence of crossborder clusters of opportunity.[3] This report focused on high value-added, and potentially complementary, industries on both sides of the border, suggesting that properly leveraging more strategic partnerships between R&D companies in San Diego and advanced manufacturing and supplier networks in Baja California could result in significant economic growth benefits to both economies. Table 2 below summarizes the specific crossborder cluster employment figures, drawing on 2003 census data, the latest year for which comparable data from the US and Mexico are available.[4] Findings for select industries are summarized in the sections that follow.

Table 2 Crossborder Cluster Employment Data, 2003

	San Diego	Baja California	Total Crossborder Cluster
Software	14,546	738	15,284
Recreation & Sporting Goods	3,506	5,303	8,809
Motor Vehicle Manufacturing	1,442	14,619	16,061
Biotech/Pharmaceutical	20,353	379	20,732
Biomedical Devices	6,799	23,702	30,501
Aerospace & Defense	18,338	4,756	23,094
Total High Value-Added Clusters	**64,984**	**49,497**	**114,481**

Sources: California Employment Development Department, INEGI

[2] Gerber, James and Carrillo, Jorge, "Are Tijuana's and Mexicali's Maquiladora Plants Competitive?", San Diego Dialogue, 2002.
[3] San Diego Dialogue, *Borderless Innovation*, 2005.
[4] San Diego Association of Governments' NAICS-based cluster definitions were utilized, drawing data from the California Employment Development Department (EDD) ES202 database and INEGI's 2005 Economic Census. More current data on Baja California is not available until the release of INEGI's 2010 Economic Census.

Biomedical Devices

The biomedical device industry is one of the fastest growing in the world, in part because of the worldwide demographic shift in age patterns, and the increasing demand for all sorts of medical and prosthetic devices. Over the last decade, Mexico has become a leading location for non-US medical device manufacturing and assembly. In 2005, there were more than 240 FDA registered medical device facilities operating in the country. Highlighting the level of crossborder integration in this industry, of the more than 60 biomedical device firms working in Baja California, 40 had a US parent, and at least 13 had either San Diego headquarters or significant business activity in San Diego County. These companies included such well known firms as Cardinal Health, Continental Laboratory Products, DJO Incorporated, Medtronic, and Sunrise Medical. While kit assemblies and plastic products make up a substantial part of what is being produced in Baja California, an initial survey of 16 of the companies found firms manufacturing Class I, II, and III medical devices including orthopaedic braces, heart stents, RFID bracelets, keratome knifes for LASIK surgery, and diagnostic kits among others representing a variety of products, either embedded with high technology or manufactured with a high technology process. Equally impressive were the employment figures, with Baja California's biomedical industry employing nearly 3.5 times as many workers than in San Diego.

Pharmaceuticals and Clinical Research

The San Diego region is home to one of the most dynamic life science clusters in the world. In a mere 30 years, San Diego has seen the development of an industry that now has more than 500 companies, over 30,000 employees, and hundreds of millions of dollars in venture capital support annually. Many are developing treatments for diseases and disorders such as cancer, diabetes, cardiovascular disease, and pulmonary disease/respiratory disorders, conditions that are disproportionately prevalent in areas along the US-Mexico border and identified as a public health challenge. Further, these companies are increasingly looking for strategic partnerships in all phases of clinical research activities and, in particular, in clinical trials. As such, populations along the US-Mexico border are appropriate for clinical trials and may benefit from treatments not otherwise available.

Despite the fact that San Diego biotech companies are only 20 to 30 minutes from Baja California, they are conducting clinical trials in China, Finland, and Puerto Rico, when the potential to build clinical research organizations and conduct highly relevant clinical trials exist just across the border. Given the challenges and added expense of monitoring clinical trials in distant overseas locations, conducting clinical research in the San Diego-Baja California region could accelerate the completion of studies, and certainly reduce their overall expense.

Baja California has already identified the health services cluster as an area of economic growth in the future, and it would be easy for hospitals and clinics across the state to integrate a clinical trials capability. Such efforts would build upon Mexico's existing strengths in pharmaceutical manufacturing[5] and expand the numbers of trials already being conducted in Mexico by companies such as Merck, Pfizer, GlaxoSmithKline, and Bristol Myers Squib. One promising example is a San Diego stem cell company, Stemedica Cell Technologies. Stemedica's partnership with Hospital Angeles-Tijuana is to undertake a clinical study of adult stem cell treatments for conditions such as Alzheimer's, Parkinson's, multiple sclerosis, and spinal cord injuries.[6] This and a few examples

[5] In 2005, Mexico was the 10th largest pharmaceutical market, with sales over $11 billion according to Espicom, "Pharmaceutical Market Outlook," April 2005.

[6] See http://stemedica.blogspot.com/search/label/Hospital%20Angeles. Press release dated September 13, 2007.

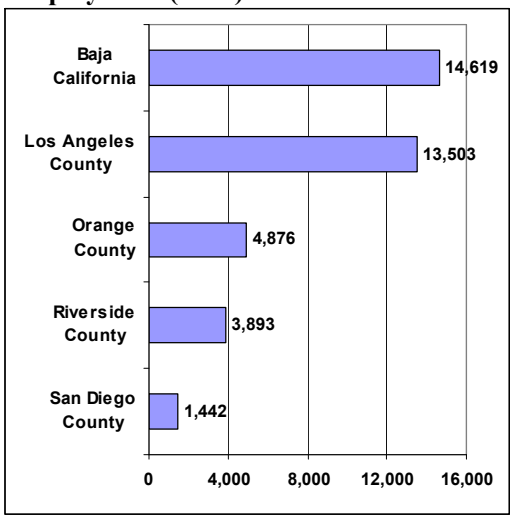
aside, clinical research represents a missed opportunity for the binational region, with benefits to both public health and economic development.

Manufacturing in Aerospace, Automotive, and Related Industries

Aerospace and defense-related technologies and automobile manufacturing are two sectors with potential for greater crossborder integration. Mexico is the ninth largest supplier of aerospace goods and equipment to the US, and within Mexico, Baja California has the highest concentration of aerospace-related component and equipment manufacturers. The state is also home to several defense-related suppliers and contract manufacturers. Some of these firms have facilities on both sides of the border, including NASSCO, Cubic, and GKN Aerospace-Chemtronics. With defense-related spending totaling $20.1 billion in 2005, or more than 8% of San Diego's regional economic activity,[7] better leveraging complementary capabilities could represent an opportunity for growth on both sides of the border.

Even though the automobile industry is currently undergoing significant restructuring, the capabilities that are embedded in the manufacturing sector in Baja California represent an important asset for other forms of manufacturing. Many of the 55 companies identified in this sector are global corporations that are producing full vehicles, such as Toyota, or serve as suppliers to original equipment manufacturers.[8] Products include a wide range of components such as safety glass, turbochargers, wiring harness, and in the case of Kenworth, full tractor trailers. The implications of a strong sector in Baja California have important implications for boosting the competitiveness of the industry throughout Southern California. Figure 1 shows 2003 motor vehicle manufacturing in the broader crossborder region.

Figure 1 Motor Vehicle Manufacturing Employment (2003)



Sources: California EDD, INEGI

Looking to the long term future of the crossborder region, the synergies between R&D and manufacturing in the automotive and aerospace industries seem quite promising. As seen in Table 3, these synergies are reinforced by the fact that there are also superb sources of educated engineers across the region, where graduation rates from engineering schools and programs in Baja California equal the graduation rates from the leading schools of engineering on the San Diego side.

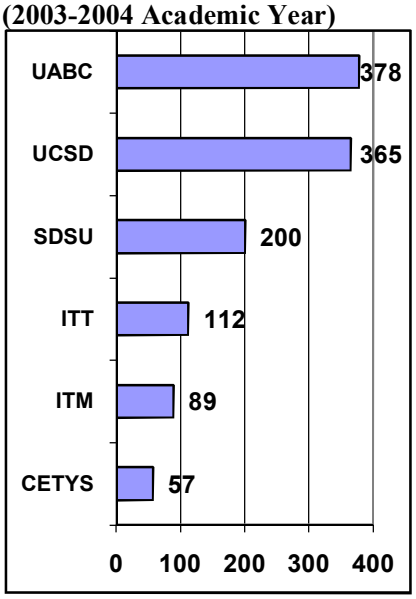
Table 3 Technology Degrees Awarded by Discipline & Type (2003-2004 Academic Year, Selected Universities)

	SD Undergrad	BC Undergrad	SD Masters	BC Masters	SD Doctorates	BC Doctorates	Total
Life Sciences	1,001	243	126	13	84	44	1,511
Engineering	833	1,078	290	71	63	12	2,347
Marine Sciencies	11	0	13	34	13	2	73
Math & Physics	188	14	58	4	22	7	293
Software	545	625	112	22	14	0	1,318

[7] San Diego Military Advisory Council, *San Diego Military Economic Impact Study*, August 2008.
[8] ProduCen, *Industria Automotriz de Baja California*, 2004.

Other Prospective Transborder Clusters

Figure 2 Software Degrees Issued (2003-2004 Academic Year)



The clusters described above have a certain kind of robustness and momentum which could be significantly accelerated. However, there are other opportunities and potential synergies were some sort of coordinated planning and economic development efforts need to take place. The software cluster is one such opportunity, as more and more diverse forms of software applications continue to be in demand. Mexico's potential as a source for software and IT services is expanding, in large part because of the investments it has made in engineering and computer science education programs, but also because a number of software and IT firms already operate in Mexico, creating employment opportunities there. Baja California is attempting to build a software cluster which is still quite small, but recent software related education and business development activities suggest the potential for mutual benefit in the coming years. Figure 2 shows the number of graduates with software degree from the combined campuses of Universidad Autónoma de Baja California (UABC) was greater than that of either UC San Diego (UCSD) or San Diego State University (SDSU).

Another potential synergistic transborder cluster is in clean technology and renewable energy generation, which may have great promise for crossborder economic development There are more than 240 clean technology companies in San Diego, offering a wide range of products and services including hybrid electric vehicles, solar power panels, water purification, recycling technologies, and energy efficiency systems.[9] A few of these companies are operating across the border, such as Kyocera Solar, Innergy Power Systems, and Pacific Pulp. This crossborder activity may be significantly expanded in the coming years. In 2008, the world's largest solar photovoltaic manufacturer, Germany-based Q-Cells, announced its intent to invest $3 billion in a manufacturing facility in the Silicon Border industrial park in Mexicali.[10] Within this cluster, there is also an emerging core of sophisticated algae-based biofuel companies, many of which rely on the science developed in San Diego's research institutions and biotech companies. Although still early in their development, these algae-based biofuel companies may find the right combination of sun, technical training, infrastructure, and environment in the San Diego County-Imperial County-Baja California area. The binational region is also a prime location for renewable energy generation in terms of solar, wind, and geothermal, with 47,000 megawatts of technological potential.[11]

The Dialogue *Borderless Innovation* report concluded that there was great wisdom in marketing the combined strengths of the entire crossborder region, with a concept such as THE INNOVATION CORRIDOR OF THE CALIFORNIAS. The rationale for such a potential strategy is based on four significant trends:

- Increasingly large and small technology based companies are interested in locales that provide proximity to basic and developmental research; clinical trials in the case of

[9] See CleanTECH San Diego company database available at http://db.cleantechsandiego.org/directory/list.
[10] See http://www.siliconborder.com/Press_Releases/Press_Release_Silicon_Border_QCELLS_FINAL_5_27_08.pdf.
[11] Green, Jennifer & McAllister, Andrew, *Renewable Energy Opportunities in the Crossborder Region*, San Diego Dialogue, October 2008.

pharmaceuticals and biomedical devices; as well as high quality manufacturing; and global distribution.

- Efficiency and reliability, which Baja California's capabilities represent, are as important in manufacturing decisions in the high tech sector as is the cost of labor.

- For the incubating R&D capabilities in Baja California, as well as the growing manufacturing sector, the ability to market alliances with R&D institutions on the United States side of the border would greatly enhance attractiveness for foreign investment and expansion in Mexico.

- The superb educational institutions in fields relevant to R&D, high value-added manufacturing, and professional development on both sides of the border enhance the attractiveness of the region to investors and companies.

3.0 Recent Progress

Recent activities suggest that the political will and ability to improve the economic interaction between San Diego and Baja California is emerging. During the past five years, progress has been made in understanding the relationship between the physical border and the local economy; in documenting border infrastructure needs; in the initiation of pilot planning programs that integrate economic development with border infrastructure development; and in the beginnings of a joint economic development strategy. These efforts have taken place in spite of ongoing challenges to cooperation as a result of the increased focus on border security following 9/11, the contentious debate in the US on immigration from Mexico, and the increase in drug-related violence along the border, all of which have made facilitating crossborder economic activity a lower priority for policy makers. These small, but important steps indicate that where there is good data, clearly defined economic benefits, and political leadership from champions, progress can be made.

The San Diego-Baja California border crossing is one of the busiest in the world, both for pedestrians and products. In 2005, the San Diego Association of Governments (SANDAG) released its analysis of the economic impact of border crossing wait times. In that study, SANDAG found that congestion and delays at border ports of entry (POEs) for both personal and commercial border crossers cost the United States and Mexico nearly $6 billion in lost economic output and over 51,000 jobs in 2004 based on an average 45-minute wait. The majority of these losses were concentrated in the San Diego-Baja California region, totaling $4.2 billion and 42,000 jobs.[12] By 2007, these estimated losses had increased to $7.2 billion and 62,000 jobs for the US and Mexico combined, of which the San Diego-Baja California region accounted for $5.1 billion and nearly 51,600 jobs.[13] The impact of foregone personal trips was much larger on the San Diego side of the border in terms of retail sales in the commercial sector and lost sales taxes revenue to the State of California. However, delays for truck crossings, averaging more than two hours, impacted Baja California more. Yet for both San Diego and Baja California, these losses heavily affected the machinery and equipment sectors in terms of the efficient movement of goods.

The significance of the model SANDAG developed in the course of assessing these impacts is that, for the first time, local, state, and national policy makers on both sides of the border have a clear

[12] San Diego Association of Governments (SANDAG), *Economic Impacts of Border Wait Times at the San Diego-Baja California Border*, 2005.
[13] SANDAG, *2007 Update: Economic Impacts of Border Wait Times at the San Diego-Baja California Border*, 2007.

sense of how delays affect the regional economy and society. Further, it allows for future estimates of impacts to be generated under different wait time scenarios. As trade between California and Mexico increases, the model provides a better understanding of the bottlenecks created by aging border infrastructure and inadequate capacity, and offers invaluable evidence pointing to the need to make improvements.

Progress has also been made in binational planning efforts. The two best examples, both involving SANDAG, are the Otay Mesa-Mesa de Otay Binational Corridor Strategic Plan and the California-Baja California Border Master Plan. Each explicitly integrates issues associated with crossborder economic development and environmental sustainability. The Otay Mesa-Mesa de Otay planning effort is significant because it brought together SANDAG, the California Department of Transportation (Caltrans), Tijuana's planning agency IMPLAN, and Baja California's Secretariat of Infrastructure and Urban Development (SIDUE) to align thinking around transportation, housing, economic development, and environmental conservation issues in a way that had not be done before. Previously, regional planning efforts have largely been done in isolation, with little coordination about how developments on one side of the border impact the other. Given that Otay Mesa-Mesa de Otay is the primary commercial POE and one of the few remaining areas immediately along the border between San Diego and Tijuana that has room for green field development, this effort is expected to provide beneficial guidance to municipal planning authorities and build sustainable connections going forward.

The California-Baja California Border Master Plan was commissioned by the US-Mexico Joint Working Committee to Caltrans and Baja California's SIDUE, and conducted by SANDAG's Service Bureau. The Border Master Plan was developed to achieve several objectives. These include gaining a better understanding of border infrastructure and transportation planning processes on both sides of the border, the development of more objective evaluation criteria to prioritize border infrastructure projects, and to create linkages among stakeholders at multiple levels, federal, state, and local, to facilitate future planning efforts. As the study notes, this effort is among the first of its kind, and it is hoped that it can become a model for future joint planning efforts along the US-Mexico border. However, the main challenge going forward is maintaining and institutionalizing the linkages that were made in the process of developing the Master Plan.

SANDAG's report on border wait times was instrumental in helping move forward several long-delayed projects to upgrade and expand ports of entry along the San Diego-Baja California border. The data provided in the report helped spur more focused and assertive efforts among political leadership locally, which in turn assisted decision makers in Washington to provide the necessary approvals and funding. Greater capacity at the San Ysidro, Otay Mesa, and the newly approved Otay Mesa East POEs is expected to better facilitate the movement of goods and people across the border, while allowing for compliance with security requirements. For example, the expansion of the San Ysidro POE has been in development for several years. Estimated to cost $577 million and be completed in 2014, upgrades include new inspection facilities for both northbound and southbound traffic, administration space, and a pedestrian processing facility. Southbound traffic will also be rerouted slightly to align with improvements Mexico is making to the El Chaparral facility.

In the eyes of many, the granting of a Presidential Permit in November 2008 to develop a new POE just east of the existing Otay Mesa facility was a major victory after many years of concerted effort to expand capacity for commercial traffic across the border. The San Diego Regional Chamber of Commerce estimates that the new POE, dubbed Otay Mesa East or more colloquially Otay II, will generate nearly $32 billion in increased economic output during its first ten years of operation,

beginning in 2015. The bulk of the increase will be due to enhanced freight traffic, benefitting the electronics, machinery, precision instruments, and manufacturing industries.[14] This development came about due to key leadership on both sides of the border working diligently together, including joint delegations traveling to Washington, DC and Mexico City to demonstrate the seriousness of the issue and the shared commitment to addressing it in a timely fashion. Key players over recent years include renewed engagement at the state level by both governors, and locally by the mayors of San Diego and Tijuana. On the San Diego side, City of San Diego Mayor Jerry Sanders has been significantly more visible than his predecessors in advocating for improved border infrastructure. Tijuana Mayor Jorge Ramos has also been similarly engaged on these issues, frequently appearing with Mayor Sanders to jointly promote economic development opportunities and advocating for efforts to reduce border wait times. The support of elected officials such as these, as well as community stakeholders on both sides of the border helped secure the Presidential Permit for the Otay Mesa East POE and the long-sought upgrade of the San Ysidro facilities by GSA.

Finally, although previous efforts to develop joint economic development strategies have been unsuccessful, the Mega-Region Initiative, a US Department of Commerce-funded project, represents a promising development. In 2008 the San Diego Regional Economic Development Corporation (EDC) and the Imperial Valley EDC were awarded a $225,000 grant to launch the Initiative. Working together with groups on both sides of the border, the goal was to develop a strategic action plan for the San Diego County-Imperial County-Baja California "mega-region". This plan is to be focused on addressing workforce and infrastructure needs to improve global competitiveness in several key technology industries. The Initiative is also developing a binational branding effort to market the mega-region nationally and internationally. During the first year of the Initiative, stakeholder groups participating in the process identified the need for binational education programs that are better oriented towards the region's high technology industries, as well as better infrastructure to support crossborder trade, sustainable energy development, and improved quality of life.

4.0 Remaining Challenges

Despite progress in beginning to address border infrastructure needs and undertake join planning efforts, there are still pressing challenges that may impede the binational region's ability to enhance the global competitiveness of its science and technology-based industries. These include the ever-present challenge of reducing border wait times, developing a common vision among stakeholders for what the crossborder region can become, developing harmonized data, and improving the capabilities of the binational region's workforce.

The fact that the lost economic output due to border wait times increased is perhaps not surprising for those familiar with the California-Mexico border, but the rate of increase, approximately 20% between 2005 and 2007, is a cause for concern. As the region's population and trade are expected to increase, the inability of border infrastructure to keep pace means that the losses will only continue to grow larger over time. Otay Mesa East and the expansion of San Ysidro are expected to help, but given the length of time it takes to plan, gain appropriate approvals, and for construction, the new facilities may be behind demand even on the day they open.

While there has been better coordination among key stakeholders to get the new POE facilities approved, the San Diego federal congressional delegation remains divided between those who have

[14] Economic Research Bureau, San Diego Regional Chamber of Commerce, *Economic Impact Study: Otay Mesa East Port of Entry*, May 2008.

placed security above all other priorities and those who are looking for a more balanced approach. This split has complicated the region's efforts to move more quickly to secure resources from the federal government.

Better data on crossborder economic dynamics may help build more of a shared understanding of the opportunities lost and the potential yet to be achieved. As was shown with the Dialogue's study *Who Crosses the Border* in 1994, which stimulated the creation of the SENTRI pilot program, and with SANDAG's economic analysis of border wait times, good data can lead to better policy decisions. However, there remains a large gap in the amount of information currently available on crossborder trade, education, public health, and other areas. There are also differences in the types of data collected in San Diego and Baja California. A harmonized, consistent set of economic, health, research, and education data will inform policy makers and better enable stakeholders to identify and better market the strengths of the binational region.

Finally, for the high value-added clusters of the crossborder region to be truly successful, companies need to be able to draw upon a highly skilled workforce and a strong science and engineering base. In the US, the number of science and engineering degrees awarded each year has been declining over the years, giving rise to concerns about the country's ability to compete economically in the future. Mexico, which has seen enrollments in post-graduate programs increase dramatically over the past decade, is still dealing with reducing "brain drain" as those degree holders emigrate outside of the country in search of high-paying jobs. Educational institutions in both countries, including those in the crossborder region, must continue to attune their curriculum to the needs of high technology industries.

5.0 Conclusion

What this brief paper has attempted to demonstrate is that there are many areas of potential growth and development in high value added clusters that could benefit the economies of both San Diego and Baja California. The first public presentation in Spring of 2005 made these sorts of economic opportunities visible with the publication of *Borderless Innovation*. At the same time, SANDAG's systematic study of crossborder trade and transportation infrastructure as it related to the economic impact on both the US and Mexican economy significantly increased public understanding of the economic significance of our crossborder region. Gradually, more and more San Diegans recognize the immediate returns of San Diego's relationship with Baja California, even though the longer term potential opportunities in the high value added knowledge based clusters just discussed, has yet to be fully understood and leveraged.

In the conclusion of *Borderless Innovation*, a number of challenges shaping the opportunities for the crossborder region were raised. The challenges of security and infrastructure, which the preceding section clearly pointed out, is being addressed in a collaborative manner involving parallel activities at the federal levels in both Washington DC and Mexico City, as well as at the state level. For the other challenges, that of building a shared understanding of assets and opportunities, as well as a significant amount of collegiality and trust among civic leaders, policy makers, education institutions and the private sector to develop shared crossborder economic growth strategies, there has been modest progress in recent years. This includes the work of the Mega-Region Initiative, the Mexico Business Center at the San Diego Regional Chamber of Commerce, Tijuana's DEITAC and CDT, and Baja California's Secretariat for Economic Development (SEDECO). However, this has not been sufficient to truly catalyze a sustainable method of effectively leveraging crossborder assets in high-value added sectors for mutual economic benefit.

Borderless Innovation proposed a platform for enabling critical capacity-building activities in research, education, and technical assistance to help the region achieve its full potential, identified as a Crossborder Innovation and Competitiveness Center. Its functions would be non-duplicative of existing organizations and could be catalytic. The enabling and empowering activities of the proposed Center would include the following:

- Research of regional significance such as the development of binational economic indicators, crossborder cluster analyses, and tracking developments in science and technology that affect the region's future.

- Technical assistance to enhance the capacity of firms on both sides of the border to build world-class capabilities and the tools and strategies essential to successful crossborder partnerships, such as advice on technology transfer, technology commercialization, management issues, and technical assistance on manufacturing processes.

- Development of binational workforce education and training programs that meet the needs of dynamic crossborder industries. This would include such things as language instruction, introduction to regulatory and policy issues, as well as cultural and organizational practices, including management strategies for enterprises on both sides of the border.

- Promotion of community forums and civic initiatives related to maintaining and improving the binational region's quality of life in a more integrated economic context. These activities would contribute to a broader base of civic understanding of the economic significance of the crossborder region and ultimately political action.

The San Diego-Baja California region is better poised for shared economic growth through collaborative strategies than any other border region in the Americas, and possibly the industrialized world. What is missing for the moment is the civic imagination and political will to both seize the opportunity and drive the process. The *Borderless Innovation* report team concluded that there needs to be a platform or focal point through which the political and civic will can be catalyzed to realize these opportunities. While this recommendation has yet to become a reality, there fortunately is still sufficient time, and a pressing need for a Crossborder Innovation and Competitiveness Center.