

STATEMENT OF

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BEFORE THE

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COUNTERTERRORISM**

REGARDING

**BORDER SECURITY: INFRASTRUCTURE, TECHNOLOGY
AND THE HUMAN ELEMENT, PART II
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ROOM 311, CANNON HOUSE OFFICE BUILDING

Good afternoon Madam Chair, Ranking Member Souder, and distinguished subcommittee members. My name is Jeffrey McIllwain and I am the Co-Director of the Graduate Program in Homeland Security and an Associate Professor of Public Affairs and Criminal Justice at San Diego State University. It is my honor to provide you with an assessment of border security from an interdisciplinary academic perspective. I provide this assessment at a time when the need for border security has been underscored by recent events. For example,

- Last month Al-Qaeda's Committee in the Arabian Peninsula (Saudi Arabia) stated it was “imperative that we strike petroleum interests in all regions that the United States benefits from...,” specifically naming Canada and Mexico, the first and second largest crude oil suppliers to the U.S., as possible targets.ⁱ This has serious implications for binational energy infrastructures and national security given the U.S. exchanges major amounts of via extensive oil and gas pipelines with Canadaⁱⁱ and Mexicoⁱⁱⁱ, and companies like ExxonMobil are making major contributions to the recent major discoveries of oil off the Gulf coast of Mexico.^{iv} Add to this the fact that in many oil pipeline right-of-ways, fiber-optic cables are also laid, as the continuous rights-of-way needed for pipelines also provide pathway for communication infrastructure.^v Critical information for business and banking are thus passed along these same routes and would negatively impact both countries as well as many other global trading partners if truncated. Because of the difficulty of getting permits to cross the border, the number of fiber and pipeline crossings is very limited, making a small number of high-value targets.
- Last week Operation Imperial Emperor resulted in the arrest of approximately 400 alleged members of the drug cartel run by cartel kingpin Victor Emilio Cazares-Gastellum, a cartel responsible for smuggling metric tons of drugs from Colombia and Venezuela to the U.S.^{vi}
- Also last week Attorney General Gonzales highlighted the transnational nature of many of the violent street gangs in cities like Los Angeles, gangs with established pipelines between the U.S. and countries like Mexico, Guatemala, and El Salvador.^{vii}
- The summer 2006 bomb plot thwarted in Toronto illustrates the “homegrown” nature of the suspects.^{xv} This plot is linked directly to two American “homegrown” terrorist suspects arrested in Georgia who stand accused of making “casing videos” of the U.S. Capitol Building and other Washington, D.C. landmarks.^{xvi} Both cases, in addition to the arrest of two men at the Buffalo/Fort Erie border crossing who are also allegedly related to the plot, illustrate the relative ease with which some of these suspects had traveled across the U.S./Canadian border.^{xvii}

These examples represent the breadth and complexity of the border security challenges faced by the American people. It is my purpose to inform you about some of the intersections between the human element, technology, and infrastructure that create and respond to these challenges, relying heavily on the San Diego/Tijuana border region as a case study. Specifically, I will:

- Illustrate the complexity of border security as it impacts various stakeholders living in border communities;
- Assess the role of human capital in aiding network-centric strategies countering the efforts of criminal networks operating in the border region;
- Discuss the role of regional cooperation and integration as a means of effectively and efficiently marshalling resources for a more secure border that also facilitates the flow of people and goods;
- Point to areas of binational cooperation as models of trust building that allow for more effective and efficient border governance; and
- Provide suggestions that would tap the underutilized resources and the intellectual capital of universities and other sources that could supplement current efforts to provide effective and efficient border security.

Background

As the Co-Director of the Graduate Program in Homeland Security at San Diego State University, I have the privilege of working with a number of scholars and practitioners in the U.S., Mexico, and Canada who focus on these varied and complex border security problems on a daily basis. Living in San Diego, I have the additional privilege of working in what is arguably one of the most significant “living laboratories” for border security research in the world, the greater San Diego/Tijuana border region.

As such, I have come to recognize that the term “border” has as many different meanings as there are stakeholders on the issue. For example, “border” can mean a wall or a fence; a place of interaction; a marketplace for goods and services; a community of people; a way of life; arbitrary lines on a map; interdependence; a revenue source; an ecosystem; or a line of defense or defensible space. Therefore, when applying theoretical and manifested concepts of security to the term “border,” these meanings are impacted in a number of varied and substantive ways.

In a sense, the border becomes a vibrant ecosystem that is impacted by the laws, policies, procedures, practices, and people that define its use on a daily basis. For example, on average more than 136,000 cars and 6,200 trucks, and nearly 340,000 people, travel between the U.S. and Mexico via the San Ysidro, Otay Mesa, and Tecate border crossings each day, making the San Diego-Baja California Point of Entry (POE) the busiest in the world. The Otay Mesa-Mesa de Otay POE is the busiest commercial border crossing between California and Mexico. In 2004, this POE handled more than 1.4 million trucks and \$22.2 billion worth of goods in both directions, which represents the third highest dollar value of trade among all land border crossings between the United States and Mexico. Another \$1 billion in goods and more than 139,000 trucks crossed at the Tecate-Tecate POE, numbers that will grow exponentially in years to come.^{xxi}

Currently, there are about 4.5 million people living in the greater San Diego-Tijuana region and by 2020 the total regional population will be approximately 6 million, with most living in a large transborder contiguously urbanized metropolitan area separated by the international border. This binational region is increasingly interdependent through trade flows, labor flows (40,000 workers commute from Tijuana to San Diego each day), family ties (30% of San Diego's population is Mexican in origin), transportation and infrastructure planning, energy and resource management, and crime fighting. When working cooperatively, U.S. and Mexican authorities do a good job solving these problems for mutual benefit.

After the attacks of September 11, 2001, the border crossing points between San Diego and Tijuana were shut down as a precautionary measure. The permanent changes to border security policies that followed have had substantial, long-standing implications for the region. A study commissioned by the San Diego Association of Governments (SANDAG) found that the increased border wait time for personal trips and freight movements cost the U.S. and Mexican economies an estimated \$6 billion in gross output and 51,325 jobs (tied to this output) in 2005. This projects to almost \$14 billion in economic output and 123,682 jobs by 2014.^{xxii} These future forecasts do not take into account the massive new deep-water port to be built south of Ensenada at Punta Colonet.^{xxiii} This port will be larger than the combined Ports of Long Beach/Los Angeles (San Pedro), which accounted for almost 44% of foreign containers coming into U.S. ports last year.^{xxiv} Consequently, there will be massive new infrastructure and security needs for these containers crossing into the U.S. from Baja California.

This example is not meant to suggest current security mechanisms are less important than the flow of people and trade goods. It only serves to show the symbiotic nature of the border and how border security policies can have both intended and unintended consequences. These consequences are realized and interpreted in different ways depending on the stakeholder that is impacted by them and how these stakeholders construct their particular meaning of the border (*i.e.*, a defensible space, a marketplace for goods and services, a revenue source, etc.). It is from the multi-faceted meanings of the term "border," and the functions these meanings entail, that our border security challenges and opportunities derive. I will now share with you some of the challenges faced and lessons learned, many from the San Diego/Tijuana border region, as examples of the complexities that impact our border communities and our nation.

Criminal Networks, Human Capital, and Network-Centric Approaches to Security

The San Diego/Tijuana border region is an economically robust region for the very reason that a vast amount of people and goods flow between two sovereign states on a daily basis.^{xxv} This flow largely occurs through formal, legal channels. For example, many Americans ride their off-road vehicles in Baja California deserts; automobile parts are manufactured in maquiladoras and shipped to the U.S. for assembly; American retirees spend their golden years living in Mexican beach communities, including one

owned by the Trump Corporation^{xxvi}; and soon computer chips will be sent to the U.S. from the “Silicon Border” development in Mexicali.^{xxvii} This list can go on and on. Shadowing these legal, formal channels is a major illicit economy that exploits the opportunities for financial gain borders create. This illicit economy has been around for well over a century.^{xxviii} The premise behind these opportunities is quite simple. Sovereign states establish rules and regulations that reflect value systems that may not coincide with those of a neighboring sovereign state. This creates structural holes in which inherent asymmetries develop around differential access to resources and opportunities.^{xxix} These inherent asymmetries create the opportunity for profit for those willing and able to assume the risk and marshal the networks and resources to do so.^{xxx}

For example, Mexico has strict laws covering the importation of firearms. The U.S., which has relatively liberal firearm laws, has a steady supply of firearms available that can be smuggled into Mexico for a substantial profit. Conversely, the U.S. has strict laws and regulations regarding the importation of labor. Mexico has an abundance of labor. Criminal entrepreneurs step into this breach, smuggling undocumented laborers (and others) by the thousands into the U.S. for a substantial profit. The wages from this labor traveling south to Mexico obviously have a significant impact on Mexico’s economy. The economic impact on the U.S. is much more controversial.

The creation of such illegal markets is unavoidable and it is not unique to the U.S./Mexico border. Such practices are the norm in border communities around the world. In all of these cases, extensive social networks develop to ensure that supply meets demand, regardless of what legal and technological weapons the state musters against them. Indeed these networks--composed of criminal entrepreneurs, enforcers, and the upper-world institutions and individuals that benefit from the illegal market (*i.e.*, corrupt officials, etc.)--remain remarkably resilient in the face of such challenges and may even make more profit per transaction as a result of the increased risk.^{xxxi} This resiliency is evident in the construction of tunnels burrowed under the U.S./Mexico border for the purposes of smuggling drugs, people, and other items.^{xxxii} Indeed, over twenty have been found linking Mexico to the United States since 9/11.^{xxxiii} The U.S./Canadian border has been breached in such a manner as well.^{xxxiv}

U.S. border security policy has reasonably emphasized its national strengths, focusing on using infrastructure, technology, and manpower at the border to counter such activities. These policies have arguably proven relatively effective in disrupting the flow of people and goods in some areas (for example, the border fence, manpower surge, and sensor networks used on the westernmost portion of the urban border between San Diego County and Tijuana during Operation Gatekeeper). However, for every countermeasure the U.S. provides, criminal organizations devise a response. In the case of Operation Gatekeeper, which secured the coastal portion of the border through infrastructure and increased patrols, smugglers moved to more rural, mountainous, and desert routes east of San Diego or used tunnels, corruption, and other means of moving people and goods across the border, often with deadly results.^{xxxv} Smuggling operations are a moving target for DHS. After all, the red tape, laws and regulations, human rights and environmental concerns, bureaucratic turf wars, and budget and appropriations battles

that are the every day concerns of our government agencies do not encumber these criminal networks. These criminal organizations can remain flexible and respond in near real time, whereas our agencies are often constrained and must be reactive in nature, if they can react at all.

Given the constraints that exist on the U.S. *vis-à-vis* border security, it is imperative that the U.S. complements its current responses with an increased emphasis on human capital.^{xxxvii} As mentioned before, borders are not just defensible spaces. They are also a community of people and a way of life. Just like in other border communities, people in Tijuana and San Diego live, work, and play on both sides of the border. Business relationships, families, and friendships readily thrive in this condition. As such, at a given moment, there are literally thousands of potential sources of information regarding criminal activities and security threats going untapped.

Indeed, the physical security of many areas of San Diego is dependent upon the physical security of adjacent areas of Tijuana: an earthquake, flood, catastrophic fire, chemical spill, or terrorist incident requires a coordinated response by Mexican and U.S. authorities. However, the governmental linkages, personal ties, and resources are not in place for adequate regional, binational emergency response. The investment in transborder human infrastructure needs to improve to help rectify this.

To paraphrase the words of two well-known proponents of network-centric warfare strategies in the military realm, what is needed here is a detailed understanding of the appropriate competitive space, the close linkage among actors in the illicit market's social system. If border security professionals can produce and analyze more real-time information drawn from non-traditional forms of human intelligence, they can more readily mirror the linkages, interactions, and the environment of their criminal adversaries. This would improve response time to rapidly evolving security risks and would potentially provide a much stronger return on our border security investments.^{xxxviii}

The effectiveness of current network-centric strategies that rely on technical and human intelligence flows can be augmented significantly with a concerted effort to tap into non-traditional information flows. I cannot begin to tell you how common these information flows are in a border community. For example, the family of one of my students grew up next door to the family of a major drug cartel enforcer; another worked as a receptionist for a shipping company in Tijuana that shipped more than the legal goods listed on its manifests; a close friend went to high school with the children of a major Mexican crime family; another friend is related to a senior prosecutor responsible for uprooting police corruption. Other students have shown me Spanish language blogs, web sites, and audio and video media hosting sites that provide very valuable information about the goings on in the border underworld (remarkably similar to, but on a smaller scale than, what we see in the Islamic extremist community^{xxxix}). These connections have been valuable to me in my research, allowing me to navigate what is actually a very easily identified social system of organized crime.^{xl} Such connections working for border security professionals can help reverse current asymmetries in information flows that favor the underworld.

The relative ease with which I, a university-based researcher and educator, can learn such things has always amazed me. I asked contacts in the American and Mexican criminal justice and security communities why it seemed so difficult to tap into the same information. The answers I received were reasonable ones: concern for the safety of informants, admissibility in court, possibility of disinformation, political and diplomatic concerns, and issues of trust routinely take center stage. Yet I am still left with the belief that a more concerted effort must be made to tap into the human capital at our disposal, not just for information flows but for establishing a substantial cadre of bilingual public servants with a functional understanding of the many nuances of border community life. This cadre can make immediate contributions in the production and analyses of the intelligence that is crucial to network-centric responses to border security challenges. Border universities like San Diego State University can take a major role in helping recruit such public servants while at the same time work with border security agencies to develop educational and research opportunities that will substantively reinforce and contextualize their border life experiences.

Dual-Use Infrastructure and Technology and Binational Collaboration

One way of looking at the border in a manner that reflects its daily reality is to view it as an opportunity for dual-use technologies, especially in infrastructure, which can assist in joining different countries together for their mutual benefit and security. We are historically, economically, culturally, and morally linked to others around us; we cannot exist in isolation from others. Shared infrastructure is an excellent physical demonstration of this. One of the most powerful ways to ensure U.S. interests across the border is to innovatively link to multiple groups to share the responsibilities, opportunities, and impacts of the border, which is what shared infrastructure does. A few general thoughts may help flesh out such innovative approaches to border security, approaches we at San Diego State University are using to train and educate public and private sector officials and first responders who bear the daily burden of dealing with the practical realities of securing and governing the border. As we shall see, linking infrastructure and technology to the human element is key.

It is important to recognize that though Canada and Mexico both have land borders with the U.S., they are profoundly different in many ways. Simply treating them as the same with laws, regulations, and policies is a major oversimplification that does not serve either well. Canadian groups, such as those presenting at the recent ComDef Border security conference in Tucson^{xii}, emphatically emphasized over and over how the border needs to be open for rapid trade and passage of goods from one country to the other. Canada is the single biggest trading partner of the U.S. How that trade can be nurtured and enhanced has a different reality than the same effort with Mexico, let alone more than 100 other countries via air and water borders. One size cannot fit all, for it creates a larger challenge for developing effective and efficient laws, regulations, policies.

Canada and its infrastructure for oil and gas, electricity, communications, and transportation have a profoundly positive impact on the U.S. Security efforts to protect this infrastructure both assist in the normal business processes of making a profit, but can

also assist in security. Thus applying dual-use technologies for enhanced security of infrastructure and at the same time assisting with profit generation is an attractive linkage. Oil-and-gas pipelines are an excellent example, where ensuring the appropriate flow, temperature, and pressure, and guarding against disruption, clearly aid and can optimize the business aspect of the infrastructure. Most of this can be done by sensors along the pipeline and infrastructure, with the sensors fused into actionable, real-time intelligence just as is done on the power grid. Technology-assisted security guarding infrastructure can thus help assist in facilitating business processes.

A specific example from the San Diego-Tijuana area where massive new infrastructure is being built that links the countries together in physical character, but also in symbiotic business ventures, is the construction of a large liquefied natural gas (LNG) facility on the coast 50 miles south of San Diego.^{xliii} This facility will process and ship most of the natural gas imported from Indonesia, Australia, and Russia north to the Southern California market. When fully functioning this facility will be directly linked to the energy infrastructure of Southern California. Consequently, the pipelines that carry the gas north will also be a security concern

The footprint of these pipelines will likely also contain telecommunications infrastructure--linking energy and information technology as a collaboration between the two countries. Trans-oceanic fiber coming in at these ports can connect the world to Mexico and then to the U.S. along the same routes that the energy travels. Linking economic incentives for security and infrastructure, as well as providing energy and IT assets to the Baja population, will assist with infrastructure security using technology to cross the border and assist Southern California in its energy and communications challenges. Infrastructure development then can actually assist with homeland security as corporations, governments, and agencies link to each other for cost-effective uses of technology for dual purposes. Universities can help in the design and testing of sensor networks, communication technologies, data fusion techniques, policy and governance issues, and design and permitting studies to assist this dual-use. Given the importance of these developments to U.S. energy needs, it should come as no surprise that Al Qaeda's Committee in the Arabian Peninsula has placed Mexico on notice.

In much the same way, consider the aforementioned massive new deep-water port being planned for the Punta Colonet region south of Ensenada. This will be the largest port development on the west coast of North America and is planned to handle more containers than are currently being shipped through the Long Beach/Los Angeles ports (currently 43.9% of all foreign containers coming into the U.S. in FY 06^{xliiv}). The infrastructure needed to move these containers by truck and rail into the U.S. will be staggering in some ways. Yet the long-term planning to make homeland security a foundational design principle of the effort does not seem to be a currently critical DHS task given other pressing concerns. By helping design and test sensors, transportation corridors, inspection sites, monitoring sites, and public benefits, U.S. and Mexican universities can provide research-based examples of how technology and infrastructure linked to economic development and human capital could simultaneously assist both countries in meeting their security challenges.

Epidemics and natural disasters like wild fires, hurricanes, and earthquakes are another example of cross-border collaboration that has technology and infrastructure connection. Without the communications infrastructure in place to communicate with first responders, most efforts to immediately respond during and after a disaster are extremely limited. Physical infrastructure such as towers on mountaintops to provide coverage to fire and law enforcement are obvious, but are also obviously disconnected from each other. Less obvious is the radio spectrum that is used by first responders, which is regulated by both countries. If a Mexican agency uses a specific radio frequency, this usage eliminates that frequency from being useful in the U.S. spectrum along the border. Thus only about half of the spectrum that other first responders in the U.S. can use is available. Collaboration across the border, both to eliminate interference, and also to enhance interoperability during shared emergencies like wild fires, is a major challenge to both countries. Yet it is an opportunity for collaboration that universities in both countries, serving as honest and neutral brokers and facilitators, can assist in solving.

San Diego State University is helping with these issues on the U.S. side of the border. Mexican universities could do likewise on the southern side of the border, as international interoperability and collaboration is significantly more elusive than interoperability is in the U.S. Mutual aid between Mexican and U.S. firefighters and law enforcement personnel is far from being solved, both because of technical issues and matters of trust. Isolation rarely enhances trust, however, and universities that already work well together can help facilitate the building of trust and therefore capability when it is needed during and after disasters. Without a communications infrastructure or technologies to link together for mutual aid, epidemics and disasters will have much more of a negative impact than if the two countries could communicate. To help with this, university-based, non-tactical communications that can link both countries together could offer assistance to both countries, while perhaps being primarily used as educational, environmental, and health-related networks outside the time of disasters.

Security and Border Cooperation and Coordination

Oftentimes we hear of the numerous issues that serve as impediments to binational approaches towards border security. We hear stories of the corruption, nationalism, and turf battles that make the idea of border governance, let alone border security, a seemingly unobtainable goal. These issues are very real and very daunting. Yet they are not insurmountable, as other areas of border governance and coordination that were once thought impossible are now being overcome.^{xlv}

For example, the San Diego Association of Governments (SANDAG) has a Borders Committee that brings together elected officials and representatives from San Diego, Imperial, Riverside, and Orange Counties, and Baja California/Mexico with the goal to create a regional community where San Diego, neighboring counties, tribal governments, and northern Baja California mutually benefit from their varied resources and international location.^{xlvi} Even the local office of the Customs and Border Patrol joined SANDAG's efforts last year and a strong, constructive relationship between both parties

has emerged. The Borders Planning and Coordination Division of the Borders Committee identified six critical planning areas around which to focus its collaborative efforts: jobs/housing accessibility; transportation; energy and water supply; environment; economic development; and homeland security.^{xlvi} Subsequent opportunities have been identified, conferences held, strategies developed, research reports and plans written, and agreements reached.^{xlvi} Indeed, since 2004 homeland security concerns have been formally part of the regional decision-making process under SANDAG's auspices.

Another example is the Southwest Consortium for Environmental Research & Policy (SCERP). SCERP is a collaboration five Mexican universities and five American universities located in all ten border states. It assists U.S.-Mexican border peoples and their environments by applying research information, insights, and innovations. SCERP was created in 1989 and was first funded by Congress in 1990 to address environmental issues of the U.S./Mexico border region and to "initiate a comprehensive analysis of possible solutions to acute air, water and hazardous waste problems that plague the U.S./Mexico border region." Since then SCERP has implemented about 400 projects involving as many as a thousand individuals. SCERP has the multi-fold mission of applied research, outreach, education, policy development, and regional capacity building for border communities. SCERP informs the decision-making process in both the U.S. and Mexico without advocating for or against a particular position. By interpreting the results of unbiased scientific inquiry it provides motivation to adopt comprehensive, regional, and long-term policies, solution sets, and environmental security.^{xlix}

Thanks to organizations like SANDAG and SCERP, institutional and individual trust relationships are built, relationships that lead to higher levels of trust which, in turn, lead to even more cooperation and coordination. Of course it is trust building that is an important step towards creating a secure border. Yet sharing information from one side of the border to the other reasonably remains a challenge. When it comes to security concerns, trust wrongly placed can, and has, lead to the loss of life, fortunes, and careers. However, areas for trust building in the border security realm do exist. For example, Mexican police would like to have access to stolen car records from the U.S., as they recognize that cars in Mexico with valid California plates may well be stolen, but they have no way to check this. They see these cars as a potential gold mine (insurance companies pay handsome rewards for the return of stolen vehicles). This is in addition to gaining the substantial revenue from the thousands of stolen cars currently operating in Mexico that are not paying any licensing fees. Similarly, Mexican police would like to provide intelligence to U.S. police forces on terrorist suspects--many of who would be a threat to Mexico as well--but the information provided to them is limited at best. Mexican police have significant capabilities (including state-of-the-art public surveillance, biometric, and facial-recognition technologies), but the ability to share such information across international boundaries is very limited. During events such as wild fires, flooding, or public health concerns such as avian influenza or a bioterrorism attack, this challenged shared operational picture may well produce disastrous results. Obviously many things cannot be shared, but some can. The architecture of such sharing both physically (fiber) and via agreement are significant opportunities to assist in shared border and homeland security.

Recommendations on How Congress Can Further Promote Border Security

In the context of this hearing about infrastructure, technology, and the human element, Congress can actually take some specific actions that would significantly assist the nation using the expertise of universities like San Diego State University, of which hundreds would likely be interested in assisting DHS and its member agencies. Many universities would like to help shoulder the load with DHS and Congress, helping discover policy, technology, and infrastructure solutions in ways that we can uniquely do.

- Lessons learned from Canada can be very useful for assisting with Mexico in terms of the border and trade. Linking efforts for monitoring the northern and southern land borders is a fruitful endeavor, as the same things do not need to be discovered over and over again. Drawing together even U.S. groups working on one border with those on the other border is not as common as would be fruitful, as the challenge of each border is so overwhelming that people simply cannot integrate an even more difficult reality of different borders with different needs and opportunities. Universities in all three countries could be of significant assistance in providing this integration.

- The DHS Center of Excellence idea with its new view of deliverables to the nation in the near term is very commendable, but the problem is enormously greater than the proposed solution. As an example, DHS is proposing to fund a single center for focusing on Border Security and Immigration for the whole nation, yet likely more than 100 universities are competing in different teams with their varied expertise to land that one, single center. With funding at \$3 million per year to look at the legal and illegal transport of people and goods across the border worth hundreds of billions of dollars yearly, it seems that DHS could be greatly assisted by enabling the intellectual creativity and widespread focus of numerous universities on finding real answers. The challenge to DHS is profoundly overwhelming. The challenge to efforts like SBINet alone is staggering; they are trying to find answers to profoundly difficult problems and against thousands of adversaries who are actively seeking to counteract any technology that is deployed. Yet the U.S. is not engaging university expertise or creativity at anything like the level that universities would like to be engaged to positively assist DHS and the nation. In some ways, this is much like deciding that the U.S. will have one center to study cancer, thereby leaving a number of “have not” universities who willingly want to bring a variety of different skills, resources, regional expertise, intellectual capital, and creativity unable to do so.

- A similar example would be the Center of Excellence on Maritime, Island and Extreme/Remote Environment Security. This is unquestionably a positive step forward and we certainly applaud DHS in holding this competition. Nevertheless, I am again struck by the huge breadth of subject matter from ocean and river ports to islands such as Hawaii and Guam to remote environments like Alaska. Many groups within dozens of universities are interested in actually helping be part of the solution and not just throwing academic stones at DHS or the U.S. government as some are wont to do. Yet at this time there will be only one group in the entire nation trying to assist DHS with

this, when clearly dozens of university groups could be helping and covering different aspects of the problem in support of the complex DHS mandates. Aggressively tapping into universities with diverse resources and proximate access to research sites, comprehensive expertise of regional environments, and the pre-existing personal and institutional relationships to make things work, just makes sense.

- As a specific example of this dual-use view of the problems DHS agencies are tasked with addressing, consider the ports that are a significant lifeline for the economic well being of the U.S. and its trading partners. These ports are revenue centers and revenue generators and DHS agencies are tasked with trying to securely enhance this trade for the benefit of the nation and its people. The adjacent ports of Long Beach/Los Angeles (LB/LA), for example, had cargo valued at nearly \$200 billion flow through them during FY 06. This generated \$6.7 billion dollars in direct FY 06 revenue for the U.S.¹

In the six-year life of each of the proposed DHS Centers of Excellence, likely more than \$40 billion dollars in revenue will be generated directly to the U.S. government from the LB/LA port complex, as part of the likely more than \$200 billion collected by CBP over the next 6 years, based on a simple extrapolation of last year's figures. Yet, DHS plans to invest \$18 million over 6 years, or less than 0.05% of the actual direct revenue collected by CBP from the LB/LA ports alone for the U.S. government, and less than 0.01% of CBP revenues on all ports alone for that same period. There is certainly no assurance that groups focusing on the LB/LA ports will win the Centers for Excellence competition; indeed no group of universities can easily address the unique challenges faced by several hundred active ports in the U.S., especially for a grand total of \$3 million a year. Still, hundreds of university researchers in policy and technology are anxious to help. Assisting DHS by perhaps linking incoming revenue with research dollars to assist DHS in a port-by-port (or even regional) basis is something Congress could do. This might be something like port revenue rebate to a port region to foster innovation and encourage even higher port revenues This rebate could be linked to individual ports or port regions have pre-existing relationships with regional research universities that will provide tailored assistance and appropriate deliverables to them. There is major interest from U.S. and international partner universities in assisting DHS with this awesome task, yet linking income to research assistance is not a policy of the government. This seems like something that Congress could address as it appropriates funds in the national interest.

- Universities and university researchers can assist DHS and its agencies in many other ways, yet the interface between the academic community and homeland security efforts is still in its infancy. Universities can assist with studies on organized crime and corruption, the milieu from which many border security threats emanate, and violent political movements, which often operate within the milieu created by organized criminals and corrupt officials (drug and weapons trafficking, immigrant smuggling, money laundering, fraudulent documents, intellectual property theft, etc.). Supporting homeland and national security programs, border studies programs, and programs that emphasize language and cultural education would help provide cohorts of public servants who can not only help with border security, but with our future military,

intelligence, trade, and diplomatic professions as well. Attendant to this goal is the need for expanded and vigorous support of international study abroad initiatives (like grants or tax breaks) that would allow secondary and higher education students to learn new languages and cultures and develop a more sophisticated, nuanced, and socially responsible view of life in a globalized world. Universities with computing, communication, data mining, sensor fusion, and intelligence gathering tools around the world could be of significant assistance to law enforcement and security personnel who are tasked with actually providing border security and do not have the luxury of real time research and discovery as is possible at universities (including universities in dozens of allied countries that could significantly assist their own security and that of the U.S. from their knowledge gained from their own worlds). Universities can also assist in rapid prototyping and predicting using commodity technologies and generally assisting those who are literally putting their lives on the line to provide security.

- I would also encourage Congress to tap into the expertise of other governments from around the world who are experiencing border security challenges. For example, the European Union has concerted multinational policy efforts and significant research expenditures in areas like the security of transport and energy infrastructure, transnational policing, intelligence sharing, data fusion and management, human trafficking, drug smuggling, and organized crime and counterterrorism policies, just to mention a few.^{li} I have visited European ports to study the balance between the movement of goods and people and security, established U.S./European border security technology collaborations, and participated in European organized crime policy symposia. As a result of these experiences, I have learned that our allies have much to teach us and we can benefit from their experiences. I have also learned that cooperation and coordination is possible between states, even when history, language, and culture present substantive obstacles to overcome. Encouraging state-level dialogue that respects traditional state sovereignty, like that stemming from the Security and Prosperity Partnership of North America (SPP), the trilateral effort to increase security and enhance prosperity among the U.S., Canada and Mexico through greater cooperation and information sharing, is a positive step.^{lii}

- Finally, trade flows, economic interdependence, the presence of large binational metropolitan urban areas, and the linkages of families all suggest that security efforts of the U.S. must extend beyond the physical international boundary to include these border regions. While infrastructure and technology are important for border security, the collaboration and coordination of people in the U.S., across the border, and abroad is critical. By encouraging and supporting the effective and efficient interoperability of these three elements, Congress will take a major step in furthering our security goals.

Concluding Remarks

Thank you again for this opportunity to present my views and the views of some of my colleagues at San Diego State University. It is our hope that you will continue to view our University and the California State University System as a resource as grapple with the pressing security challenges that face our nation.

Attachment I: Notes

ⁱ Adeb al-Bassam (representing Al-Qaida's Committee in the Arabian Peninsula), "Bin Laden and the Oil Weapon," *Sawt al-Jihad* ("The Voice of Jihad") Magazine, Issue 30 (February 8, 2007), as found on www.globalterroralert.com; "Al Qaeda Group Calls for Attacks on U.S. Oil Sources," CNN (February 14, 2007).

ⁱⁱ Technological developments in heavy oil technology will only add to this amount in the future. See "Harnessing Heavy Oil Technology," *The Lamp* 87:2 (2005); National Energy Board, *Conventional Heavy Oil Resources of the Western Canada Sedimentary Basin* (August 2001); and National Energy Board, *Canada's Oil Sands-Opportunities and Challenges to 2015: An Update* (June 2006).

ⁱⁱⁱ A discussion of this infrastructure can be found in The North American Energy Working Group, "The Energy Picture" (June 2002), as found on http://www.eia.doe.gov/emeu/northamerica/enginfr1.htm#_VPID_1.

^{iv} "Energy Means Business in Mexico," *The Lamp* 86:1 (2004).

^v CANARIE, *2005-2006 Annual Report* (2006), as found on <http://www.canarie.ca/press/publications.html>; CANARIE, "Canada's Research and Education Network" (nd), as found on http://www.canarie.ca/about/downloads/c4map_national.png.

^{vi} "Investigation of Major Mexican Drug Trafficking Organization Results in Hundreds of Arrests Nationwide," Press Release, Department of Justice (February 28, 2007); "Drug Ring Busted: 'Operation Imperial Condor' Seizes Cash, Drugs," ABC News (February 28, 2007); and "Nationwide Sting Nets \$45 Million in Drugs," *Houston Chronicle* (February 28, 2007).

^{vii} "Los Angeles Summit Seeks to Stop Spread of Gangs into Central America," *International Herald Tribune* (February 7, 2007); "Attorney General Gonzales Highlights Department Efforts to Fight Gang Violence in Los Angeles," Press Release, Department of Justice (March 2, 2007).

^{xv} "Overview: Toronto Bomb Plot," CBC News Online (August 4, 2006); "Homegrown Extremism: Toronto Bomb Plot," CBC News Online (June 4, 2006); "Profiles of the Suspects: Toronto Bomb Plot," CBC News Online (June 12, 2006).

^{xvi} "Atlanta Men Met with Extremists in Toronto: FBI," CTV (April 21, 2006); "Prosecutors Allege Terror Suspects Shot 'Casing Video,'" Fox News (April 29, 2006); "Atlanta Man Indicted for Material Support of Terrorism," Press Release-Atlanta Field Division, Department of Justice (April 20, 2006).

^{xvii} "School Ties Link Alleged Plotters," Washington Post (June 11, 2006); "Timeline: Probe into Alleged Plot Began in 2004," CTV (June 5, 2006).

^{xxi} SANDAG, "Economic Impacts of Border Wait Times at the San Diego-Baja California Border Region: Key Findings," as found on <http://www.sandag.org/index.asp?projectid=253&fuseaction=projects.detail>.

^{xxii} SANDAG, "Economic Impacts of Wait Times at the San Diego-Baja California Border: Final Report" (January 19, 2006): vii, ix.

^{xxiii} "New Port on Horizon," *The San Diego Union-Tribune* (August 14, 2005); "Major Seaport Proposed for Baja California Norte," BajaInsider (nd).

^{xxiv} U.S. Customs and Border Protection, “The Port of Los Angeles/Long Beach and CBP: The Giant of the Pacific Rim” (January 25, 2007), as found on http://www.cbp.gov/xp/cgov/newsroom/full_text_articles/tours_cbp_facilities/giant_pacific_rim.xml

^{xxv} For more on the need for the free trade “circuit” to flow smoothly, see Lawrence Herzog, *Cross-border Flows and the Future of the California-Baja California Border Region, California Economic Policy Report* (San Francisco: Public Policy Institute of California, 2007-08 forthcoming).

^{xxvi} “Trump Ocean Resort Baja Mexico,” <http://www.trump-baja.com>.

^{xxvii} “Silicon Border: Science Park of the Americas,” <http://www.siborder.com/>.

^{xxviii} For example, see Jeffrey Scott McIllwain, “An Equal Opportunity Employer: Chinese Opium Smuggling Syndicates in and around San Diego during the 1910s,” *Transnational Organized Crime* 4:2 (1999); Jeffrey Scott McIllwain, “Bureaucracy, Corruption, and Organized Crime: Enforcing Chinese Exclusion in San Diego, 1897-1902,” *Western Legal History* 17:1 (2004); Ethan Nadlemann, *Cops across Borders: The Internationalization of U.S. Criminal Law Enforcement* (Penn State University Press, 1993); James Sandos, “Northern Separatism during the Mexican Revolution: An Inquiry into the Role of Drug Trafficking, 1910-1920,” *The Americas* 41:2 (1984); James Sandos, *Rebellion in the Borderlands: Anarchism and the Plan of San Diego, 1904-1923* (University of Oklahoma Press, 1992); George E. Paulsen, “The Yellow Peril at Nogales: The Ordeal of Collector William M. Hoey,” *Arizona and the West* 13 (1971); Lawrence D. Taylor, “The Wild Frontier Moves South: U.S. Entrepreneurs and the Growth of Tijuana’s Vice Industry, 1908-1935,” *The Journal of San Diego History* 48:3 (Summer 2002).

^{xxix} Carlo Morselli, *Contacts, Opportunities, and Criminal Enterprise* (Toronto: University of Toronto Press, 2005): 22.

^{xxx} Jeffrey Scott McIllwain, “Organized Crime: A Social Network Approach,” *Crime, Law & Social Change: An International Journal* 32:4 (1999): 301-323.

^{xxxi} Peter Reuter, *Disorganized Crime: Illegal Markets and the Mafia* (M.I.T. Press, 1986).

^{xxxii} “Unfilled Tunnels a Weak Link at Border,” *Los Angeles Times* (January 30, 2007); “2 Tons of Pot Found Inside Mexico-U.S. Border Tunnel,” *The San Diego Union-Tribune* (January 26, 2007); “Feds Smoke Out Largest Drug Tunnel Yet,” CNN (January 26, 2006); “Two Tunnels Found Under U.S. Border,” BBC (January 12, 2006); “Anti-Drug Efforts Have Taken a Hit as the Fight against Terrorism Has Siphoned Away Money and Personnel,” *San Diego Union-Tribune* (July 31, 2005); “New Drug Tunnel Discovered under Arizona-Mexico Border,” CNN (February 28, 2001).

^{xxxiii} “Tunnel Found on Mexican Border,” *Washington Post* (January 27, 2006).

^{xxxiv} “Drug Tunnel Found Under Canada Border,” CNN (July 22, 2005).

^{xxxv} This eastward shift has created substantive human rights concerns due to the hazardous and often deadly nature of the terrain and climate through which much of the smuggling occurs, concerns that have compelled the CBP to create and extensive search and rescue capability. These concerns are continuously and fervently expressed by Mexican officials, media, academics, and students whenever I lecture on the subjects of, or simply discussed, border and homeland security.

^{xxxvii} For a general discussion on constraints faced by democracies against asymmetrical threats, see Roger W. Barnett, *Asymmetrical Warfare: Today's Challenge to U.S. Military Power* (Potomac Books, 2003).

^{xxxviii} Arthur K. Cebrowski and John Garstka, "Network-Centric Warfare: Its Origin and Future," *Proceedings* (January 1998).

^{xxxix} "Terrorists Take Recruitment Efforts Online," 60 Minutes, CBS News (March 4, 2007).

^{xl} For more on social systems of organized crime and the social networks that form them, see Jeffrey Scott McIllwain, "Organized Crime: A Social Network Approach," *Crime, Law & Social Change: An International Journal* 32:4 (1999): 301-323.

^{xli} Conference itinerary and speakers can be found at <http://www.idea.com/comdef06tucson/>.

^{xlii} "ChevronTexaco Announces Plans for an Offshore LNG Terminal in Baja California," Press Release, Chevron Texaco (October 30, 2003), as found on <http://www.chevron.com/news/press/2003/2003-10-30.asp>; "Sempra's Gas Venture Gathering Steam at Baja Site," *The San Diego Union Tribune* (October 24, 2005).

^{xliv} U.S. Customs and Border Protection, "The Port of Los Angeles/Long Beach and CBP: The Giant of the Pacific Rim" (January 25, 2007), as found on http://www.cbp.gov/xp/cgov/newsroom/full_text_articles/tours_cbp_facilities/giant_pacific_rim.xml.

^{xlv} For example, see Lawrence Herzog, *Cross-border Flows and the Future of the California-Baja California Border Region, California Economic Policy Report* (Public Policy Institute of California, 2007-08 forthcoming); Lawrence A. Herzog (ed.), *Shared Space: Rethinking The Mexico-United States Border Environment* (Center for U.S.-Mexican Studies, UC San Diego, 2000); and Lawrence A. Herzog, *Where North Meets South: Cities, Space and Politics on the U.S.-Mexico Border* (CMAS/ILAS/University of Texas Press, 1990).

^{xlvi} SANDAG, "Borders Coordination," as found on <http://www.sandag.org/index.asp?classid=19&fuseaction=home.classhome>.

^{xlvii} SANDAG, "Border Coordination: Comprehensive Borders Coordination Projects," as found on <http://www.sandag.org/index.asp?projectid=234&fuseaction=projects.detail>.

^{xlviii} A list of current projects can be found at SANDAG, "Borders Coordination: Binational Projects," as found on <http://www.sandag.org/index.asp?subclassid=104&fuseaction=home.subclasshome>.

^{xlix} More information on SCERP can be found at <http://www.scerp.org/>.

¹ U.S. Customs and Border Protection, "The Port of Los Angeles/Long Beach and CBP: The Giant of the Pacific Rim" (January 25, 2007), as found on http://www.cbp.gov/xp/cgov/newsroom/full_text_articles/tours_cbp_facilities/giant_pacific_rim.xml.

^{li} These and other border security related initiatives are linked from "The European Commission – A to Z," as found at http://ec.europa.eu/atoz_en.htm.

^{lii} "Security and Prosperity Partnership of North America," as found on <http://www.spp.gov/>.