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S. HRG. 109–51

STRENGTHENING BORDER SECURITY BETWEEN THE PORTS OF ENTRY: THE USE OF TECHNOLOGY TO PROTECT THE BORDERS

JOINT HEARING

BEFORE THE

SUBCOMMITTEE ON IMMIGRATION, BORDER SECURITY AND CITIZENSHIP

AND THE

SUBCOMMITTEE ON TERRORISM, TECHNOLOGY AND HOMELAND SECURITY

OF THE

COMMITTEE ON THE JUDICIARY
UNITED STATES SENATE

ONE HUNDRED NINTH CONGRESS

FIRST SESSION

APRIL 28, 2005

Serial No. J–109–18

Printed for the use of the Committee on the Judiciary

U.S. GOVERNMENT PRINTING OFFICE

21–922 PDF WASHINGTON : 2006

For sale by the Superintendent of Documents, U.S. Government Printing Office
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STRENGTHENING BORDER SECURITY BETWEEN THE PORTS OF ENTRY: THE USE OF TECHNOLOGY TO PROTECT THE BORDERS

THURSDAY, APRIL 28, 2005

UNITED STATES SENATE,
SUBCOMMITTEE ON IMMIGRATION, BORDER SECURITY AND CITIZENSHIP AND THE SUBCOMMITTEE ON TERRORISM, TECHNOLOGY AND HOMELAND SECURITY, COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The Subcommittees met, pursuant to notice, at 3:00 p.m., in room SD–138, Dirksen Senate Office Building, Hon. John Cornyn, Chairman of the Subcommittee on Immigration, Border Security and Citizenship, presiding.

Present: Senators Cornyn, Kyl, and Coburn.

OPENING STATEMENT OF HON. JOHN CORNYN, A U.S. SENATOR FROM THE STATE OF TEXAS

Chairman CORNYN. This joint hearing of the Senate Subcommittee on Immigration, Border Security and Citizenship and the Subcommittee on Terrorism, Technology and Homeland Security will come to order.

I first want to express my gratitude to Chairman Specter for scheduling this hearing. This hearing is the third in a series of joint hearings that Senator Kyl and I and our Subcommittees have had together to examine our immigration system from top to bottom. And I want to express my gratitude here publicly to Senator Kyl for his hard work and his partnership in working with me and our staff on these issues.

As Senator Kyl and I announced a few weeks ago, we are working closely together and will continue to work with other Senators as well to identify and develop solutions to the critical problems that affect our immigration system. I want to express my gratitude as well to the Ranking Member of my Subcommittee, Senator Kennedy, as well as Senator Feinstein, the Ranking Member on the Terrorism Subcommittee, as well as their staffs, for working with us to make these hearings possible. To be successful, any effort to reform and to strengthen our immigration system in the United States Senate must be a bipartisan effort, and we look forward to continuing to work with our colleagues to that end.

A few weeks ago, the Senate approved a broad, bipartisan sense of the Senate resolution, a resolution introduced by Senator Feinstein and myself. That resolution demonstrated to my mind that

there is a growing consensus across the partisan and ideological spectrum that our immigration system is badly broken and fails to serve the national interests of our national security and our national economy and undermines respect for the rule of law, and that in a post-9/11 world, national security demands comprehensive reform of our immigration system.

President Bush has articulated a vision for the comprehensive reform of our Nation's immigration laws. I am personally sympathetic to the President's vision, and I look forward to the critical role that our Subcommittees will play in the coming congressional debate.

No serious discussion of comprehensive immigration reform is possible, however, without an overall review of our Nation's ability and will to secure our borders and enforce our immigration laws. We must provide sufficient tools and resources to those whose job it is to protect our borders and maintain our homeland security and identify those in our country who should be apprehended and removed, including those who should be deported.

Accordingly, today's hearing is the third in a series of hearings focusing on identifying holes in our immigration enforcement system, places where enforcement has been badly deficient. Unfortunately, there are too many of those holes. Our immigration laws have been poorly enforced for far too long. That is because, in my view, the Federal Government has simply not lived up to its obligation to provide the resources and manpower in order to do just that. That must end and that will end.

For example, at our last hearing, we examined challenges to enforcement in the interior of our country. We respect the hard work and efforts of our immigration investigators, detention officials, and other professionals responsible for locating, detaining, and removing those who remain in this country in violation of our laws. Yet as that hearing made clear, our deportation system is overlitigated and underresourced, overlawyered and underequipped.

That hearing identified a number of specific problems, including the extra layers of appeals granted specifically to aliens who are deportable due to criminal activity and the judicially mandated release onto our streets of potentially dangerous individuals. Over one million aliens face deportation proceedings this year, yet we only have approximately 19,000 detention beds to hold them. As a result, as many as 80 percent of those ordered to leave the country never show up to be removed.

At our first hearing, we examined the challenges to enforcement along the border at the ports of entry. As that hearing made clear, we need better training opportunities and information provided to our front-line personnel, and we need to improve the reliability of documents used for entry into our country. National security demands we strengthen border inspection, ensure document integrity, and combat document fraud.

Today's hearing will focus on securing our borders in between the authorized ports of entry. We will examine what tools and resources are currently being employed and what resources and tools may be needed to fill in the gaps along the perimeter of our country. To put it simply, we must shut down all of the routes used to enter our country outside of authorized ports of entry.

Unfortunately, this is easier said than done. The U.S. Border with Mexico runs almost 2,000 miles, while our border with Canada runs roughly 5,000 miles. My home State of Texas alone accounts for a majority of the Southern border, sharing about 1,285 miles, or 65 percent of the Southern border.

In Fiscal Year 2004, the total number of arrests along the Southern border totaled more than 1 million with approximately 330,000 of those apprehended entering Texas illegally. And, the numbers are only increasing. Indeed, we have already surpassed last year's number in the current fiscal year.

These numbers demonstrate the hard work and dedication of our Border Patrol under the most difficult of circumstances, but also indicate the tremendous challenges that they face given the current staffing and resources that they have been provided by the Government.

According to the Pew Hispanic Center, the U.S. averages 700,000 to 800,000 new undocumented aliens every year. We simply must and can do better. We must explore the better use of technology. The effective use of technology between the ports of entry can serve as a force multiplier for our Border Patrol agents and officers charged with securing our border. And as we have heard time and time again, the same means of entry that can be used for someone who wants to come to the United States to work can likewise be used just as easily by those who want to come here to commit crimes or perhaps acts of terrorism.

Technology allows our agents, though, to conserve manpower and efficiently respond when we identify breaches in our border. But it is by itself no panacea. There will inevitably be glitches in deployment and use of technology, and clearly, technology is only as good as the men and women we have on the ground who we must teach to utilize it and take advantage of it to the maximum degree.

Accordingly, today we examine the existing technology used along our border and used to secure it and learn a little bit more about how it is actually deployed on the ground. We will hear what problems have been experienced and what Congress might be able to do to provide more support in this area. And I hope that today's witnesses will give our Subcommittees a better idea of what else this Subcommittee and the Judiciary Committee and the United States Congress as a whole can do to fully secure our borders in between the ports of entry through the most effective use of technology.

[The prepared statement of Senator Cornyn appears as a submission for the record.]

With that, I will turn the floor over to Senator Kyl, my colleague and the Chair of the Terrorism Subcommittee.

OPENING STATEMENT OF HON. JON KYL, A U.S. SENATOR FROM THE STATE OF ARIZONA

Chairman KYL. Thank you, Chairman Cornyn. I join you in welcoming everyone to this hearing today. We will be examining today the use of technology to help secure the borders of the United States between our ports of entry, as you noted, and our two witnesses here today are obviously both very capable to provide us information in that regard.

This hearing today is part of a larger commitment, as Senator Cornyn noted, that his Subcommittee and mine will use to help to educate our colleagues as well as put on the public record the need to enforce the immigration laws of the United States, how we can better do that in order to protect ourselves from terrorist and criminal threats and to restore integrity in the rule of law.

The name of my Subcommittee is Terrorism, Technology and Homeland Security, so this hearing today is directly related to the activities that we have been engaged in, and I am very much looking forward to hearing from our witnesses today so that we can better make the point to our colleague that the Federal Government cannot continue to overlook its distinct and singular obligation to maintain law and order on the border and that we have got to fully commit ourselves to funding the agencies that make up our immigration system so that these agencies can effectively perform the work that we call upon them to do as well as provide them direction and oversight.

We count on DHS, as always, to be very frank in discussing the challenges it faces in enforcing our immigration laws. We are always interested in learning about progress that you have made, but also problems and needs that you have, what we can do to help you secure the tools that you need in carrying out your mission.

I just want to add to the formal statement that I have just made this personal comment. In the sector that is the highest use of illegal immigrant smuggling, the Tucson Sector on the Arizona border that used to be the responsibility of the Chief of the Border Patrol, David Aguilar, got a great deal of national attention focused because of a group of private citizens who chose to draw attention to the problems in that part of the border by going there themselves and staking out some territory along the 9- or 10-mile area, calling themselves "the Minutemen" and, as I have said, demonstrating that a little bit more manpower in an area can help to control the border.

Now, as to whether or not it was their presence that had the effect, there are differences of opinion. But there are a couple of things I think that are unassailable. One of them is that the fact that the Mexican Government knew that they were there and apparently had some concerns about them, about what these people would do, concerns that have proven to be unfounded in terms of any violence or harm brought to the illegal immigrants. But because there were concerns, the Grupa Beta, which is the police force south of the border responsible for would-be immigrant safety, as it were, and perhaps other Mexican agencies, attempted to dissuade people from crossing the border. And it appears to have worked. The immigration in the Tucson Sector appears to have dwindled to a trickle.

This was not due to any great technology application. It was simply the threat that there were a bunch of Americans on the north side of the border that might cause harm to these immigrants, as a result of which the Mexican Government was able all by itself to bring the immigration in that area to a trickle, according to the statistics we have, which suggests something else, and that is that better cooperation with the Mexican Government in thwarting the illegal immigration would be another force multiplier, that it

should not be all the United States playing defense, and that we ought to seek more agreements with our friends to the South, the Government of Mexico.

Chief Aguilar, I will be especially interested in your testimony in this regard. You identify a great many different agreements and partnerships and so on, all of which may have some discrete and limited benefit, but which added together amount to a drop in the bucket and, frankly, focus more on the tougher cases, the drug smuggling and some of the higher-priority cases that may potentially involve terrorism, for example, but have very little effect on the run-of-the-day normal illegal immigration problem that exists.

I will be very curious not only to focus on the kind of technology that we could employ, but because of your experience, anything you might add about ways in which we could encourage the Mexican Government to stop encouraging illegal immigration and start helping us by discouraging illegal immigration. Again, slightly outside the burden of our hearing today, but since your written testimony contains so many pages of reference to how we have worked with the Mexican Government, I thought it was an appropriate question to sort of preliminarily ask you.

I am looking forward to the testimony that both of you have to offer today, and I suspect that we can keep the record open for either questions from our colleagues or additional comments from the witnesses, if they would like.

Chairman CORNYN. Senator Coburn? I want to recognize our colleague from Oklahoma who has been conscientious about attending these Subcommittee hearings as well. We would be glad to recognize you for a few brief opening remarks.

STATEMENT OF HON. TOM COBURN, A U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator COBURN. Well, thank you both, Chairmen.

First of all, we had a discussion, and I think it is important that you all hear this and take it back. The rules of the Senate, although we do not have the rules formalized in the Committee, is your testimony is to be here 48 hours before we have this meeting. And there is a real good reason for that, and that is so we can read what you have to say, think about what you have to say, and formulate great questions so that we can do the business of the people of this country. And I understand it is not either of your fault that your testimony did not get here because it goes through a filtering process. And so I do not hold either of you accountable. But I do want the Committee to know and I want it to go up the line that when we do get our rules in the future, I will be making a point of order and a formal objection to the continuation of any Committee meeting where my staff or I are not able to be prepared. We had one testimony arrive at 1:40 p.m. today for this hearing. And, again, it is not of your fault. I know it is not of your fault. But that message needs to be taken home.

The second point I want to make is to Chief Aguilar. Thank you for your service and thank you for your leadership. You all are not recognized right now. You are seen sometimes as the problem, and you are not the problem. The fact is you just do not have enough help and resources. And I want to publicly thank you for putting

your life on the line for the rest of the people in this country. And the rest of the people in the country get it. You all are important and vital to our national security as well as our way of life. And this is a country of immigrants, and we do not want that to stop, but we do want the law. And what you do to enforce the law every day I want you to know we appreciate from the bottom of our heart, and we recognize that you put yourself and your own families at sacrifice when you do that.

Finally, a comment that was made to me in private, and I will not relate who it is, but it concerns me a great deal with people within the administration are not allowed to give us what they really think, that it has to be filtered. In other words, a lot of people in this administration know what we need to do, but it does not fit with what the plan is. And so, therefore, the true thought and the true personal testimony does not come to the Members of Congress.

And I just want to encourage you, when that happens, to be bold enough to make sure Members of Congress know how you really feel, even if it is in private, because we cannot make decisions—and I think in the homeland security areas more than anywhere else, I am picking up from individuals within the administration that they are not allowed to tell us what they really think, that they have to toe the line. And that is good. You should be loyal. But the other thing is we really need the information to make the best decisions.

So I would encourage you, if that happens, members of this body, I guarantee you, you will be protected, but we need to have all of the information, not just what they want us to have.

With that, thank you for your testimony. I thank you for holding this hearing, and I look forward to asking questions. Thank you.

Chairman CORNYN. Thank you, Senator Coburn.

We are pleased today to have a distinguished panel from the Department of Homeland Security, and I will introduce the panel and then ask each of you to provide us with an opening statement for about 5 minutes each, and then we will proceed to some questions and answers.

David V. Aguilar has served as the Chief of the Office of Border Patrol since May of 2004. As the Nation's highest-ranking Border Patrol officer, Chief Aguilar directs the enforcement efforts of more than 12,000 Border Patrol agents nationwide. He brings us the knowledge and expertise gained from more than 26 years of service in the Border Patrol.

Dr. Kirk Evans is the Office Director of the Homeland Security Advanced Research Projects Agency. Dr. Evans has more than 27 years of experience in program management and acquisition of systems for surveillance and command, control, and communications.

Gentlemen, we welcome both of you, and we would be pleased to hear your opening statements. Let's begin, if we may, Chief, with you. If you would provide us your opening statement for about 5 minutes, then we will turn to Dr. Evans, and then we will engage in hopefully some good conversation back and forth.

STATEMENT OF DAVID AGUILAR, CHIEF, OFFICE OF BORDER PATROL, CUSTOMS AND BORDER PROTECTION, DEPARTMENT OF HOMELAND SECURITY, WASHINGTON, D.C.

Mr. AGUILAR. Yes, sir, thank you, Chairman. Chairman Cornyn, Chairman Kyl, Senator Coburn, thank you for your kind statements, and we appreciate that.

It is my honor to have the opportunity to appear before this panel today and discuss the successes, the achievements, and some of the remaining challenges that we have had in the United States Border Patrol in securing our Nation's borders. It is a challenge. Challenges remain. Our job is not done, but I can assure this panel that the men and women of the United States Border Patrol are continuing to do everything they can within the resources that we have to make this Nation more secure.

My name is David Aguilar, and I am the Chief of the Border Patrol. I would like to begin this morning by giving you a snapshot, a brief overview of the agency and how we operate out there.

One of the very obvious things but I don't think it is stated often enough is the following: that our primary mission is, in fact, to detect, deter, and apprehend terrorists and their weapons as they attempt to enter into the United States. It is very critical to also point out that our traditional missions that have come with us from our legacy organizations remain and are still very important, and I will point out why I think that is still very important today as we speak a little later on. But those traditional missions of keeping out narcotics, aliens, smugglers of any other contraband also continue to be a very important and integral part of our everyday job out in the field, out in the border, South, North, and on some of the coastal waterways that we patrol.

We have spoken a little bit about the Southern border. The Southern border is over 2,000 miles of border, the Northern border is over 4,000, and we patrol over 2,000 miles of the coastal or maritime sector that are taken up by our Miami, New Orleans, and Puerto Rico Sector. Within that area of operation along our Nation's borders, last year, during the fiscal year, the United States Border Patrol agents apprehended over 1.1 million apprehensions last year. Of those 1.1 million apprehensions, approximately 52 percent of those were apprehended within the State of Arizona. Today as we speak, this chart up here depicts that the heaviest flow is into, in fact, Arizona and the New Mexico of operation. Approximately 61 percent of our apprehensions are occurring today as we speak year to date in that part of the country.

Last year, fiscal year 2004, we apprehended over 1.3 million pounds of marijuana as it attempted to enter into this country. Today as we speak, alien apprehensions are up by about 3 percent. We are down in apprehensions by about 10 percent in the area of narcotics. Last year, we apprehended a total of 75,000 other than Mexicans crossing our Nation's borders. Today as we speak, year to date we are at approximately 71,000 OTMs. We are up by approximately 124 percent in the area of OTMs.

Now, we did this with about 12,000 agents, as the Senator pointed out. We have, of course, remote video surveillance systems strewn throughout the border, especially on the Southern border, a total of about 246 camera sites as we speak today. We have ap-

proximately 112 aircraft along our Nation's borders out there, but the challenges continue to be there, the challenges such as the urban-to-rural dynamics that I speak of.

When we started operations along the Nation's borders, especially in El Paso, in 1993, it was a very urban-type operation that we conducted out there. We moved from El Paso in 1993-94 to San Diego. The shift shifted over towards South Texas. We went to South Texas, and then we ended up in Arizona. Those were urban-type operations. They were easier than what we are faced with today.

Today we are faced with very rural-type operations where the dissipation of the criminal organization is out in the very rural areas. Technology is absolutely critical in these rural environments, and that is one of the reasons that I am very glad that we are holding these hearings today.

The vastness, the remoteness. One of the other challenges that we face that Senator Kyl knows very well is that of environmental concerns out there. Just to give you an idea, approximately 40 percent of our Southern border lands that we are responsible for patrolling are federally managed, environmentally protected, or environmentally sensitive; the Northern border, approximately 27 percent. Again, this is important to us because it requires us to be able to access and be mobile laterally along our Nation's borders in order to conduct national security efforts.

We have come a long way. We worked very closely with the Department of the Interior, with the Department of Agriculture to gain the latitude that we need in order to operate out there, but, again, this is an area where technology is going to help us tremendously.

The manner in which we deploy basically is based on the criminal organizations. The Southern border is the infrastructure that is south of us. The Northern border, Canadian population, approximately 90 percent of the Canadian population lives within 100 miles of our borders there. The density of population is such that the potential metropolitan targets, such as Boston, Philadelphia, Washington, D.C., New York City, are the areas we concentrate on. On the Northwest, also we have our Blaine Sector where the potential targets are Los Angeles.

One of the things that is absolutely critical that I would like this Committee to hear is that we have implemented a revised National Border Patrol Strategy that has now been in place for about 6 or 8 months. Key objectives: establish substantial probability of apprehending terrorists as they enter into this country; deter illegal entries between the ports of entry; detect, deter, and apprehend aliens, narcotics, and other contraband smugglers; leverage smart border technology as a force multiplier for our personnel out there; and reduce crime in border communities, reinvigorate the economic vitality, and improve the quality of life of those communities.

My time is out, I know, but I just want to make a statement that I thank the Subcommittee for this opportunity to present this testimony. I assure you that the men and women of the United States Border Patrol are doing everything that they can, and we will continue to be assertive and aggressive in protecting and increasing this Nation's security.

Thank you.

[The prepared statement of Mr. Aguilar appears as a submission for the record.]

Chairman CORNYN. Thank you, Chief.

Dr. Evans, we would be glad to hear an opening statement from you.

STATEMENT OF KIRK EVANS, DIRECTOR, MISSION SUPPORT OFFICE, HOMELAND SECURITY ADVANCED RESEARCH PROJECTS AGENCY, SCIENCE AND TECHNOLOGY DIRECTORATE, DEPARTMENT OF HOMELAND SECURITY, WASHINGTON, D.C.

Mr. EVANS. Good afternoon, Chairman Cornyn, Chairman Kyl, Senator Coburn. It is my pleasure and honor also to come before you today to share our vision and progress in developing sensor and information systems in support of the Border Patrol's mission. The Chief has been far more capable in describing to you the challenges and missions that the Border Patrol undertakes. In discussions with the Border Patrol, it is clear to us that the primary and the highest priority area they would like us to work on in terms of technology is in the surveillance or cueing mission.

To do this, we have two primary and large challenges. The first is the magnitude of the area involved. Consider the Southern border. It is 2,000 miles long. To develop an electronic fence along that border, it is insufficient just to have a magic line along the border. You have to have some depth to that line. Consider the Southern border with a one-half-mile zone in which we detect both vehicles and people crossing that. If we were to use the kinds of ground sensors we have today with, on the average, let's say, a 10-meter detection range and we want to have a probability of detection of anything crossing that border of 50 percent, that would require 3 million sensors, 3 million sets of systems. That number goes to about 1,300 for 450-meter detection ranges. It goes to 375 for a 1-mile type of detection range. So, clearly, in our sensors and whatever we put on the border, sensor detection range is a major, major factor.

Second is the false alarm rate. Assume that the Border Patrol manpower along the Southern border—and that is a big assumption on my part—allowed them to respond to four false alarms a day along the Southern border. If we had those 10-meter sensors, all 3 million of them, that amounts to a false alarm rate for each sense of 1 in 2,000 years. That is just not technologically achievable. For the 1-mile sensor, that gets down to about a 90-day false alarm rate per sensor. That is perhaps achievable.

If one were to think of a series of sensors along the border, arguably we could think about a sensor capability of detecting a person crossing the border at 1 mile with a false alarm rate of 1 per 90 days, a field lifetime of a year, and a per unit cost much less than the tens of thousands of dollars—or $30,000. Today, that sensor does not exist.

In order to get that capability, that surveillance capability, there are a number of technologies that we can look at. This list I am going to give you is by no means exhaustive, but it is a starting point.

Radars. The present radars that have been tried and tested are principally mono-static—that is, it is the typical radar you have seen in the World War II movies where you have got the transmitter and receiver antenna are the same. We are interested in looking at bi-static and multi-static radars that user separate transmitters and receivers. They could have some advantages along the border, a spread-out border such as we have on the Southern border. One form is called passive coherent localization. It uses ambient signals such as TV, cell phone, direct broadcast satellite, and radio signals, with a lot of multiple receivers to detect moving targets. This technology has been developed for air defense by the military over the last few decades. It has never been used in a ground sense, although there have been some initial looks at it. However, a technology testing and development effort is required to fully understand the phenomenology for surface targets and the required system parameters. Today we do not know it will work, but it is worth looking at.

Fiber optics. There have been a number of fiber optic concepts proposed, some with sensors attached to the fiber every few meters, some which use the fiber itself as the sensor. Although for most border applications that means burying the fiber, that technology also has some intriguing advantages.

Unattended ground sensors is one of the systems the Border Patrol uses today. They are planning on doing upgrades to their unattended ground sensors in the America's Shield Initiative, and DHS Science and Technology looks to assist them in looking at new sensors, alternative power sources, covertness, signal processing, connectivity, power

Airborne sensors have an advantage of height of eye, can look out over a long range, thus give excellent range. The Border Patrol has successfully used UAVs in the Arizona Border Control Initiative and shown that that has a definite force multiplier. We would like to look at a combined sensor system that has synthetic aperture radar, an EO/IR sensor suite, and develop a payload in a manned aircraft, and that could then be downsized for UAVs.

We are also interested in high-altitude or space-based sensor systems, and a key piece of the technology is automated scene understanding, that is, having machines do the detection, at least the alerting to operators, thus saving a lot of manpower.

Finally, we have a test and demonstration program ongoing in the Arizona area starting up called BTSNet in which we are trying to get connectivity and scene awareness to the agent in the field.

In conclusion, there is not one silver bullet solution to maintaining complete awareness and control of who and what approaches our borders. What is required is a system of systems approach that integrates multiple sensor and surveillance and tactical systems and response systems into an information network. America's Shield Initiative provides that overall system of systems framework.

We will be providing key technology capabilities that can be incorporated both at the beginning of ASI and over time as technology matures. We are looking at the sensor types of technologies I just described and scene awareness and information processing.

That concludes my prepared statement. With the Committee's permission, I request that my formal statement be submitted for the record.

Chairman CORNYN. Certainly. Both of your formal statements will be made part of the record, without objection.

[The prepared statement of Mr. Evans appears as a submission for the record.]

Chairman CORNYN. Chief Aguilar, I think you just explained the discrepancy we had on the numbers of apprehensions. The numbers, I believe, that we were given indicate that year to date for fiscal year 2005 it has been about 653,000 apprehensions. You mentioned that it is 1.1 million for the last complete year of statistics, correct?

Mr. AGUILAR. Fiscal year 2004, yes, sir.

Chairman CORNYN. And so far this year you have seen about a 3-percent increase.

Mr. AGUILAR. Overall, yes, sir.

Chairman CORNYN. Do you have any idea or guesstimate of how many people who come across our border we are unable to apprehend because of lack of equipment, technology, or manpower to do that?

Mr. AGUILAR. We have been asked that question numerous times, Senator, and the only manner that we have found to be responsive to that is in the following: In those areas where we are fully deployed, where we have the technology, the number of personnel, the mix of resources that is appropriate to bring operational control to the border, we can gauge it pretty closely. We have areas where we feel very confident that we are getting over 80, 90 percent of the attempted entries. We have other areas where we just do not have the resources, the manpower, or the technology out there to start even gauging.

We use what we refer to as a loose manner of intelligence, if you will. I do not know if you are familiar with the term "sign-cutting," but we go out and actually ride the line and track any kind of incursion that has occurred—of course, that is after the fact—and we try and count that. In areas where we do have the technology, RVS systems, remote video surveillance systems, or we use third-party indicators, community call-ins, law enforcement call-ins, things of that nature, we have a better feel for it. But, unfortunately, we cannot give you that overall for the Nation.

Chairman CORNYN. I am curious. Why do you think it is that your number of OTM apprehensions, other-than-Mexican apprehensions, is up 124 percent over last year?

Mr. AGUILAR. Senator, as you probably know, one of the issues that we have, one of the concerns that we have is our ability to detain those other than Mexicans that we do apprehend, that the Border Patrol apprehends. Our sister agency, ICE, is trying very hard to manage the bed spaces that they have out there. But, unfortunately, it is not a good system that we have in place in some locations, and by that I mean the following:

We have one sector in particular, McAllen, which is in South Texas, that has an OR rate, order of recognizance rate, where we release these people on their own recognizance, that goes upwards of 85 to 90 percent of the apprehensions that we do make.

The one very good thing—and I can assure this Committee of the following—is that before we release these people on a notice to appear, order of recognizance, through technology and the full integration of IAFIS and IDENT, we make sure through every possible database that we are not releasing a person that is going to be a problem to this certainly or, in particular, has a nexus to terrorism.

Chairman CORNYN. When we get a chance, maybe in other rounds, or maybe other Senators will get a chance to ask you about IDENT and IAFIS and how that helps. But as far as the reason we have seen such an uptick in other-than-Mexican incursions, is there a specific reason why you think that is the case?

Mr. AGUILAR. One of the reasons we feel is because of the fact that we are not able to detain as organizations under DHS the amount of people that we are seeing coming into this country.

Chairman CORNYN. Well, of course, the IAFIS and IDENT systems are only as good as the data you have in those systems, correct?

Mr. AGUILAR. Yes, sir.

Chairman CORNYN. In other words, if you don't get a hit based on the identity of the person who comes across, obviously you are not going to detain them then for a criminal record or for other reasons. Is that right?

Mr. AGUILAR. That is correct, Senator. IDENT basically is a legacy INS system that is a recidivist information-capturing system. IAFIS goes into the master FBI criminal file. The one thing that we have instituted as a matter of standard operating procedures, if you will, is that our officers on the line, even as much as the old law enforcement gut feeling that there is something that needs to be investigated, we work very closely with JTTF, FBI, and all the other associated law enforcement agencies to ensure to the degree possible that we are not cutting anybody lose that is going to be a threat to this country.

Chairman CORNYN. I understand and appreciate the great job you are doing considering the resources you have, but I just want the record to be clear that just because somebody's name does not appear in the IDENT or IAFIS database, it does not mean that they are safe, that their presence in America is necessarily something we ought to feel comfortable about. Would you agree with that?

Mr. AGUILAR. That is correct, sir.

Chairman CORNYN. And just so the record is clear, when we say other than Mexicans, we are talking about people who come up through the Southern border of Mexico from Central America, maybe South America, but we are also talking about people who fly from other continents to Central or South America and then use those known routes of ingress into the United States as well. Correct?

Mr. AGUILAR. That is correct, sir.

Chairman CORNYN. For example, Chinese immigrants, Russian immigrants, we are talking about people from the Middle East, literally almost any country in the world, right?

Mr. AGUILAR. Yes, sir. The highest rate of OTMs that we apprehend right now along our Nation's borders are in the following order: Hondurans, El Salvadorans, Brazilians, Guatemalans, and

Nicaraguans. But there is a whole array of other countries that we do interdict along our Nation's borders. That is correct.

Chairman CORNYN. And I will just ask one last question before I turn you over to Senator Kyl. We have heard during the post-9/11 debates about our state of national readiness and preparation that we have to be right 100 percent of the times, the bad guys only have to be right once. And given that fact, given the difficulties that we have controlling our borders, identifying who is coming in and why they are coming in, do you have serious concerns today that, given the nature of our borders and our inability to control them because of lack of resources, America is in danger?

Mr. AGUILAR. I would answer that question in the following manner, Senator, and that is that we have done a lot since 9/11, resources have been added. Could we use more? Absolutely. We are continuing to add, we are continuing to become more efficient by adding technology, by adding infrastructure, tactical infrastructure and things of this nature. We are now up and running, for example, on IDENT/IAFIS. But, yes, the concerns are there. That is why we continue to work very hard to ensure that to the degree possible, within the resources constraints that we have, we move forward and ensure the best we can in the area of national security.

Chairman CORNYN. Thank you.

Senator Kyl?

Chairman KYL. Thank you. I have some questions, Dr. Evans, for you, but just to follow up with one final question, Chief Aguilar. You have a category, in addition to the other-than-Mexican designation, there is a category of countries of special interest, I believe is the correct phrase. What does that mean, and what is the problem there?

Mr. AGUILAR. Special interest countries, Senator, are basically countries designated by our intelligence community as countries that could export individuals that could bring harm to our country in the way of terrorism. And what that means is that anytime that we encounter an individual from those special interest countries, we pay particular attention to the individual, his or her background, where they come from, where they have transited to get to our country, and things of this nature. We have an SOP on things that we ensure we do: JTTF notification, FBI notification, run all the databases and everything that we can.

As an example, the United States Border Patrol last year apprehended about 400 aliens from special interest countries.

Chairman KYL. And my understanding is that part of the concern is that those numbers are going up. Is that correct?

Mr. AGUILAR. At the present time, we have about a 10-percent, approximately about a 10-percent increase at this present time. Yes, sir.

Chairman KYL. Thank you.

Dr. Evans, let me get right to the bottom line, and I mean that literally, with respect to the budget for the kind of technology innovations that your folks are working on, the testing and acquiring of new technologies.

Chief Aguilar says we can always use more. That is evident, I guess. The question is: Do you have enough money to aggressively pursue the operational goals in the area of technology? And do you

think you can do an adequate job? And by adequate, I mean to get the job done. Or could you use additional resources? And if so, what particular areas and in what quantities?

Mr. EVANS. Senator, I usually answer that question, which is sometimes a little loaded, with the fact that under way we have this fiscal year the BTSNet, which is the information networking efforts. We really start seriously looking at some of the sensor technology in fiscal year 2006 with some early first-cut looks this fiscal year. I just brought on board a program manager for sensor systems.

We can always use—we will be funding-limited in what we do. You know, sometimes you have programs which are just technology-limited. No matter how much money you threw at us, we could not do it any faster. In this case, the funding limits the number of different kinds of things we can look at. But it has got to be traded off against all the other priorities that science and technology has and some very large threats.

We will start looking at some of the technology programs in things like passive coherent localization this year and next year. We have already done some in UAVs, but we do not have a very large effort. We are looking to support it and to support the ASI.

Chairman KYL. And that is true both with respect to the research as well as the actual application in the field. Is that correct?

Mr. EVANS. That is true with respect to the research and what I would call the test and evaluation in the field. The actual application and deploying in the field is the Chief's, and he has that under the ASI initiative. So two separate parts of our budget.

Chairman KYL. Is that right?

Mr. EVANS. Yes, there are two different appropriations: one is RDT&E and one is procurement.

Chairman KYL. Now, you mentioned the unmanned aerial vehicles, and I will just—in fact, let me relate this anecdote. I don't think he would mind. The successor to Chief Aguilar in the Tucson Sector said that he really appreciated the use of the unmanned aerial vehicle while it was flying in the Tucson Sector. It was very helpful to them. And I think everybody there wishes that we could have it redeployed.

There are also all of the usual resources of manpower, vehicles, airplanes, sensors, cameras, radars, all of the things that are in the arsenal or the toolkit, in effect, of the Border Patrol. And there is a sense that if you have a certain amount of money to spend and you have to engage in the tradeoffs, as you mentioned, then you are better off going with those lower-tech but proven capabilities as opposed to putting all your money into the unmanned aerial vehicle.

I would like to ask both of you to speak to that, but, in particular, Dr. Evans, if you could relate to what the costs are, what is the value of it, and what would the decision matrix be to decide whether or not to put the money into a full-scale use of the UAVs rather than the pilot projects that has now come to an end versus other kinds of capabilities.

Mr. EVANS. We see the UAV, the unmanned aerial vehicles, especially the class of vehicles that we have employed in ABCI, as what I would principally call a tactical vehicle. It is not something that

is going to give you wide area surveillance coverage across the entire border. It does significantly enhance the Border Patrol's tactical operations. With that, they are able to—keeping agents out of harm's way, they are able to track aircraft, track people, come in, if you have some other indication that there is something occurring, they can get to it fairly quickly and get eyeballs on the situation.

There are any number of light-weight and medium-weight UAV programs and airframe systems around. We in S&T and DHS do not necessarily need to get into that development. The development that we really need is both in ops concepts, but also in the sensors. I believe the sensors that have been used so far in UAVs in the border have been optical IR sensors. We need to combine that with other types of sensors and put together a sensor package. And I think the road to doing that in reducing the risk in the sensor package is in doing that in aircraft first and then downsizing the package. That is where the cost comes in.

In the meantime, for the Chief to be able to UAVs and operate them—whenever you introduce a new technology such as the UAV, it has an impact on their concept of operations and how they learn to use and operate it. And it will take them time to learn how to most effectively operate it. So any experience that they get using that type of vehicle will be most helpful to them. In the meantime, we want to work principally on the sensor sweeping package.

Chairman KYL. Let me restate the question, even though the time has expired. I would like to get a really specific answer. You have a given amount of money—and this is for both of you. I am told that the UAV was very good in the pilot project, that they would really like to have it back. I am also led to believe that there is not enough money, and so, in effect, we put the question to him: Well, which would you rather have, a lot more agents, some helicopters, some more horses and ATVs and a few more cameras and radars and so on, or—or, not and—the UAVs? And what I am trying to get at is your assessment of whether we really need both, because we will not appropriate the money unless our colleagues are convinced that the problem is such that we do not gain by making that choice, we only gain by providing the resources for both. But if we cannot tell them that you have said, yes, you really need both, then we cannot make the case.

So can you provide us a little more specific information there, is what I was trying to get at.

Mr. AGUILAR. Let me go ahead and take at least part of that question, Senator, and I will answer in the following manner:

As I stated earlier, part of our new revised national strategy speaks to obtaining the right combination of resources. Those have been primarily identified as personnel, infrastructure, and technology. It is that mix of resources that we apply to the border that will ensure that we bring the operational control that we need to bring there.

Now, having said that, CBP, Border Patrol, was, in fact, the first law enforcement agency that applied UAVs in an enforcement posture. It was a pilot program in order to learn, to see what it could do for us. It proved to be very effective, especially in the area of officer safety, cueing, and bringing to resolution in some of these

very remote places some of the sensor hits that in the past it would have taken an officer to respond 100, 120, 200 miles sometimes, to go check on that sensor. Utilizing the UAV, we could send it remotely and bring to resolution that hit out there, if you will.

Now, that being the case, we are evaluating that pilot program that we had, and in addition to that, at minimal to no cost to CBP, we are also doing everything that we can to continue testing that type of equipment. Today as we speak, commencing on the 20th, which is, I guess, about 8 days ago, we are flying a Hunter UAV provided to us by the military in Arizona to continue the testing process. It will be with us until the 15th of May.

Now, one of the things that is critical here is that we continue testing the technology attached to that, what is referred to as the EO/IR sweep, the electric optical sweep that is attached to them.

Do we need both? Would both help us? Absolutely. The Border Patrol agent on the ground is key, but that force multiplier, especially in some of these challenged areas that we talk about, very vast, very remote, that combination of resources. Do we need it across the Northern and Southern borders? I would have to say a qualified probably not. But would it come in handy in Arizona and some portions out there? Yes, as it has in the past.

Now, as to how many, how many agents, that right mix of resources, the technical sweep that is going to be applied to it, that is what we are trying to identify right now.

I don't think that gives you the answer of yes or no, but that is where we are at right now.

Chairman CORNYN. A vote was just called at 3:45, and, Senator Coburn, why don't you proceed. And then what I will do is I will go vote, and I will come right back and hopefully we will all—

Senator COBURN. Fine. Thank you.

First of all, I would like to introduce into the record the Pew Hispanic Center report, March 21, 2005, on the size and characteristics of the undocumented population. They also estimate that you stopped 1.2 million but 3 million came. So the net increase of those that came and went home, the net increase of our population, about 2 million people this year in terms of illegal population.

I want to ask just a couple of questions. I know what your answer is going to be, but I want it on the record. Is it illegal to come here without a visa?

Mr. AGUILAR. Yes, sir.

Senator COBURN. All right. Do the American people have the right to expect that that law is enforced?

Mr. AGUILAR. Absolutely.

Senator COBURN. All right. Is that law being enforced?

Mr. AGUILAR. Within the resource capabilities that we have, I believe it is, sir.

Senator COBURN. All right. Let's don't qualify it as to resources. Are people coming here illegally because we do not have the resources with which to control the border?

Mr. AGUILAR. I think that is a correct statement, yes, sir.

Senator COBURN. So the question is—and you cannot believe the number of times people in Oklahoma come up to me and say, "When are we going to control the border? When are we going to do it? Are we going to control the border?"

My question is somewhat along the same lines as Senator Kyl. What do you need? Tell us what you need. You know, we have 19,000 retention beds. They need 50,000 retention beds. That is another $1 billion to add those retention beds. It seems to me if we put $1 billion on the border, we might need fewer retention beds. And that is the same question the American public is asking.

I know that the CBP—what they have to do, and I know what ICE has to do. My question is: What do you need? Because the people from Oklahoma and I think most of the country is willing to make some sacrifices internally to give you what you need. I want to know what you need. How many billions do you need?

I want an answer.

Mr. AGUILAR. Okay. Let me answer in the following manner, sir. Two years ago, a little over two years ago, when DHS came into being, we were all brought together under Customs and Border Protection, at least for us. That is one of the things that we brought to the table. Commissioner Bonner has basically asked us and we have put together a national strategy and an implementation plan to address that national strategy.

One of the basic components to it is identifying the right mix or the right combination of resources. Again, the resources that we are looking at are personnel, technology, and infrastructure, tactical infrastructure. Does this mean that we need 2,000 miles of border along that Southern border? No. But we need to be able to place it to where we believe it is going to make the most good to stem that flow, to bring operational control to the border. That has been prepared.

As you know, our Secretary is brand new. We are in the process of briefing this to that level of Government, and that is where we are at right now.

Senator COBURN. I would just tell you the American people are dissatisfied with that, and you know it as well as I do.

Mr. AGUILAR. Yes, sir.

Senator COBURN. You know, we had what I call undocumented Border Patrol agents last month in Arizona working, helping you, and I don't know if that was a good idea or not, but I think that we should pay very close attention to what that means. That means there is a level of frustration out there where we are not effectively carrying—we are not funding you, we are not doing the oversight, we are not doing the direction so that you can carry out what the American people know they should have and expect.

And, you know, it is really not about illegal immigration. It is really about the risk of terrorism.

Mr. AGUILAR. Yes, sir.

Senator COBURN. And the rhetoric is going to get way too hot in this subject if, in fact, there is not a better response from the administration. I can just tell you that. And then it will not be on the basis of what we all want it to be, a planned ascent to control the border. Then it is going to be on ethnicity and things other than what it should be.

I would just hope that you would take back that we will have the time that you want to make. We do not have the time to wait 2 or 3 years for you to get the sensors that you want or to add the people that you want. They need to be added now, and we need an

honest discussion of what it is going to take in this country to give you the resources. We know you know how to do it and we know you know how to create a layered and multi-faceted approach to do this. The question is: Let's have it and let's start responding to it so that the American people can perceive it.

Let me tell you how personal this is. You know, our ERs in the South are overrun with illegals for health care. Our public schools are now overrun with illegals. We have this chain migration where you come in pregnant and deliver and establish residency because you now have a citizen of the United States. That cannot continue to happen because the communities cannot afford it anymore. So this is building.

I cannot impress—Dr. Evans, I would love to hear your response to this. There is a level of frustration throughout my entire State that says we are not doing what is supposed to be done to enforce the law. And that does not mean you are not trying. I am not saying that. But I want to send home to you the importance of timeliness of response on this, because I think this is not a good thing for the American people to be this frustrated with the Federal Government. There are a lot of other things they should be more frustrated about.

Dr. Evans?

Mr. EVANS. I understand the frustration. In some of these areas that I have talked about, we are talking about inventing on schedule. That does not necessarily easily happen. We are admittedly funding-limited not technology-limited in a lot of the things we do to support Border Patrol and some of our other BTS customers. That is a matter of priorities within the administration, and that is above my labor grade.

Senator COBURN. But what was the request for increase for Border Patrol and ICE this year? If that is one of the priorities of the administration, what was the level of request of the administration from Congress in the budget for an increase for both the CBP and the Customs Border Enforcement?

Mr. EVANS. Well, in the R&D that comes into a line which is support of conventional missions for Science and Technology, and that includes all of CBP, that includes emergency preparedness response—

Senator COBURN. I understand. What is the percentage increase that they asked for?

Mr. EVANS. I think it was about 10 percent, but I would have to go back—

Senator COBURN. Ten percent, and we know that you intercepted 1.1 million, and we know another 2 million came in. And I am just telling you, that is not acceptable. It is not a policy of this administration to address that; otherwise, the request would have been higher. What do we need?

Mr. EVANS. I think in technology development, there are a couple of key areas that we need. We need to look at things that are—first of all, there are a number of fairly mature products and mature technologies that are already out there. For example, you know, I talked about radars. In the types of scanning radars that are out there that we tested in Arizona Border Control—

Senator COBURN. Let me interrupt you for a minute because I am going to have to go vote. You said just a moment ago you are not technology-limited, you are budget-limited.

Mr. EVANS. Yes, I am—

Senator COBURN. Okay. So my point is—

Mr. EVANS. I am not limited in the choices of technology we can try to bring to bear to this.

Senator COBURN. That is right. And so if we have a layered approach, multi-tactical approach, the question comes: What would it take for us to do to control the border to allow Chief Aguilar to have the resources so that he could tell the American people, look, this is just a dribble now? Because that is what they are looking for. This is a very compassionate Nation. We will deal with the people that are here in a proper way, and we will then have a national assessment about how many people should come in. But we need to know from this administration what is really needed to do it.

Mr. EVANS. I do not have a number. I am not—

Senator COBURN. Okay. Would you commit to give to this Committee from the administration, from DHS and from the administration, the dollars required to achieve the goal? That is what the American people want to know.

Mr. EVANS. There are two parts to that, to answering that question. The first is in the Chief's and he does and the Border Patrol does what they are going to do for the major systems procurements. That is ASI, and that is the number of sensors and the number of people, the overall system. But for developing the technologies for that, yes, we can answer that. I cannot commit to the second part.

Mr. AGUILAR. Senator, you asked at the very beginning that we answer your questions, and I think I can do that in the following manner very succinctly, and that is that illegal immigration is a phenomenon that needs to be approached, I believe, from several component aspects. We deal with the enforcement aspect of it. We, I think, do a fairly good job of identifying the type of technology that we need. We are in the process of identifying the level of that technology, personnel, infrastructure that we need.

I think there are other components that would also be brought to bear, which I will not go into for obvious reasons—that is not my expertise—that would absolutely help us also bring control to the border by stemming the illegal immigration flow.

Senator COBURN. Absolutely, and I understand that. I will not put that as part of this. We understand the incentives that need to be on the other side of the border, the economic investment that needs to be done. I understand all those other things. And the American people do, too. But what they know is it is against the law, and we are charged to uphold the law, and we are charged to give you the resources to do that. So it seems obvious to me that the administration has to tell us what is it going to take to get the job done. And we cannot wait 10 years to get the job done.

Mr. AGUILAR. I would agree.

Senator COBURN. Because every day you cannot intercept who you need to intercept that puts us at risk is a day that we put our country and our children at risk. And it is not acceptable. And if we are going to waste money in this country, the American people

are willing to waste it trying to control it on the border. So we are willing to let you make some mistakes. We just want to know what you want. And a 10-percent increase is not enough if it is going to say we are going to intercept 1.4 million out of 3 instead of 1.1. It is not enough. We have to know what it is.

I am going to recess this until Senator Kyl and Senator Cornyn come back, and thank you so much for being here and offering your testimony.

[Recess.]

Chairman CORNYN. We will go ahead and reconvene. Sorry about the interruption, but Senator Kyl is planning on coming back after he votes as well.

Chief Aguilar, let me start my questioning again with you. I had the experience not too long ago of flying with a Border Patrol agent in a helicopter in Webb County along the Rio Grande River. And although I am very familiar with that part of my State and that part of the United States, I was struck by the huge expanse of area that our Border Patrol has to monitor. And what I learned was that as a result of some of the build-up of Border Patrol and the use of equipment in the Arizona area because of the reasons that you have already discussed with us, the large influx of immigrants across that border, we have had to take some men and women and some equipment from other parts of the border. Is that a fairly common phenomenon that you try to move men and women and equipment around in order to meet what you view as a more urgent or more overwhelming concern?

Mr. AGUILAR. Yes, sir. Yes, that is fairly common. That has been historically common within the United States Border Patrol. And let me just preface that with Webb County, Laredo, Texas, is where I started my career, so I am very familiar with that vast area.

But, Senator, one of the things that we do is we do take our resources and try and apply them where they are more needed, but not at the expense of the enforcement capacity from the sending location, if that makes sense, and by that I mean the following: that we ensure that when we take those resources, when we draw down, when we detail into another part of the country, there are enough resources in place to control or maintain the level of operational control that we have.

Laredo, for example, in the last 7, 8 years has received remote video surveillance systems, in fact, is building tactical infrastructure right now, has gained greater accessibility and mobility to the river, the Rio Grande. So these are the things that basically make the sitting resources more efficient that allows us to take some of those drawdown and apply them on a temporary basis.

Chairman CORNYN. Has it been your experience, Chief, that your adversaries, so to speak, the human smugglers and others who try to penetrate our border, that they are pretty smart, they know where you have moved your people and your resources and they may try to exploit the weakness in our line?

Mr. AGUILAR. Absolutely, sir. Very cagey, very smart, and they have a very good counterintelligence system.

Chairman CORNYN. And I do not want you to misunderstand my comments as being critical. What I am critical of is the Federal Government's inability and unwillingness over the past couple of

decades, at least, to deal with this problem in a comprehensive fashion. In an ideal world, you would have all the people on the ground and all the equipment necessary in order to secure our border as much as humanly possible. So please understand where I am coming from on that.

The other thing I heard when I was last in Laredo was that these human smugglers, the coyotes, the others who are bringing people across, they learn how to use diversionary tactics perhaps to get Border Patrol agents as a result of the tripping of a sensor, maybe cameras going off and the like, to move in to try to detain, let's say, a handful or one or two people coming across the border. And just as the Border Patrol moves to that location, then others break across at another location and perhaps make a run for it, so to speak. Is that another common or routine sort of tactic used to try to get people across?

Mr. AGUILAR. Very much so. Senator, what you just described in the field is what we used to call sacrificial loads, where the smuggling organizations would send a load out in one direction while the real load was being put out in another location, while our resources were being diverted out here. It is very taxing on our agents out there. That is one of the reasons why technology, I think, is so important to us to bring to resolution as quickly as possible any kind of diversion of resources, any kind of sensor alarm that goes off, things of this nature, as quickly as possible.

I would like to touch on that just a little more because a question was posed a few minutes ago about the Minutemen situation in Arizona, and that is the following: that anything that taxes our resources takes away from our capability to secure our Nation's borders. In that area of the country, that effort, if you will, was taxing on our resources because sensors were being set off, technology was picking up movement and things of this nature that we had to bring to resolution. So that was indirectly—not meant to be, but it was taxing on our resources also down there.

Chairman CORNYN. Well, ideally, we would not have to have a situation where civilians felt obligated to move in and fill a void that has been left in our border security enforcement. But I appreciate what you are saying because when your sensors go off, you do not really know who is setting it off, so you have to deploy men or forces there to find out what is going on and to deal with it, whatever the case may be.

One other thing I would like to explore with you. You know, we talk about people breaching our border and coming into the country, and we know that a given number of those are people who have no hope and no opportunity where they live, and so naturally, living next to the wealthiest Nation in the world, they are going to go where they believe that they can get a job and provide for their families. And I think every one of us as human beings can understand that natural human impulse.

The danger really lies from my perspective in the fact that the same means of breaching the border and coming across is available to someone who wants to work in a restaurant or a hotel or a construction site as somebody who wants to come across to do us harm or somebody who is bringing illegal drugs or engaging in other illicit activity.

Has it been your experience that some of the people engaged in human smuggling are essentially just in it for the money? In other words, what I have wondered about is whether the same element that will bring people across the border are just as happy to bring weapons, drugs, traffic in human beings, and engage in other criminal activity for profit? Do you agree with that generally, or what has been your experience? Maybe I will just let you state it in your own words.

Mr. AGUILAR. I do agree with that statement, Senator, and our experience has been that we have seen a melding, if you will, of these organizations in order to smuggle people, narcotics, weapons, anything for money. That is the bottom line. But that is why it is so critical that we continue our partnership and partnership building with the FBI, JTTF, our ICE agents. ICE, our sister agency, is concentrating its efforts on the organizations, which is really where one of our main problems is and where we should be concentrating our efforts out there.

Chairman CORNYN. Dr. Evans, the organization that you are the head of at the Department of Homeland Security, the Homeland Security Advanced Research Projects Agency, as I understand it, that is the Homeland Security equivalent of DARPA at the Defense Department. Is that correct or is that a fair comparison?

Mr. EVANS. First of all, Senator, I would like to thank you for the promotion, but I am the mission support office of HSARPA and—

Chairman CORNYN. You are welcome.

[Laughter.]

Chairman CORNYN. Thanks for the correction.

Mr. EVANS. It shares it in name. It has some fundamental differences. And I at one point in my misspent youth was a DARPA program manager.

In DARPA, we were not anywhere near as driven as we are in HSARPA by requirements. I have requirements set by the Border Patrol, by the other agencies through portfolio managers, so we are much more requirements-driven. In DARPA, DARPA was essentially and is essentially sort of on top of the DOD structure that was a special agency set to just go do high-risk, high-payoff things, and there is no real boundary on what you want to look at and do, other than DDR&E sort of sets some general guidelines, do space this year, you know, do something else. So that is the major difference.

The things that are common is we are a very program management-oriented structure. We have a turnover of people coming in and out so that we get technical refresh of people. We tend to think of things in terms of programs of 2-, 3-, 4-year time frames, and the program managers are both technically capable as well as managerially capable. Those are the similarities.

There is a similarity in the law in setting up HSARPA. It referred back to DARPA in a number of ways, one of which was some of the personnel ways. So there is some special category of personnel that we hire.

Chairman CORNYN. Well, I appreciate that explanation. I guess what I was really getting to is this: I serve also on the Armed Services Committee, and I am familiar—actually on the subcommittee

that has oversight over DARPA, so I am familiar somewhat with what they do in terms of research and development, come up with new and creative technical, technological solutions to some of our challenges in the area of our defense requirements.

How much communication and cooperation across Government agencies is there when it comes to some of the technology? We have heard testimony today about the deployment of UAVs, unmanned aerial vehicles, which became a matter of common knowledge as a result of the war in Afghanistan and Iraq and the technology being deployed there. We have talked some about sensors, which, of course, are used commonly in a military context.

Are there any restrictions or limitations or impediments on the transfer of technology and science between Government agencies like the Department of Defense and the Department of Homeland Security? Is that something we ought to be concerned about or ought to look into? Or is it working just the way it should?

Mr. EVANS. As far are I know, there are no limitations. In fact, we rely on DOD, and most of us have come from DOD program management R&D background, and so we tend to rely on DOD as both a source of both ideas and also some technical agents. We use technical agents, and we use, for instance, night vision lab, the Army labs in some of the sensor areas that we are starting to look at. We will look at the Air Force for passive coherent localization. They have done a lot of work there, and I use the Navy lab out in San Diego for container security, and we are using them also in some of the BTSNet efforts.

Also, probably half of my program managers have come from DARPA, so they bring along a head full of great ideas as they walk in.

It is almost as a joke, but when someone comes on board, one of the people when I have a staff meeting, you know, asks two questions: Did you used to work in the Navy? And do you own a dog? And we do not understand the one about the dog, but we understand the one about did you work in the Navy.

Chairman CORNYN. Chief Aguilar, let me ask one last question, and then I will turn it back over to Senator Kyl. I have read some news reports recently that indicate that there is some problem with the cameras that are being used along the border, that they are frequently broken, that we do not have the manpower to monitor the video feed, and other concerns.

Could you give us the straight story on that? Where do we stand? Do you have concerns?

Mr. AGUILAR. I can give you an answer on that by saying that at the current time 90 percent of the cameras that are deployed out there physically are, in fact, in working order. There have been some problems in the past. We looked at—let me begin again, Senator.

The cameras that are actually on site in the ground, approximately 90 percent of them are fully operational as we speak. Now, that was not the case as recently as a year ago, but we have worked very hard to get these up and running.

As you are aware also, probably, the old ISIS legacy INS system is being assimilated into the ASI program that we are very much looking forward to. As a part of the ASI program, that assimilation

will be bringing up to speed those cameras that are on the ground right now to ensure that they will be able to be integrated into that ASI program. So we are now the beneficiaries of money that has allowed us to bring these cameras up to speed at a rate of about 90 percent.

Chairman CORNYN. ASI stands for what?

Mr. AGUILAR. I am sorry, sir. That is the America's Shield Initiative, the America's Shield Initiative that will be basically an all-encompassing means by which to bring electronic monitoring to the border. It is something that we are looking forward to, going through a process right now. It is a comprehensive integration and application of technology as a means of bringing operational control to the border. And what it is going to do is maximize and ensure that detection, intelligence-building capabilities, identification, deterrence, interdiction, investigation of illegal border incursions occurs.

Chairman CORNYN. And when will that be stood up?

Mr. AGUILAR. At the present time, we are going to through the process of actually standing it up. Our next main point, if you will, is what is known as key decision point two, which will occur this May. And then subsequent to that will be an RFP for an integrator. Once the integrator to integrate all of these systems, both off the shelf and developing, will take place, within 30 days of selection of that then the ASI procurement will start taking place.

Third quarter of 2006 is when we anticipate at the present time that this will commence.

Chairman CORNYN. Senator Kyl?

Chairman KYL. Thank you. Let me just continue to follow that ISIS matter. GSA was the agency that reported on the deficiencies in the contract. Am I correct? That was not an Inspector General or some other agency.

Mr. AGUILAR. I believe—and I will have to check on this, Senator, but I believe it was the GSA IG—

Chairman KYL. It was the IG, Okay.

Mr. AGUILAR. Yes, sir.

Chairman KYL. And my understanding is that they found significant irregularities in the contract performance of the supplier that resulted in an inadequate system being deployed that was frequently down in many of its components, and that it has taken some time and effort to get it back up to where it should have been. Is that correct?

Mr. AGUILAR. That is correct, yes.

Chairman KYL. So there may be some repercussions for the contractor that allegedly failed to perform properly, but in terms of the system's capabilities today, it is now as capable as you would expect it to be. Is that correct?

Mr. AGUILAR. Yes. We are constantly trying to upgrade it even from 90 percent, but one of the things that we became beneficiaries of when we melded with CBP is that we also got additional support from the existing technicians that were over in CBP. So we have been able to augment our support capability to that existing system.

Chairman KYL. Okay. Now, what is it that has to be done to "bring them up to speed?" Do you have to develop some commu-

nications links that enable you to transmit the visual images to some other location than the monitoring station? Or what is it?

Mr. AGUILAR. Senator I am afraid I cannot give you a lot of detail, but a lot of it was not the right equipment being placed in the right place, obsolescence in some cases, communications linkage in others. So it was a variety of things that we needed to bring up to speed.

Chairman KYL. Well, what do we need? I presume that because this is such force multiplier that we are anticipating continuing to deploy these cameras in as many locations as we can. What is the plan, basically? Are we continuing to deploy cameras in additional sites to put more cameras in the same site, to build better monitors? What are we doing generally with the video camera? And, by the way, some of these are IR, some are video, optical, daytime. What is the mix and what is the plan on deployment?

Mr. AGUILAR. The mix in each one of these sites, Senator, is such that it will give us day and night-time capabilities 24/7. Of course, our wishes are 365 a year.

Currently we have 246 operational camera sites. In addition to that, for example, in California we are getting ready to go up with another 11 sites, I believe. Arizona was the recipient—and I am going from memory here, and if I am wrong, I will get you the right information—I believe was the recipient of another nine this past year. We have a total of about 18 in the Douglas-Naco area of operation, another 15 in Nogales, and we are getting ready to go into what we know as the west desert area out there also.

Chairman KYL. Now, that first number you gave us, a very large number, are those mobile units? In other words, your first number was a hundred and some? What did you say the numbers were?

Mr. AGUILAR. There are 246 camera sites.

Chairman KYL. Okay, 246 sites?

Mr. AGUILAR. Yes, sir. A pole in the ground that has a combination of cameras that will give us a day-night capability, thermal—

Chairman KYL. Okay, but there were 18 in the Douglas-Naco area?

Mr. AGUILAR. I believe that is correct.

Chairman KYL. And you have another couple dozen in the Nogales area?

Mr. AGUILAR. I believe so. I will have to check on that, but I believe—

Chairman KYL. That is not nearly enough in those areas.

Mr. AGUILAR. We continue to build up on these, Senator. One of the things—

Chairman KYL. Where are the 246? Are they in California and Texas?

Mr. AGUILAR. No, sir. Tucson Sector, for example, has 39, Yuma has 18, Swanton has 6, El Centro Sector has 41, El Paso has 27, 20 in Laredo, 29 in McAllen. I think what is critical here, Senator, is for me to—I failed to explain, but each one of these camera sites, each one of these poles has the capability of looking in either direction about 6 miles.

Chairman KYL. Right, but 18 in Douglas and another 20-some in Nogales is not nearly sufficient there, so you need more cameras in the Tucson Sector.

Mr. AGUILAR. I would agree with that, yes, sir.

Chairman KYL. So that is an area of deficiency that we need to satisfy. What is being done to ask for the money to get the cameras in those areas?

Mr. AGUILAR. That is actually a part of the America's Shield Initiative that we just described a few minutes ago.

Chairman KYL. Is that in the 2006 budget request?

Mr. AGUILAR. I am looking at my staff, $64 million? There is $64 million in the America's Shield Initiative for 2006, yes, sir.

Chairman KYL. Okay. So part of that would be for upgrades and additional cameras?

Mr. AGUILAR. Yes, both.

Chairman KYL. Okay. One of the things that—and this has almost become mythology, but I think it is true. In the early years, a lot more resources were put into Texas, and especially fencing, but additional resources in California, with the result that a degree of control was obtained in both the Texas and California areas, and that immigration began then being funneled into Arizona, first in the Nogales area and then into the Douglas area, and then to some extent now over in the Yuma area, but it is still heaviest in the Douglas area, roughly, part of the Tucson corridor.

Now, first of all, is that observation generally an accurate observation?

Mr. AGUILAR. I am sorry. Is that—

Chairman KYL. What I just told you, everybody always says that. Is that generally true?

Mr. AGUILAR. That is generally true, yes, sir.

Chairman KYL. Okay. Now, what was it that helped us to gain relative control—and that is a term that I appreciate does not mean total control, by any means—in Texas and California but has not permitted us to gain that degree of control in Arizona yet?

Mr. AGUILAR. One of the things that I will point back to, Senator, is what I talked about earlier, going from urban operations to rural. When we dealt with urban operations, infrastructure that was directly south of us, we were able to bring it to quick control. There was a shift over to the rural areas. This dissipated the criminal organizations on a much wider array, if you will. Application was the same—personnel, technology, and tactical infrastructure. The problem here is that when we are dealing with the rural environment, rural dynamic, it is a much broader scope of operations that we go into.

Chairman KYL. So, for example—do you mind if I just continue with this for just a minute?

Chairman CORNYN. No. Please go ahead.

Chairman KYL. For example, between San Diego and Tijuana, first of all—you have got the ocean, which is one border—a lot of fencing was put in, triple fencing. To my knowledge, no one has ever gotten through the triple fencing. There have been crossings through the port and around Otay Mesa, but not actually over the fence itself. So because you had urban areas there and you were able to fence that, and then, of course, put monitors and Border Patrol there as well, the illegal immigration except through the port itself has slowed to a trickle in that particular area. Is that correct?

Mr. AGUILAR. It has fallen dramatically, yes, sir.

Chairman KYL. Whereas, in the Arizona desert, let's say on the Tohono O'odham Reservation or the gunnery range or one of the other Department of Interior jurisdictions along the border, there are no communities, there are no towns, very few roads, and it is some flat terrain, but a lot of mountainous terrain as well. Is that an accurate description?

Mr. AGUILAR. That is correct.

Chairman KYL. Two or three hundred miles there, and that dispersed area is a much more difficult area for the Border Patrol to have the same kind of control that I described in the California, San Diego area. Right?

Mr. AGUILAR. Absolutely, yes.

Chairman KYL. Okay. Now, Texas is a big place, and one thing I have not understood is that certainly Texas is not all San Diego. I know El Paso and Juarez and so on is, but you have got a lot of area of Texas that is ranch land with the river in between. That is not quite as remote and desolate as the Arizona desert, but it certainly is big country, a lot of space. How is relative control obtained there? And why can't that be applied to the Arizona desert?

Mr. AGUILAR. I think two major things come into play, Senator, and one is that most of Texas is privately owned land. We have easy accessibility to the border. We can also work with the independent private landowners to gain accessibility and build the tactical infrastructure, build the roadways, things of this nature.

If my memory serves me correct, the border in Arizona, approximately 92 percent of it is environmentally sensitive, so we have to go through a multi-year process to even plant a pole in the ground, for example, for an RVS camera, to build the tactical infrastructure, to build the roadways and things of this nature.

Second, one of the things—and I know that you and I have spoken about this before, Senator—is the ability—or the inability, I should say, for us to control the means of egress out of the Arizona border by way of checkpoints. If we would look at a map of the Southwest border and pinpoint the checkpoints, we would have them throughout Texas, especially on all the major roadways, 281, 77, 59, 359, 83, all of those major roadways. We do not have that kind of capability in Arizona, and controlling the means of egress out away from our border is essential to bringing control to the immediate border.

Chairman KYL. Okay. I want to follow up on those direct points, but—

Chairman CORNYN. Go ahead.

Chairman KYL. Okay. And what are the key reasons why we don't have those checkpoints in Arizona?

Mr. AGUILAR. One of them, sir, is appropriations language, wording constraints.

Chairman KYL. Which says what?

Mr. AGUILAR. Which says that we cannot build permanent checkpoints anywhere within the Tucson Sector of the United States Border Patrol.

Chairman KYL. So in the Tucson Sector, is that any more? You cannot build any more with appropriation funds, right?

Mr. AGUILAR. We do not have any. We do not have permanent checkpoints.

Chairman KYL. So you are relegated to the use of temporary checkpoints or mobile checkpoints?

Mr. AGUILAR. Yes, sir, mobile checkpoints that we move around. Yes, sir.

Chairman KYL. And ideally, what would the disposition be? Would you have both or one or the other?

Mr. AGUILAR. It would be a combination, but the majority of the time we would have the permanency of the checkpoints in order not only to man them but have the proper equipment to do the job that is required at our checkpoints, to control those means of egress.

Chairman KYL. In contrast, what do you have in Texas?

Mr. AGUILAR. Let me give you an example. Highway 35 coming out of Laredo, one of the biggest ports of entry out there in Texas, Highway 35 has an approximate 19,000 to 21,000 vehicle flow through that. It is similar to our 19 checkpoint in Nogales, Arizona. During that 24-hour period, people going through the checkpoint in Laredo on 35 will have a four-lane checkpoint approach, will have a separate bus approach, the agents will have the use of forklifts, for example, to offload a semitrailer if a canine hits for human or narcotics. We have ability to cut into vehicles if the need is there if the canine hits and we do not see anything obvious. All of these come together.

We also have what we refer to as peripheral infrastructure on either side of the checkpoints, permanent checkpoints. That gives us the ability to basically get an idea as to what is going around us by means of remote video surveillance systems, sensors, fencing, tactical infrastructure, things of that nature.

The 19 checkpoint coming out of Nogales, very similar traffic flow and type of traffic; as you know, a lot of produce semitrailers coming out of there. We do not have the—we have got one lane to check the traffic coming out of there. Now we have two because we are on the main line. We do not have a means to run, in fact, sometimes even IDENT/IAFIS check. We have to take the apprehended people back to the station to do it out there.

Chairman KYL. In other words, in the mobile unit, you don't have any infrastructure associated with that?

Mr. AGUILAR. Exactly.

Chairman KYL. You have got to have battery-powered whatever that runs on electricity. You do not have any holding areas and so on. Right?

Mr. AGUILAR. Exactly. Staging areas, detention centers, things of that nature.

Chairman KYL. Okay. So that is one of the impediments that you have there.

Mr. AGUILAR. Yes.

Chairman KYL. And another impediment is the environmental constraints because of the Federal ownership of the land. Any action that you take out there becomes a major Federal action subject to NEPA review.

Mr. AGUILAR. Yes, sir.

Chairman KYL. An action such as putting in bollards to prevent vehicles from crossing the border, adding fencing, putting in a pole for a camera, et cetera. Is that correct?

Mr. AGUILAR. Yes, sir.

Chairman KYL. What kind of a delay do you end up with? And how much impediment really is all of that?

Mr. AGUILAR. In my own personal experience, Senator, when I was a chief down there in Tucson, I immediately identified a need for a specific type of technology out there. From the point of identifying the need to getting a pole in the ground, for example, for a remote video surveillance system was upwards of 2, 2-1/2 years. We have been working on the Tohono O'odham Nation now for vehicle barriers since about 3 years ago when I was still down there. We have gotten the approvals, but we are now working with the Tohono O'odham Nation. We are working with the Department of the Interior, things of this nature.

On the Buenos Aires Refuge down there, we have established a need to access and get mobility to the immediate border. We have been doing that for at least 2-1/2, 3 years ago, and we have not been able to get the requirements just to blade the existing road and maintain it to get easier accessibility to the border.

Chairman KYL. In other words, there is no road along the border, no regular road.

Mr. AGUILAR. No regular road, no, sir.

Chairman KYL. And so you have had to blade an area where your vehicles can travel along there.

Mr. AGUILAR. That is what we would like to do, yes.

Chairman KYL. But you do not have permission to do it for the entire area there.

Mr. AGUILAR. That is correct.

Chairman KYL. Do you have access to the hilltops or mountaintops for your surveillance equipment, or are you limited there as well?

Mr. AGUILAR. Not on the Tohono O'odham Nation, sir. Every elevated site is considered a sacred site, so we do not have—

Chairman KYL. Do the smugglers or coyotes or others abide by that same determination?

Mr. AGUILAR. No, sir. They have access to them on a daily basis, 24 hours a day.

Chairman KYL. So these are some additional problems for controlling those more areas?

Mr. AGUILAR. Yes, sir.

Chairman KYL. Now, another concern is simply being able to go after the bad guys. I am going to take just 20 seconds, Senator Cornyn. If you look at this from the air, it is just honeycombed with little trails, and as you get closer down to the ground, you see it is also honeycombed with trash, just tons and tons and tons of trash. But here you have got a very fragile desert environment where you run a track across there, and it can be decades before it rejuvenates, the growth, because it is very arid and only certain plants survive there. So you have this honeycomb of trails used by illegal immigrants both for vehicles and individuals and a great deal of trash. So they clearly have access to the entire area here.

Does the Border Patrol have unfettered access as well to all of these areas, to, in effect, if you see a group of smugglers, drug smugglers or illegal immigrants going through the desert, can the

Border Patrol simply go after them, let's say, with an ATV or a four-wheel vehicle?

Mr. AGUILAR. No, sir. We are restricted against going across open territory like that, especially in those areas. Probably one of the most telling examples that I think I have shared with you, Senator, is the area in Ajo that we know as the Sweetwater Pass area. The Sweetwater Pass area, when I was the Chief down there—this was about 3 years ago. We had a beautiful canyon area, and the smugglers were utilizing it to traverse because they knew we could not follow. We worked with the other Federal agencies out there. We determined that we could use—we could not use motorized vehicles. We could not use bicycles because we would rut, even though the smugglers were. So we ended up with horses. We deployed on horses. But the only way that we could deploy on horses is that for a period of 2 weeks we had to give them special feed so that the droppings left by the horses would not bring in nonindigenous plants.

Chairman KYL. Now, please repeat that.

Mr. AGUILAR. We had to feed the horses feed that would ensure that the droppings would not bring nonindigenous plants into the Sweetwater Pass area. And that was the only means that we could deploy in there.

Chairman KYL. Senator Cornyn, I have some more questions along this line, but I think I will defer to you for 5 more minutes.

Chairman CORNYN. Well, this has been fascinating.

Chairman KYL. There is more. These guys have a tough job.

Chairman CORNYN. I know they have a tough job. This has been very informative, and Senator Kyl and I have discussed the geographic and other differences between Texas and Arizona that make the challenges greater, and I have new appreciation, particularly coming across Arizona, of the challenges that you have. And I guess it also confirms the wisdom of people from my State in 1845 when we were annexed to the United States, we reserved the right to maintain that land as non-Federal but State-owned land. And who knew it would turn out to provide us a better means of securing our borders. But it has been very, very informative.

Chief, you talked a little bit about the checkpoints and how that has been helpful. But what I would like to explore with you is what we are doing, to your knowledge, beyond the checkpoints. How far are the checkpoints typically inland? Twenty-five miles or so?

Mr. AGUILAR. It varies. It varies, Senator. Under our statutory authority, we can operate within 100 air miles of any border of the United States. We have checkpoints that are within 4 or 5 miles. The checkpoint in Laredo, for example—we just built a new one—is going to be 32 miles north of the border out there.

One of the critical aspects that you have hit on, sir, is part of our new strategy, and that is a defense in depth of which the checkpoints are absolutely critical to control the means of egress away from the border. But this also means that we will address the transportation hubs that are below and above the checkpoint issues also, to keep those away from the smugglers and utilizing them to impact upon migration into the United States.

As a quick example, if you do not mind, sir, we now deploy Border Patrol agents at Sky Harbor Airport in Phoenix. We have also

deployed agents at Las Vegas Airport and Los Angeles Airport because we have found that when we take away smugglers' ability to cross in certain parts of the border, what they do is they try to get around us and make their way to these transportation hubs. So, again, that defense in depth is absolutely critical. Part of that is also working in conjunction with ICE investigations to ensure that we do everything possible to disrupt and dismantle the smuggling organizations that are trying to continue to get around this on a constant basis.

Chairman CORNYN. Did I understand you correct that you have a statutory limit of 100 miles that you can operate in?

Mr. AGUILAR. For checkpoints.

Chairman CORNYN. Just for checkpoints.

Mr. AGUILAR. Yes, sir. We can operate anywhere in the country.

Chairman CORNYN. Well, let me ask you a little bit about that. My experience has been or my observation has been that when people come across the border and if they are successful in making the break through the border, then they typically will go to safe houses.

Mr. AGUILAR. Yes, sir.

Chairman CORNYN. Where they are instructed to go, and they will gather until someone comes to pick them up and drive them just south of the checkpoint, somewhere south of the checkpoint, let them out, give them water and provisions and they will be instructed to meet up with other transportation north of the checkpoint that will take them somewhere into the interior of the United States. Is that a fairly common pattern, to your knowledge?

Mr. AGUILAR. Yes, it is.

Chairman CORNYN. And so my point really gets to once people get past the border, and particularly past the checkpoint, as effective as they are, the smugglers take that into account in arranging to get people out and around the checkpoints, if possible. Once they get north of the checkpoint, that is, into the interior, what sort of resources are deployed to actually identify, detain, and deport people who come illegally into our country?

Mr. AGUILAR. As far as the Border Patrol goes, Senator, we deploy beyond the checkpoints, if you will, into the interior of the country whenever there is a nexus to border control operations. As an example, Sky Harbor Airport, that is way north of our checkpoints, but we feel it critical to take away that facilitation of the smugglers.

Now, in addition to what the Border Patrol does specific to border nexus operations, ICE has a tremendous responsibility of working the stash houses, working the employed aliens, working the criminal aliens and things of that nature. So we work in conjunction with them, especially in the area of intelligence.

Chairman CORNYN. Is it a fair characterization to say that once the immigrants make it into the country past the checkpoint and are headed north, our chances of identifying them, detaining them, and deporting them drops dramatically?

Mr. AGUILAR. It does drop, yes, sir.

Chairman CORNYN. And that is simply because you are outmanned in part, is it not? We do not have in the interior of our

country sufficient people or resources deployed to be able to do that. Would you agree with that statement?

Mr. AGUILAR. Senator, with all due respect, I think I would leave that answer to my ICE counterparts that would have a better idea of what it is their needs are in the interior of the country. Do they need help? I would agree that they do, yes, sir.

Chairman CORNYN. Well, we had our second hearing in this series that dealt with interior enforcement. I understand your wanting to defer to them, but my impression was that we do a reasonably good job considering the resources that we have committed at the border. But once someone makes it past the border into the interior of the country, we virtually are helpless in terms of our ability to identify, detain, and deport illegal aliens. Thus, some of the programs that have been put in place, a memorandum of understanding, I believe, with the State of Florida, the State of Alabama, and I think one other State. I read somewhere that California was contemplating a similar MOU to provide local law enforcement and State law enforcement with additional training and resources in exchange for their agreement to serve as a force multiplier in terms of interior enforcement. But it should, I guess, come as a surprise to no one that one reason why we have estimates in excess of 10 million people who are in this country living outside of our laws is because once people make it through the border, if they are detained, we do not have adequate means to keep them until their deportation hearing occurs. Once ordered deported, we do not have adequate means to make sure that that actually happens. And once they get past the checkpoint, they can literally just melt into the landscape and become part of that 10 million-plus population.

Dr. Evans, let me ask you, if you had unlimited funds made available to you by the United States Congress, what sorts of things would you do with that money to further enhance our homeland security and particularly our border security that you are not able to do now because of limited funds?

Mr. EVANS. Well, if I had unlimited funds, I outlined some of the technology areas that we would be very interested in, and let me preface this—this is in developing technology, not deploying it. The Chief has by far the bigger problem. If we come up with the magical camera, he is the guy that has to put 800 or however many of them out that are going to do it. But developing the technology, unlimited funds, the areas I talked about which included radars, looking at novel radar systems. The problems that we have radars today are getting them up high enough, getting towers for them. In the Coast Guard, looking at similar things for the Coast Guard, we deployed some radars on the coast, and the radar cost us $90,000; the tower cost us $1 million, plus the environmental issues, et cetera.

So we would look to try to really research and look at some very novel types of radar approaches that had a fairly limited footprint on the ground. That might be things such as distributed multi-static radars we talked about, phased arrays, smaller size multi-static types. So we would push a technology program there, with in mind the fact that you are going to have to go into very different environments, Northern border, mountainous, desert, et cetera. Not one type of system will work for all.

We talked about the UAVs, and so I would develop a combined radar and EO/IR UAV package small enough to put into—light enough and small enough but long enough endurance UAV. That is something that the Border Patrol could afford in significant numbers. There is a lot of technology out there both from—principally from DOD that we can apply to that. DOD, however, uses UAVs but they are pricey. They are a lot pricier than the homeland security area, and one of the reasons for that, they have a very different tactical mission in mind.

And I would go about doing that by looking at a series of sensors, and as I talked about, I would put that on a manned platform first in a test bed, see what works, you know, and along with both the sensors themselves, just as important is the signal processing that goes into that.

I would take a serious look at fiber optic sensors that are buried. There may be long stretches that that could do fairly well. My first look at it, I was very skeptical, but there have been some pieces there that might work in particular areas. That is not only the sensors themselves, the coupling into the ground, how a sensor is actually coupled into the ground, and both the sensing technology but also the signal processing technology to really determine a footstep at a longer and longer distance or determine a vehicle at a longer distance and be able to track it. I think, you know, today we use fairly unsophisticated methods for doing that, sort of see the thing go along. In my former life, we did a lot of very sophisticated signal processing to detect submarines, et cetera. So to look at what signal processing can we get to bear to bring the signal out of the noise.

We would look at novel sensors, at least, you know, things such as acoustic things and other types of seismic sensors. Added to that, start looking at automatic tracking, automatic alertment in the visual sensor area, look at bolometers and new technologies that are occurring in cameras and bolometers, plus coupling that tightly with enhanced and better and better signal and image and automatic scene understanding of the camera itself. It could envision a fairly small set of cameras on a tower, but on a smaller footprint tower than the Chief has today, fairly autonomous. Today people have to watch the cameras, but fairly autonomous that would just alert to something occurring and see how far you could push that in terms of—and then, lastly, I would start looking at more airborne—we talked about the UAV, but look at sensors that are even higher that would allow you to get a wider view and particularly focal plane EO/IR types of sensors. Some of that technology is classified in the national technical means, but there are things we could do there.

That is sort of my list. I will think of something else later.

Chairman CORNYN. I trust you will let us know.

And, Chief, finally from me, if you had unlimited resources, what would you do with them that you cannot do now because of limited resources that you think are important to accomplishing your mission?

Mr. AGUILAR. I think one of the most important things that we would look at doing, Senator, is make sure that we integrate the technology available as a systems package, as a systems package

to be able to integrate with the personnel resources that we have out there; and then, in addition to that, take the tactical infrastructure that we have now and that we want to build out there to ensure that we deploy it in those areas that will impact upon the smuggling organization's capability of operating along our Nation's borders.

Chairman CORNYN. Thank you very much.

Senator Kyl?

Chairman KYL. To follow up on that last point, my understanding is that the use of the UAV, a very expensive piece of equipment, was best achieved when it did not simply fly along the border at a high altitude with people waving at it but, rather, when it was relatively low so they could hear it, and as soon as it flew over, somebody from Border Patrol was right there. In other words, where the smugglers knew that if they heard or saw the UAV, the Border Patrol was in the area, integration of technology and the manpower. But if the Border Patrol was not in the area, they figured, So what? Is that, in fact—I mean, that is what your successor in the Tucson Sector related to me about a month ago. Is that your understanding of one of the utilizations and integrations of the technology?

Mr. AGUILAR. Absolutely, yes, sir. One of the things that we actually took a look at when we flew the UAV out there was removing the muffler system on it in order to make that noise so that they could hear that it was in the area out there.

Chairman KYL. But how much good would it do if they came to appreciate there was not anybody around to stop them or to pick them up, even if the UAV saw them?

Mr. AGUILAR. It would depend on the area, Senator, and I think you have asked a very critical question here, because to create deterrence, the way that we explain it is that we create a high-profile not necessarily a high-visibility presence on that border, to the degree that when a person crosses that border, makes an illegal incursion, he or she recognizes that there is going to be an apprehension, interdiction, or resolution of that illegal incursion, either right at the border, which is preferable, or within a reasonable distance of the border, which in some cases could be 25, 30 miles from the border.

So that is the perception that we try to create. If the UAV flies, the person sees it, he or she keeps on walking because an agent is not around, but they keep being apprehended 20, 25 miles down the road, then we have created that high-profile presence that will bring deterrence to that entire area.

Chairman KYL. Right. I guess it could be anywhere from a mile to 25 miles, but the bottom line is if it flies and nothing ever happens to the people who are seen, then they realize it is just for show.

Mr. AGUILAR. Absolutely. The agents are key on the ground, yes, sir.

Chairman KYL. And both for Dr. Evans and you, I talked about the fact that some of these hilltops were not available, or actually Chief Aguilar talked about the fact that some of the hilltops were not available. With respect to cameras, lights, and radars and other—well, those three items, is it much preferable to have a

higher elevation from which to site the particular piece of technology?

Mr. EVANS. I can answer that. It is about 80 percent of the problem.

Chairman KYL. Is to get elevation.

Mr. EVANS. Right. Topography, you know, ask an infantry officer, topography is it. It really gets very, very—most sensors or any kind of line-of-sight type of system or ground clutter type of system are made ineffectual if you are going to put them down in the middle of a valley. There are some exceptions to that, but by and large, it is, you know, sort of 80 percent of the problem. I think you would agree.

Mr. AGUILAR. Yes, sir.

Mr. EVANS. Go to high ground and you can see.

Chairman KYL. Now, finally, let me just conclude with Chief Aguilar. I had mentioned the fact that your written testimony refers to a lot of very interesting references to various partnerships and agreements with different entities in Mexico that have enabled you to go after the MS-13 group, for example, and other potential terrorist organizations, sharing of intelligence and a whole variety of cooperative agreements with different entities in Mexico. But I said those were fairly targeted kinds of agreements, and my perception was that with respect to the typical kind of illegal immigration that occurs at the border, there is very little cooperation from the Mexican Government, and, in fact, the proof in the pudding that such cooperation would actually bear fruit was the effort by Grupa Beta—at least we have been informed it was Grupa Beta, but it could be other entities as well that informed immigrants that they really should not risk crossing in the area where these Minutemen were because something bad might happen to them. And my understanding is that the immigration dried up to a trickle in that particular area for that reason.

So the question naturally arises: Why wouldn't similar Mexican governmental warnings or admonitions to Mexican citizens or other would-be immigrants not to cross the border have a similar effect and what your experience has been in trying to get the Mexican Government to work on that broader type of illegal immigration?

Mr. AGUILAR. Tough question.

Chairman KYL. And let me preface it by saying you are not the State Department and I appreciate that.

Mr. AGUILAR. First of all, Senator, let me say that I agree with you. The working relationships that exist now and are being built on now are, in fact, as you put it, targeted relationships specific to, frankly, our highest priority—national security, terrorist, terrorist-related, terrorist nexus and things of that nature.

Chairman KYL. And the smuggling operations that are the highest priority target.

Mr. AGUILAR. Yes, sir, the criminal organizations that operate south of the border either by way of intelligence, working relationships and things of this nature. There are several fronts that we are working on. For example, as we speak right now, we are continuing to negotiate with the Government of Mexico on the follow-up interior repatriation program, which is a two-pronged approach. One is border safety to get people out of these very dangerous

areas in Arizona. The other one is take them out of the queue, if you will, from the smuggling organizations.

Beyond that, there is a reluctance. There is a reluctance to engage in blocking, stemming that flow out there.

Chairman KYL. Are you familiar with the Mexican town of Altar?

Mr. AGUILAR. Yes, sir, very familiar with it.

Chairman KYL. Describe it in 20 seconds or less.

Mr. AGUILAR. The little town of Altar is south of the border, south of Lukeville, Arizona, and it is about 60 to 65 miles south. It is a community that is very, very small in nature. It has a floating population of aliens, of intended aliens to come into the United States that has been measured upwards of 20,000, 30,000 as a floating population, staging there in order to make their way into the interior of the United States, along with narcotics smugglers also.

Chairman KYL. And so the sense is that if the Mexican Government, for example, would go to a place like Altar and say, Folks, look, we know you came here from a long ways away, but you should not try to cross the border, and use the authority of the Mexican Government to prevent it, it could, in fact, significantly reduce the flow of illegal immigration coming north, right?

Mr. AGUILAR. I would agree with that statement, yes, sir.

Chairman KYL. Well, I appreciate that is not your—well, there are elements within your jurisdiction in which you have been very successful in pursuing agreements, but as a general proposition, I appreciate that that is not your primary responsibility.

I know I share Senator Cornyn's gratitude for both of you appearing here and taking this much time. There may be some questions of a follow-up nature that we would want to submit to you, and I hope you would be willing to answer those questions. And some of our colleagues who could not be here today might have some questions as well. But I thank you for your testimony. There is so much more we could talk about, and I am already 15 minutes late to another obligation, but I will have the chance to visit with you both personally, I know, and I appreciate very, very much that you were here today.

Thank you.

Chairman CORNYN. Thank you, Senator Kyl, and thanks for cochairing this important hearing.

Dr. Evans and Chief Aguilar, thank you very much for your service to our Nation, and we know you have a challenging job, and it is our job to try to make sure you have the resources you need in order to be successful.

We will leave the record open until 5:00 p.m. next Thursday, May the 5th, for members to submit additional documents into the record or tender questions in writing for the panelists.

And with that, this hearing is adjourned.

[Whereupon, at 5:00 p.m., the Subcommittees were adjourned.]

[Questions and answers and submissions for the record follow.]

QUESTIONS AND ANSWERS

Questions For the Record
Senate Judiciary Committee
Joint Hearing of Judiciary Subcommittee on Immigration and Subcommittee on Terrorism
"Strengthening Border Security Between the Ports of Entry"
April 28, 2005
Chief David Aguilar (CBP) & Dr. Kirk Evans (S&T)

Questions Submitted by Senator Grassley

To: Chief David Aguilar

- I would appreciate a response as to what the Department of Homeland Security is currently doing, or planning to do, to address OTMs- Other Than Mexicans. I asked the Department about the detention of OTMs more than a year ago, and followed up on this issue with Secretary Chertoff shortly after he succeeded Secretary Ridge. This issue is vital to national security with the increase of OTMs illegally crossing our borders. Both OTMs and aliens from special interest countries pose a threat to our security. The governments that represent these individuals must cooperate with the United States in order to effectively preserve security during the removal proceedings of these aliens by U.S. authorities.

Response: U.S. Customs and Border Protection (CBP) shares your concern with regard to the influx of OTMs illegally crossing our Nation's borders. The U.S. Border Patrol makes every effort to determine the identity of every person it encounters. Apprehended undocumented aliens are entered into CBP's Enforcement Case Tracking and Automated Biometric Identification System (ENFORCE/IDENT) as well as the Federal Bureau of Investigation's Integrated Automated Fingerprint Identification System (IAFIS) to identify any previous immigration or criminal history. Additionally, aliens from special interest countries are vetted through CBP's National Targeting Center where their names are run through all available anti-terrorism and law enforcement watch list databases.

Under DHS policy, aliens who are suspected of a terrorism nexus are given high priority for detention. In addition, U.S. Immigration and Customs Enforcement (ICE) recognizes the substantial threat to the security of the United States posed by criminal organizations engaged in human smuggling and trafficking, drug and contraband smuggling, and financial crimes. In recent years, the Government of Mexico (GOM) has dramatically increased their investigation and disruption of smuggling organizations. The United States and Mexico share evidence and information about smuggling organizations in order to pursue investigations and prosecutions on both sides of the border. As part of this relationship, ICE has partnered with the GOM in joint investigations all along our shared border. Through its Attaché Office in Mexico City, ICE also works closely with Mexican law enforcement to disrupt smuggling organizations. This close working relationship has proven to be effective in the identification and prosecution of smugglers in the U.S. and in Mexico.

In addition, the Department works closely with the Department of State on visa policy coordination with Canada and Mexico pursuant to our respective border security plans. Visa policy -- particularly policy controlling which persons require a visa for travel to North America -- is an important tool in addressing the OTM flows.

- To further address the cooperation of foreign countries, the Customs and Border Patrol has worked in conjunction with both Canadian and Mexican authorities on previous targeted task forces to curtail the flow of undocumented aliens across the border. The recent monitoring of

the border by volunteer American citizens was enough to cause the Mexican government to urge their citizens wishing to cross the border without proper documentation to avoid the areas monitored by volunteers. Since these volunteers who monitored our border were able to catch the attention of the Mexican government, has the Department considered utilizing these volunteers as a cost effective resource to increase manpower at the border?

Response: CBP is currently evaluating the effectiveness of volunteer groups but it is important to recognize the dangers of the border area warrant appropriate training and preparation. Further, CBP is considering ideas and concepts for partnership with the local communities as well as other law enforcement agencies in an effort to increase manpower at the border under the direction of the U.S. Border Patrol.

To: Dr. Kirk Evans

- As a director specifically involved in the development of new technology to aid the Department of Homeland Security in securing the border, are there resources currently available through other agencies that the Department could use to minimize the rising cost of lengthy research and development projects?

Response: There are many areas in which the Science and Technology Directorate successfully shares resources and capabilities with other departments, including in chemical / biological countermeasures, radiation and nuclear sensors and high explosive countermeasures. As the Director for Mission Support, I can best speak to those areas that support the operating arms of DHS, and in particular the subject of the hearing, border and transportation security.

For border and transportation security RDT&E there are some very valuable resources in the Departments of Defense, Transportation and Commerce that we are currently using or planning to use. The technology, facilities, and expertise resident in the Department of Defense (DOD) laboratories are invaluable resources upon which we draw to speedily execute programs. For example: the Space and Naval Warfare Systems Center (SPAWAR) has extensive qualifications and laboratory facilities in command, control and communications (C3) which we are using in the BTS Net and Container Security programs. In BTS Net SPAWAR is applying their net-centric warfare expertise to the sensor, communications and network needs of the mobile Border Patrol agents including prototyping field officer digital assistants, sensors and wireless data networking. In Container Security, SPAWAR is applying their background with the Transportation Command along with their systems engineering and communications expertise provide a technical underpinning to our container security device and container security architecture programs. We are in active discussion with the Army's Communications Electronics Research Development & Engineering Center (CERDEC) to take advantage of their extensive expertise (and developed systems) in ground based and airborne sensors to apply to the border detection problem in support of the America's Shield Initiative (ASI). We are in active discussion with the Air Force's Rome Laboratory to take advantage of their expertise and testing capabilities in multi-static radars. Other areas of cooperation with DOD include multi-spectral sensors, determination of intent, intelligence event prediction, and port and harbor security

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sensors. The Department of Transportation's Federal Railroad Administration has an ongoing "smart-train" effort we are planning to capitalize on for tracking of hazardous cargoes in the U.S. We have extensive joint programs with the Technical Support Working Group (TSWG) for the rapid prototyping in areas such as hand-held translation devices, less-lethal weapons, intrusion detection and entry-point screening.

In all cases we use these centers as adjuncts to our primary efforts with private industry, which provides the backbone for ingenuity and development. We use these other government agencies in a technical capacity to accomplish the following:

- Capitalize on already developed technologies or prototypes which they may have sponsored or developed;
- Taking advantage of their in depth subject matter expertise, providing DHS a thorough and unbiased understanding of the state of the art in relevant technical areas;
- Take advantage of their existing facilities;
- Perform systems engineering including capturing requirements and monitoring the design evolution;
- Performing independent test and evaluation; and
- Assisting in the formulation, selection and contracting for industry efforts.

- If so, is there any reluctance to share these resources with the Department of Homeland Security?

Response: None. In fact, many of these organizations have set up groups to investigate and support homeland security needs and technologies. Our experience has been all positive.

- In addition to sharing research and development tools, has the Department encountered any difficulties in accessing other agencies' databases to determine the status of detained aliens at the border?

Response: The Department has the responsibility on determining the immigration? status of detained aliens. Agencies within the Department of Homeland Security have access to immigration databases and can conduct queries to determine the status of detained aliens at the border. The IDENT-IAFIS workstation, designed and developed by DOJ and deployed to all border locations by DHS this year, provides CBP Agents with direct access to criminal history databases in the FBI IAFIS system.

SUBMISSIONS FOR THE RECORD

STATEMENT OF

DAVID AGUILAR
CHIEF
OFFICE OF BORDER PATROL
U.S. CUSTOMS AND BORDER PROTECTION
DEPARTMENT OF HOMELAND SECURITY

BEFORE THE

UNITED STATES SENATE
COMMITTEE ON THE JUDICIARY
SUBCOMMITTEE ON IMMIGRATION, BORDER SECURITY, AND CITIZENSHIP
&
SUBCOMMITTEE ON TERRORISM, TECHNOLOGY, AND HOMELAND SECURITY

REGARDING

BORDER ENFORCEMENT AND TECHNOLOGY BETWEEN THE PORTS OF ENTRY

THURSDAY, APRIL 28, 2005
3:00 PM
ROOM 138, DIRKSEN SENATE OFFICE BUILDING

CHAIRMEN CORNYN AND KYL, RANKING MEMBERS KENNEDY AND FEINSTEIN, AND DISTINGUISHED COMMITTEE MEMBERS, it is my honor to have the opportunity to appear before you today to discuss the successes and challenges of border security and technology between the Ports of Entry, as demonstrated by the operations and law enforcement initiatives of the Office of Border Patrol, a component of U.S. Customs and Border Protection (CBP). My name is David Aguilar, and I am the Chief of Border Patrol. I would like to begin by giving you a brief overview of our agency and mission.

Two years ago, Immigration Inspectors, Agricultural Inspectors, Customs Inspectors, and the U.S. Border Patrol merged to form U.S. Customs and Border Protection (CBP) within the Border and Transportation Security (BTS) Directorate of the Department of Homeland Security (DHS). By unifying all frontline personnel and functions with law enforcement responsibilities at our Nation's borders, we have combined our skills and resources to be far more effective than we could be as separate agencies.

The primary mission of CBP Border Patrol, as CBP's mobile uniformed law enforcement arm, is to detect and prevent terrorists and terrorist weapons, including weapons of mass destruction, from entering the United States between the ports of entry. In doing so, we also continue to perform our traditional duties of interdicting illegal immigrants, drugs, currency, and other contraband. We perform our homeland security mission by patrolling and securing 4,000 miles of international border with Canada, 2,000 miles of international border with Mexico, and roughly 2,000 miles of coastal waters surrounding the Florida Peninsula and Puerto Rico. This is done simultaneously and in conjunction with the Coast Guard and uniformed CBP Officers, who

carry out the same mission at our Nation's ports of entry while facilitating legitimate trade and legal immigration.

Recognizing that we cannot control our borders by merely enforcing at the "line," our strategy incorporates a "defense in depth" component, to include transportation checks away from the physical border. Checkpoints are critical to our patrol efforts, for they deny major routes of egress from the borders to smugglers intent on delivering people, drugs, and other contraband into the interior of the United States. Permanent checkpoints allow CBP Border Patrol to establish an important second layer of defense.

Historically, major CBP Border Patrol initiatives, such as *Operation Hold the Line*, *Operation Gatekeeper*, and *Operation Rio Grande* in our El Paso, San Diego, and McAllen Sectors, respectively, have had great border enforcement impact on illegal migration patterns along the southwest border, proving that with the proper resources, a measure of control is possible. Together, they have laid the foundation for newer strategies and enforcement objectives and an ambitious goal to gain operational control of our Nation's borders, particularly our borders with Mexico and Canada.

These new initiatives will significantly affect illegal migration as we seek to bring the proper balance of personnel, equipment, technology, and infrastructure into areas experiencing the greatest level of cross-border illegal activity along our Nation's borders. An example of one of these initiatives is the Arizona Border Control Initiative, currently in Phase Two. In this effort, we partner with other DHS agencies and other federal, state and local law enforcement

agencies and the Government of Mexico, bringing together resources and fused intelligence into a geographical area that has been heavily impacted by illicit smuggling activity. Our efforts include building on partnerships with the Government of Mexico to create a safer and more secure border through the Border Safety Initiative and Repatriation programs. In doing so, we continue to make a significant positive effect towards fighting terrorism, illegal migration, and crime in that border area.

Because of the complexity and the enormity of our law enforcement challenge, efforts have been initiated and are constantly being improved upon to build a better relationship with law enforcement agencies across the southwest and northern borders of the United States. Building on our relationship with these agencies, CBP Border Patrol administered Operation Stonegarden from October 25, 2004, through January 21, 2005. Operation Stonegarden effectively used the resources of 214 state, local, and tribal law enforcement agencies to enhance border security through the disbursement of overtime funding. The end result of Operation Stonegarden was more security along our Nation's borders coupled with an overall refinement of working relationships between CBP and local law enforcement agencies.

Along the northern border, we participate in Integrated Border Enforcement Teams (IBET) with Canada, sharing intelligence and law enforcement capabilities in a combined and integrated atmosphere expanding our ability to identify, investigate, and interdict all threats at and beyond our shared borders. Aiding this integrated effort is the presence of a CBP Border Patrol attaché assigned to the Royal Canadian Mounted Police (RCMP) Headquarters in Ottawa, Canada, as well as CBP participation in northern border conferences, shared border accords, and

cross-border crime forums. Additionally, some of the IBET resources are collocated with the RCMP, U.S. Immigration and Customs Enforcement, and other law enforcement agencies. We now have agents assigned to certain Federal Bureau of Investigation Joint Terrorism Task Forces, which is vital to the sharing of terrorism information between the FBI and DHS.

At the southwest border with Mexico, the establishment of Border Patrol Mexican Liaison Units (MLUs) works to achieve the same goals. The program has already had much success in issues requiring the sharing of unclassified information, as well as cooperative enforcement efforts and border safety initiatives, to name a few. Even though we have improved upon these relationships, we continually seek to improve collaboration with the Government of Mexico to increase interdiction and deterrence of special interest aliens along the southwest border. The Government of Mexico has shared information regarding arrests of transnational threats, to include suspected members of Mara Salvatrucha, also known as MS-13, and special interest aliens traveling through Mexico with the intention of entering the United States illegally. Just recently, the capture and arrest in Arizona of 59 Mexican nationals in a local hotel led to the identification of two of six escaped convicts from a Nogales, Sonora, Mexico, jail after Mexican authorities placed a lookout on the subjects, who were considered armed and dangerous.

On our northern border, this concept has had the advantage of participating agencies and counterparts with similar, well-established missions and operations, as well as a history of funding and professional training. Although much has been accomplished with Mexican law enforcement agencies, there continues to be a need for improved training, funding, and resource allocation for our Mexican counterparts. A better working relationship has been established as

MLUs, consisting of CBP Border Patrol Agents and Mexican law enforcement personnel, regularly discuss and share information, training, and equipment for the benefit of the greater law enforcement community on both sides of the border. In the spirit of partnership, the United States Government has negotiated several agreements with Mexico. These include the US-Mexico Border Partnership 22-point Plan, signed March 2002 by former Secretary of State Powell and Mexican Secretary of Government Creel. Other examples include the 2004 Border Action Plan and the US-Mexico Repatriation MOU signed in February 2004. The Border Patrol has significant involvement in the interior repatriation commitments in these agreements. The Security and Prosperity Partnership announced by President Bush, President Fox, and Prime Minister Martin on March 23rd, will further advance and complement these security initiatives.

As the Chief of CBP Border Patrol and former Chief Patrol Agent of the Tucson Sector, I offer a firsthand perspective of our collaborative efforts with the Government of Mexico through our MLUs. The MLUs have established an unprecedented working relationship with the Government of Mexico's National Security and Investigation Center (Centro de Investigación Y Seguridad Nacional-CISEN) as well as other Federal, state, and local agencies within the Government of Mexico. The MLU in the McAllen Sector coordinated the attendance of Mexico's Attorney General attaché and members of Mexico's CISEN at a binational seminar focusing on terrorism along the border and the violence perpetrated by the MS-13 gang. The objective of the seminar was to identify members of MS-13 and to raise the awareness of the local authorities regarding this violent street gang.

Today, violent criminal enterprises and terrorist organizations continue to pose a transnational threat to the national security of both the United States and Mexico. These transnational threats exploit the lack of sustained binational law enforcement collaboration on both the U.S. border with Mexico as well as Mexico's border with Guatemala. These threats, if left unchecked, will likely overwhelm limited law enforcement resources available to address border security issues. This can be seen in today's headlines with regard to gang activity related to MS-13, as well as other cross-border-related crimes. Progress is continually being made on these issues through meetings between Commissioner Bonner, myself, and our Mexican counterparts to discuss methods essential in the mitigation of border security threats and expansion of border safety.

Recently, the Government of Honduras shared information regarding one of its most wanted and sought-after criminals, a leader of MS-13, who had escaped Honduran authorities after being arrested in connection with a brutal bus massacre. As a result, the suspect was apprehended and the U.S. Attorney's Office accepted the case for illegally reentering the United States, while law enforcement and the intelligence community confirmed his identity in Honduras. This example demonstrates that information sharing at this level is necessary and vital to ensure that transnational threats are identified and targeted.

CBP is currently developing "pushing the borders out" initiatives with Mexico. A concept of operations for a binational Interdiction Task Force committee, consisting of U.S. Government and Government of Mexico law enforcement and intelligence committee representatives, has been developed. This effort will provide expanded liaison and intelligence-

sharing opportunities to enhance interdiction and deterrence and to disrupt operations in both countries, targeting transnational threats that threaten the national security of both nations.

This binational committee will receive, analyze, and distribute information and other law enforcement intelligence to all border protection assets for the collaborative targeting of known smugglers and traffickers for the purpose of immediate arrest, prosecution, and seizure of assets. Additionally, it will provide binational prosecutorial and procedural guidelines. These efforts will expedite the transition from interdiction to investigations. Through this Interdiction Task Force committee, other law enforcement agencies will be able to participate and support the homeland security mission, targeting criminal enterprises involved in cross-border incursions.

The America's Shield Initiative, formerly known as the Integrated Surveillance Intelligence System (ISIS), is an effort to develop a comprehensive and unified system of electronic surveillance of our entire land borders. ASI is a critical part of CBP's strategy to build smarter borders. This is critical to the Border Patrol's ability to increase apprehension capabilities and thereby establish greater control of our borders. Nationwide integrated ASI capabilities will provide the Border Patrol with a tactical, command and control, situational awareness and intelligence collection and management system. In FY 2006, we intend to broaden our ASI coverage of the northern and southern borders by deploying the system where no coverage currently exists. In addition, with the advent of ASI, system capabilities will be improved to enhance the sensor and video surveillance capabilities of currently installed components, integrate new, state of the market surveillance technologies and increase interoperability with other law enforcement agencies.

ASI acts as an important force-multiplier that allows Border Patrol agents to remotely monitor the border and respond to specific illegal border crossings. By contrast, Border Patrol operations without ASI support are more resource-intensive and less safe for agents in the field. Expanding the portion of the border covered by electronic surveillance, integration of new components and technologies, and improved Agent support equipment via the ASI program will provide the Border Patrol with the increased ability to meet CBP's priority mission threats.

In order to make sure that information from DHS' Automated Biometric Identification System (IDENT) and the FBI's Integrated Automated Fingerprint Identification System (IAFIS) is available to Border Patrol agents in the field, DHS deployed fully integrated IDENT/IAFIS terminals to all Border Patrol sectors and offices. The integrated workstations capture biometric and biographical information through the use of a "10-print" finger scan machine. The officer needs to capture an individual's "10-prints" only once to reap the benefits of running checks in both IDENT and IAFIS. From the single capture of fingerprints, "2-prints" are used to check IDENT for immigration violators and other criminals; the full "10-prints" are sent to IAFIS to check approximately 48 million criminal history records. The goals of the system are to identify repeat offenders and identify criminal aliens so that they may be detained. From October 1, 2003 through December 19, 2004, IDENT/IAFIS technology assisted Border Patrol agents in the arrest of 236 homicide suspects, 110 kidnapping suspects, 404 sexual assault suspects, 669 robbery suspects, 3827 suspects for assault, and 7950 suspects involved with illegal drugs.

Aviation is one of the most effective force multipliers used in securing our nation's borders. Aircraft perform a multitude of missions in this environment, including border surveillance, operational patrol, personnel deployment to permit rapid response to intrusions, and medical evacuation. In FY 2004, CBP Border Patrol Aircraft flew almost 46,000 hours, apprehending 96,341 persons and assisted in seizing $103.6 million in illegal narcotics. This equates to 2.1 arrests and $2,259 in seized contraband for each flight hour.

Border Patrol began Unmanned Aerial Vehicle operations in June 2004. We have evaluated the lessons learned from the Hermes and Hunter UAV operations and are focusing on acquiring a UAV that meets specific CBP operational mission requirements. On March 25, 2005, CBP deployed a Cessna 206 and two Piper PA-42 Cheyenne airplanes to cover the gaps in UAV operations. These assets do not have the same endurance as a UAV but they are equipped with electro-optical and infrared sensors similar to those that the UAVs were using during the feasibility study. These air assets provide a like capability when deployed collectively and provide a force multiplier to our agents in Arizona that improves their effectiveness.

Nationally, CBP Border Patrol is tasked with a very complex, sensitive, and difficult job, which historically has presented immense challenges. Challenges we face every day with vigilance, dedication to service, and integrity as we work to strengthen national security and protect America and its citizens. I would like to thank both Chairmen, and both Subcommittees, for the opportunity to present this testimony today and for your support of CBP and DHS. I would be pleased to respond to any questions that you might have at this time.

Statement of

Kathleen Campbell Walker

on behalf of the

American Immigration Lawyers Association

on

Strengthening Border Security between the Ports of Entry: The Use of Technology to Protect the Borders

Before the

Immigration, Border Security and Citizenship Subcommittee and the Terrorism, Technology and Homeland Security Subcommittee of the

Senate Judiciary Committee

April 28, 2005

Washington, D.C.

Senator Kyl, Senator Cornyn and distinguished Members of the Subcommittees, thank you for the opportunity to submit this testimony, I am Kathleen Campbell Walker, and I currently serve as the National Second Vice President of the American Immigration Lawyers Association (AILA).

AILA is the immigration bar association of more than 8,800 members who practice immigration law. Founded in 1946, the association is a nonpartisan, nonprofit organization and is an affiliated organization of the American Bar Association (ABA). AILA members represent tens of thousands of: U.S. families who have applied for permanent residence for their spouses, children, and other close relatives to lawfully enter and reside in the United States; U.S. businesses, universities, colleges, and industries that sponsor highly skilled foreign professionals seeking to enter the United States on a temporary basis or, having proved the unavailability of U.S. workers when required, on a permanent basis; healthcare workers; asylum seekers, often on a pro bono basis; as well as athletes, entertainers, exchange visitors, artists, and foreign students. AILA members have assisted in contributing ideas for increased port of entry inspection efficiencies, database integration, and technology oversight, and continue to work through their national liaison activities with federal agencies engaged in the administration and enforcement of our immigration laws to identify ways to improve adjudicative processes and procedures.

I am honored to have the opportunity to submit my comments on such a pivotal issue as border security and technology. Being from El Paso, this issue has long interested me, and I have had many opportunities to focus on border-related issues, including the important issue of how technology can help enhance security at our borders. I previously served for four years as the President of the El Paso Foreign Trade Association, which was incorporated in 1985. I also was a member of the Texas Comptroller's Border Advisory Council, a member of the board of the Border Trade Alliance, and a member of the executive committee of the Texas Border Infrastructure Coalition for the city of El Paso. Through these positions I both participated in and observed border infrastructure improvements designed to enhance our security, given that El Paso was the epicenter of many of these initiatives. El Paso received the first dedicated commuter lane in the State of Texas using Secure Electronic Network for Travelers Rapid Inspection ("SENTRI") through a partnership with the El Paso Chamber Foundation for infrastructure funding; the first commercial Fast and Secure Trade ("FAST") lane for commercial traffic; the first pilot land border use of the Pulsed Fast Neutron Analysis ("PFNA") technology, which allows for the detection of specific materials by exposing their constituent chemical elements to short bursts of neutrons; and the development of software to automatically populate the I-94 arrival/departure record with information from a swipe of the applicant's machine readable passport or laser visa.

Those of us from the El Paso area experience firsthand the consequences of both the successful and failed use of technology at our border. We need to learn from these successes and failures about how technology can contribute to our border security goals along our 4,000 mile northern border with Canada and our 2,000 mile southern border with Mexico. It is imperative that we adopt a "no tolerance" policy with regard to both technology that does not enhance security and technological failures that are the product of inadequate funding and oversight by Congress and/or the agency charged with implementation. While technology can enhance our security, it offers no magic solutions because even the most promising technologies can be failures because of factors that include:

- Inadequate on-site pilot testing to determine the technology's true capacity.
- Failure to perform either cost-benefit analyses before implementation or appropriate follow-up on performance.

- Inadequate integration of information learned though field testing in strategizing implementation methodologies.
- Flawed bidding process which sabotages the technology. For instance, the agency contracts with the lowest bidders for various parts of a project without determining the impact of such parsing upon the integration of the components to provide optimal results. Thus, the project is doomed to failure based on technological incompatibilities.
- Failure to adhere to implementation schedules due to inadequate funding and staffing.
- Inability to perform necessary maintenance due to inadequate funding or unavailability of maintenance components.
- Failure to analyze and address cross-over agency issues in implementation.
- Failure to provide adequate initial and on-going training.
- Failure to admit mistakes and learn from them.
- Mandating that a percentage of technology be used for inspections without considering effectiveness. For example, inspectors must use x-rays on 40% of the FAST lane users even though there are no specific indicators of a problem with these more secure crossers. Instead, it would seem more appropriate to allow the Port Director to assess the most effective use of the technology and then provide oversight on this decision.
- Failure to preserve biometric data for future use and review.
- Failure to fully integrate watchlist databases to improve effectiveness.

We Need an "Enforcement-Plus" Approach to Immigration Reform

Another important lesson I have learned is that enforcement initiatives alone cannot enhance our nation's security. We also need comprehensive immigration reform. Such reform would help ensure that our laws and policies reflect current realities. We cannot expect that continuing to enforce dysfunctional laws will lead to anything other than more dysfunction. Such an end result is simply unacceptable in a post 9-11 world. Our current immigration policies make us less safe, not safer.

Examples of Technology at our Borders and Ports of Entry

Our land borders have been the focus of much technological experiments in recent years. The following section lists a few:

Aerial drones – Customs and Border Protection ("CBP") pulled its Unmanned Aerial Vehicles ("UAV") from the Arizona border earlier this year. Two UAVs, RQ-5 Hunters made by Northrop Grumman Corp., cost $1 million each and helped apprehend 287 illegal border crossers and seize 1,889 pounds of marijuana from October 1, 2004 to January 23, 2005. The two Hunter UAVs succeeded two Israeli-made Hermes 450s that cost about $2 million each, and helped interdict 965 illegal border crossers and about 850 pounds of marijuana.

According to T.J. Bonner, President of the National Border Patrol Council, these UAVs crashed 100 times more often than the piloted aircraft, and were not as efficient or economical as piloted aircraft and/or mobile agents on the ground. For example, during the time frame in which the Hunter UAVs were used, CBP Black Hawk helicopters helped to seize more than 148,000 pounds of marijuana and apprehended more than 100,000 people.

Cameras – As reported by the *Washington Post* in April 2005, federal investigators conducted a review of two companies, Chugach Development Corporation and International Microwave Corporation (which was purchased by L-3 Communications Holdings, Inc.). These companies

were awarded contracts to install sensors and cameras to detect the movement of people along the borders 24/7. The system they were to install is the Integrated Surveillance Intelligence System ("ISIS"). Apparently, the cameras became faulty operationally when exposed to temperatures of more than 70 degrees, an obviously low temperature on the southern border. In the El Paso district, a GSA report indicated that 13 of 30 service or product orders were awarded to International Microwave without going through the competitive bid process for such technology. Border Patrol employees advised the GSA that repairs on the cameras had not been done in over a year. Federal inspectors visited three Arizona sites last year, Nogales, Naco and Tucson, and found that none of the remote surveillance systems were fully operational.

Sensors – Another system being considered is fiber optic sensors. These sensors are not as intrusive as fences, in terms of damage to habitat and wildlife. The government is also testing ground-based radar to detect intruders crossing the border. CBP requested $53.1 million in the FY 2006 budget for America's Shield Initiative, which would fund more surveillance equipment at the border. The ground radar system uses Frequency Modulated Continuous Wave ("FMCW") technology to detect people within a 3-mile range and a vehicle up to 10 miles away. The technology allows sweeps of 360 degrees and relays information to cameras, which can zoom in on the area. This option is certainly an improvement over sensors, which do not allow verification of the reason for the sensor signal.

"Force-multipliers" such as cameras and sensors may be useful in detecting intrusions, but they are incapable of interdicting or capturing violators, or tracking persons or objects on the move, except for UAVs. The use of these sensors should help, though, in the antiquated, but required, "cutting of sign" process that is the Border Patrol's determination of an illegal crossing accomplished by dragging the sand and checking for signs of people crossing in the dirt. However, practical limitations may still force the use of such tried and true methods.

The argument can still be forcefully made and supported that there is no substitute for trained Border Patrol officers. However, such officers offer only a small part of the solution, which will be further described in this testimony. Obviously, the idea of "prevention through deterrence" via efforts such as Operation Hold the Line have been unsuccessful in reducing the flow of undocumented immigration to the U.S., even with ten years of fairly consistent and large increases in the budget for the Immigration and Naturalization Service (now CBP) and a parallel increase in the number of Border Patrol agents stationed at the border. [1]

Fences – Building a fence along the entire southwest border would cost roughly $9 billion (about $2.5 billion more than the total budget of CBP for FY2005).[2] After the existing triple-fencing was constructed in San Diego, apprehensions did decrease from 450,152 in FY 1994 to 100,000 in FY 2002, but apprehensions in the Tucson sector went up by over 300 percent.[3] Another obvious concern is that fences are often circumvented with tunnels. Fences also result in greater numbers of border deaths due to the desolate areas remaining to crossers, and an increase in the power and influence of smugglers. In addition, reliance on such visual lines in the sand does not take into account those who remain in the U.S. illegally after legal entry

[1] Ackleson, Ph.D., Jason, "Fencing in Failure: Effective Border Control is Not Achieved by Building More Fences," Immigration Policy Center Brief, American Immigration Law Foundation, April 2005.
[2] Id.
[3] Id.

Because of the inter-relationships between our borders and ports-of-entry, it is important to also review the technological changes designed to enhance our security that have taken place at our ports-of-entry. They include:

License Plate Readers – Several years ago, license plate readers were installed in our northbound passenger vehicle lanes to read plates of cars entering the U.S. These readers were designed to reduce primary inspection times by ending the need to manually input plate numbers. Unfortunately, the technology had problems due to the different Mexican plate permutations and could only read about 50% of the plates. While this capacity has improved over time, usage of the system can still be problematic.

Bollards – At one point in time, pneumatic bollards were installed in certain lanes to try to end port runners' escape attempts. Unfortunately, functional problems, including their accidental deployment that destroyed the engine and/undercarriage of cars, led to this technology being terminated in the El Paso area.

Document Scanners – Section 303 of the Enhanced Border Security Act of 2002 (Pub. L. No. 107-713) requires that, as of October 26, 2004, all United States visas and other travel and entry documents issued to aliens, and passports with biometric identifiers issued to Visa Waiver Program country applicants for admission, must be used to verify identity at all ports of entry via biometric comparison and authentication. This deadline was extended for one year by Pub. L. No. 108-299. (Note that this requirement is separate from the recording of admission under US VISIT procedures.) Thus, along the U.S./Mexican border, even Mexican laser visa holders exempted under US VISIT procedures (e.g. crossers within 25 mile area of border/75 miles in Arizona for 30 days or less), as well as holders of currently valid I-94s, will require scanning for admission. This requirement would apply to pedestrians, and persons both in passenger, as well as commercial vehicles. At El Paso ports alone, inspections can exceed 100,000 people per day.

In April and May 2004, scanners were installed at El Paso ports in preparation for the October 2004 deadline. Mexican laser visas and legal permanent resident cards were scanned using the Biometric Verification System ("BVS"), which involved the scan of a print to confirm identity as well as a scan of the identity document. The system did not record the entry date. In addition, the system did not scan the person against watchlists upon intake of the biometric data without further database manipulation by the inspector. The scanned card would often get stuck in the BVS readers. In addition, the no-read rate for the scanners exceeded 40% at certain ports of entry. Such failures were tied to "wallet-crud" on the cards, damaged cards, and sweaty or dry fingers. However, neither Congress nor CBP appears to have focused on this failure, which will potentially severely impact land border crossings in October 2005, nor have they determined the necessary next steps. Given the problems with this technology, one such step should include applying US-VISIT's current exemptions until the technology functions at satisfactory levels.

Pulsed Fast Neutron Analysis ("PFNA") – PFNA technology is designed to directly and automatically detect and measure the presence of specific materials by exposing them to short bursts of pulsed neutrons which causes the emission of gamma rays. The system, which has cost over $10 million in El Paso, allows the CBP inspector to review more than just a density change as provided by X-ray analysis of a commercial or passenger vehicle. Rather, PFNA allows the inspector to know the actual molecular construction of all materials in the container, and hence be able to ascertain, for example, that cocaine is in the trailer or car.

Besides the system's high cost, PFNA can only scan for one particular molecular composition per scan and the vehicle or tractor must be driven through the system for each different type of scan.

In addition, the scan cannot penetrate through the entire vehicle or container, so in some circumstances, scans are necessary for both sides of the conveyance. Thus, it could take more than 15 minutes to fully review the vehicle/tractor/trailer given that three or more scans may be necessary. The first scan is typically conducted to detect the presence of humans. In addition, the current mandate of a 40% review of all FAST/C-TPAT ("Customs-Trade Partnership against Terrorism") traffic through this system focuses sophisticated and time consuming reviews on the lowest security risk traffic, which is not the most efficient use of such resources. Testing of PFNA on actual commercial traffic in El Paso is set to begin on May 2.

X-Rays – The ports have used a variety of X-ray imaging systems to conduct non-intrusive inspections of commercial cargo. The current state of the art system is the Eagle cargo inspection system which moves under its own power from one location to another and rapidly reviews trucks and cargo containers, even when loaded with dense cargo. This system can penetrate 12 inches of steel to scan the contents of a container. Other x-ray options are the Vehicle and Cargo Inspection System ("VACIS"), which employs gamma rays to produce "x-ray" type density images. The Mobile Truck X-ray ("MXTR") uses similar x-ray technology, but it is housed in a cabinet on a truck chassis, and operates by slowly driving past a parked vehicle with a detector boom extended over the targeted vehicle. Obviously, such options are not used regarding the detection of people between the ports.

RPMs – Radiation portal monitors are ground mounted devices to be used at ports to detect various types of radiation emissions from such items as nuclear devices, dirty bombs, special nuclear materials, and isotopes used in medicine and industry. To date, deployment of these monitors is still in the evaluation stages. Such radiation review can also be done via hand-held and belt-mounted monitors called personal radiation detectors ("PRD").

IDENT/IAFIS Integration – In FY 1999, Congress mandated the integration of the IDENT legacy INS database with the FBI's IAFIS database.[4] In FY 2004, the Department of Homeland Security ("DHS") was required to continue this project, but was not given any funding.[5] And in FY 2005, DHS was tasked to lead the development of IDENT/IAFIS integration. At this time, CBP officials have indicated that integrated workstations allowing field agents to take a single set of prints and simultaneously query both IDENT and IAFIS should be completed in 2005. Due to the delays in this integration, systems such as US-VISIT still fail to fully query IAFIS at time of enrollment and watchlist checks upon admission at ports of entry.[6] There is a major difference between technology used to scan two databases at the same time versus true database integration. Under US-VISIT, biometric queries through IDENT result in a modified query of targeted information, including FBI hot files on known and suspected terrorists, wanted persons, and sexual offenders.

The Human Element

All of the sensors, cameras, drones and other technologies noted above may serve an important notification function in enhancing the security at our borders. However, the men and women of the Border Patrol have the critical responsibility of actually interdicting those crossing into the

[4] *See,* "IDENT/IAFIS: The Batres Case and the Status of the Integration Project," U.S.DOJ, Office of the Inspector General, March 2004, for a thorough discussion on the IDENT/IAFIS project.
[5] "Major Management Challenges Facing the Department of Homeland Security," Department of Homeland Security, Office of Inspector General, Office of Audits, OIG-05-06, December 2004 p.13.
[6] "Biometric Identifiers and Border Security: 9/11 Commission Recommendations and Related Issues," Congressional *Research Service,* February 7, 2005.

U.S. illegally between our ports of entry. The officers of CBP bear this responsibility at our ports. In a January 26, 2004 statement before the National Commission on Terrorist Attacks upon the United States, CBP Commissioner Robert C. Bonner reminded us of the importance of well-trained inspectors to border security. He described the actions of Immigration Inspector, Jose Menendez Perez, who refused entry to a Saudi Arabian national on August 4, 2001, who appeared to be a potential terrorist, by asking the right questions and connecting the dots. Mr. Bonner also mentioned the actions of Customs Inspector, Diana Dean, in December of 1999, who stopped millennium bomber, Ahmed Ressan, at Port Angeles, Washington by being alert to potential threats and by asking well thought out questions. This capacity and the ongoing training to hone such skills are critical to the success of border security. However, they must be combined with an evaluation of our labor needs that result from our economic synergies with other nations, which supports rational changes to our immigration laws.

Enforcement Plus: The Need for Immigration Reform

As noted in the Immigration Policy Center ("IPC") study on the impact of border fencing, Professor Jason Ackleson of New Mexico State University notes, "Viewing border security as a solely national security matter tends to neglect the larger economic and social forces that underpin the flow of Mexicans and others into the United States to fill gaps in the U.S. labor force."[7] As to the decisions that must be made to use effective technology as a complement to the human factor, the statement of Nancy Kingsbury, the Managing Director of Applied Research and Methods for the then Government Accounting Office is instructive. Ms. Kingsbury states that three key considerations need to be addressed before a decision is made to design, develop, and implement biometrics into a border control system:

1. *Decisions must be made on how the technology will be used.*
2. *A detailed cost-benefit analysis must be conducted to determine that the benefits gained from a system outweigh the costs.*
3. *A trade-off analysis must be conducted between the increased security, which the use of biometrics would provide, and the effect on areas such as privacy and the economy.* [8]

Similar analyses are important in any technology "force-multiplier." In addition, it is absolutely critical to obtain input from local communities and reviews from the field in order to have a realistic assessment of the potential benefits, costs, and problems generated by implementing technologies.

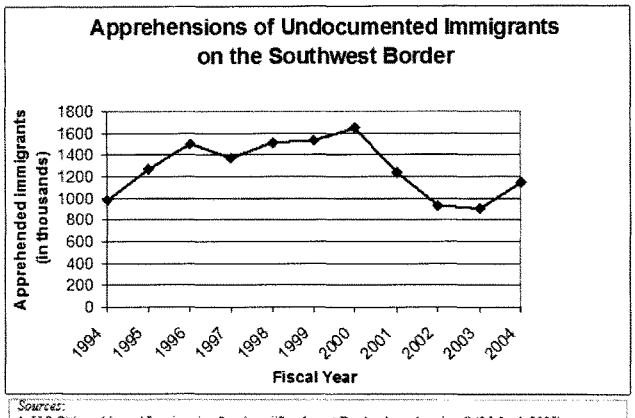
Fencing In or Fencing Out

The three charts below, reproduced from an Immigration Policy Brief of the American Immigration Law Foundation (AILF),[9] demonstrate the failure of our current Southwest border control strategy. The flow of undocumented immigrants has occurred "despite ten years of fairly consistent and large increases in the budget authority for the Immigration and Naturalization

[7] Ackleson, Ph.D., Jason, "Fencing in Failure: Effective Border Control is Not Achieved by Building More Fences," Immigration Policy Center Brief, American Immigration Law Foundation, p. 6 April 2005.
[8] Kingsbury, Nancy, Testimony before the Subcommittee on Terrorism, Technology, and Homeland Security and Subcommittee on Border Security, Immigration, and Citizenship, Committee on the Judiciary, United States Senate, March 12, 2003 GAO 03-546T, at 13.
[9] Ackleson, Ph.D., Jason, "Fencing in Failure: Effective Border Control is Not Achieved by Building More Fences," Immigration Policy Center Brief, American Immigration Law Foundation, p. 4-5 April 2005.

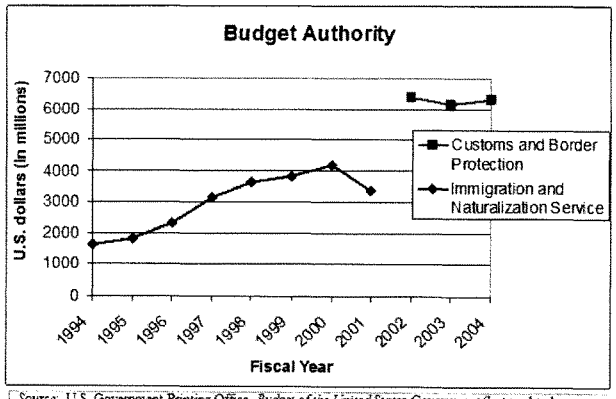
Services (now CBP) and a parallel surge in the number of Border Patrol agents" stationed on the border.[10]

Chart 1



Sources:
1. U.S Citizenship and Immigration Services, "Southwest Border Apprehensions" (9 March 2005). Available at [http://uscis.gov/graphics/shared/aboutus/statistics/msrfeb05/SWBORD.HTM].
2. U.S. Department of Homeland Security, Office of Immigration Statistics, *2003 Yearbook of Immigration Statistics* (September 2004). Available at [http://uscis.gov/graphics/shared/statistics/yearbook/2003/2003Yearbook.pdf].
3. U.S. Department of Justice, Immigration and Naturalization Service, *1999 Statistical Yearbook of the Immigration and Naturalization Service* (March 2002). Available at [http://uscis.gov/graphics/shared/statistics/yearbook/1999/FY99Yearbook.pdf].

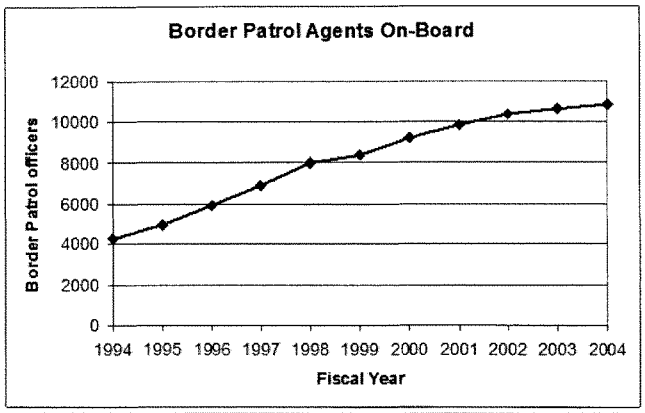
Chart 2



Source: U.S. Government Printing Office, *Budget of the United States Government* (last updated: February 3, 2005). Available at [http://www.gpoaccess.gov/usbudget/browse.html].

[10] Id. at 4.

Chart 3



Sources:
1. U.S. Department of Justice, Immigration and Naturalization Service, "Border Patrol FY 2000 Recruiting and Hiring Report" (July 2000), p.2. Available at [http://uscis.gov/graphics/publicaffairs/factsheets/recruit.pdf].
2. U.S. Department of Justice, "Status of Achieving Key Outcomes and Addressing Major Management Challenges" (June 2001), p.18. Available at [http://www.gao.gov/new.items/d01729.pdf].
3. U.S. Department of Homeland Security, U.S. Customs and Border Protection, *Performance and Annual Report Fiscal Year 2004*, p.16. Available at [http://www.cbp.gov/linkhandler/cgov/toolbox/publications/admin/cbp_annual.ctt/cbp_annual.pdf].

According to the U.S. General Accounting Office, the "prevention through deterrence" strategy of Operation Blockade/Hold the Line in El Paso in 1993; Operation Gatekeeper in San Diego in 1994 and El Centro in 1998; Operation Safeguard in Nogales in 1995; and Operation Rio Grande in McAllen and Laredo in 1997, have simply moved migrant traffic from one place to the other.[11]

What else has resulted from "prevention through deterrence?" This failed strategy has led to the deaths of more immigrants in the desert, as the most dangerous areas for crossing become the most available avenues. The Mexican Ministry of Foreign Relations estimates that 2,445 people died from 1997 to 2003.[12] In addition, from FY 1997 to FY 1999, the number of undocumented immigrants apprehended by the Border Patrol who used smugglers in their attempt to enter the U.S. increased by 80 percent. As noted by Walter Ewing in his Immigration Policy Center paper, *From Denial to Acceptance: Effectively Regulating Immigration to the United States*, "The smuggling of people from Mexico to the United States is now a $300 million a year business, second in profitability only to drug trafficking, and involves anywhere from 100 to 300 smuggling rings."[13] The higher costs and risks of illegal border crossings have not stopped immigrants from coming to the U.S. These elevated costs and risks, however, have caused

[11] U.S. General Accounting Office (now the Government Accountability Office as of July 7, 2004), *INS' Southwest Border Strategy: Resource and Impact Issues Remain After Seven Years.* GAO-01-842, August 2001.
[12] Ewing PhD , Walter A., "From Denial to Acceptance: Effectively Regulating Immigration to the United States," Immigration Policy Center paper, American Immigration Law Foundation, Vol.3, Issue 5, p. 6 November 2004.
[13] Id. at 6.

immigrants to stop trying to go back home after arriving here.[14] This fact is reflective of the failure of our current migration policy and laws to address the dependence of the United States on transnational commerce and immigrant labor.[15]

According to the U.S. Department of Commerce, from 1985 to 2003, the total value of U.S.-Mexican bilateral trade increased more than seven-fold from $32.8 billion to $235.5 billion, which makes Mexico, the second largest trading partner for the U.S (with Canada ranking first). In addition, in 2003, Mexico was the largest foreign export market for Texas ($41.6 billion), California ($14.9 billion), and Arizona ($3.2 billion). Mexico also was the recipient of over $1 billion in exports each year from Florida, Illinois, Georgia, Indiana, Louisiana, Michigan, New York, North Carolina, Ohio, Pennsylvania, and Tennessee.[16] In addition, the Office of the U.S. Trade Representative estimates that the stock of U.S. direct foreign investment in Mexico more than tripled from $15.4 billion to $52.2 billion.[17] During this age of globalization, roughly 65,000 transnational corporations cover the globe and hold capital reserves in excess of the budgets of some governments.[18] According to the United Nations Conference on Trade and Development, from 1980 to 2002, merchandise and services exports more than tripled worldwide from $2.4 trillion to $8 trillion.[19]

Notwithstanding these figures, our trade policies (along with out bilateral and multi-lateral agreements) often ignore workforce needs. We simply appear to be more comfortable dealing with goods rather than people— that is, the workforce needs that result from globalization. Governments of developed nations continue to impose arbitrary numerical limits on immigration. These limits do not reflect the actual movement of workers across international borders that is a more accurate indicator of needs.[20] So, when we are tempted to believe that fencing out such flows of workers resolves our security problems, we also are denying our actual labor needs evidenced by such flows. How do such fences avoid fencing out our ability to compete in this global economy for goods and services?

Immigration Law Paradoxes and Solutions

A 2002 report from the Pew Hispanic Center reports that, in 2001, undocumented workers comprised about 58% of the U.S. labor force in agriculture, 24% in private household services, 17% in business services, 9% in restaurants, and 6% in construction.[21] The income from such employment supports thousands of U.S. jobs. The Center for Urban Economic Development at the University of Illinois notes that in 2001, undocumented immigrants in the Chicago metro area

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[14] Id. at 7.
[15] Id. at 1.
[16] TradeStats Express, Office of Trade and Economic Analysis, International Trade Administration, U.S. Department of Commerce (http://tse.export.gov/).
[17] Office of the U.S. Trade Representative, *National Trade Estimate Report on Foreign Trade Barriers, 1995 and 2003.*
[18] Ewing PhD , Walter A., " From Denial to Acceptance: Effectively Regulating Immigration to the United States," Immigration Policy Center paper, American Immigration Law Foundation, Vol.3, Issue 5, p. 2 November 2004
[19] Id. at 2.
[20] Id. at 3.
[21] B. Lindsay Lowell and Robert Suro, *How many undocumented: The numbers behind the U.S.-Mexico Migration Talks*, Washington, DC: Pew Hispanic Center, March 21, 2002.

alone spent an estimated $2.89 billion, which generated an additional $2.56 billion in local spending that together provided the income to sustain 31,908 jobs.[22]

Given this data, it is important to understand that the legal means to immigrate "semi-skilled and unskilled workers," for positions in the U.S. is extremely complicated and lengthy and fails to meet labor needs. These workers may immigrate through the employment-based third preference category to fill labor needs documented by the Department of Labor's labor certification test for positions which require two years or less of education, training, and/or experience. The May 2005 *Visa Bulletin,* published by the U.S. Department of State and excerpted below, documents that employers can expect to wait a minimum of more than four years (and usually many more due to slow advancement or none in the priority dates) for a visa number for an approved worker, when the worker is from Mexico, India, China, the Philippines, or anywhere else in the world. There is no conundrum about the inability of U.S. businesses to hire workers given the limitations of the current system.

	All Chargeability Areas Except Those Listed	**CH**	**IN**	**ME**	**PH**
Employment-Based					
1st	C	C	C	C	C
2nd	C	C	C	C	C
3rd	C	01JUN02	01JUN02	C	01JUN02
Other Workers	01JUL01	01JUL01	01JUL01	01JUL01	01JUL01
4th	C	C	C	C	C
Certain Religious Workers	C	C	C	C	C
5th	C	C	C	C	C
Targeted Employment Areas/Regional Centers	C	C	C	C	C

For that matter, the backlogs for Mexican spouses or children of U.S. legal permanent residents are also staggering. The May 2005 excerpt from the *Visa Bulletin* below reflects that such spouses or children can wait at least six years (and usually many more due to slow advancement or none in the priority dates) to be able legally to join their loved ones.

[22] Chirag Mehta, Nik Theodore, Iliana Mora and Jennifer Wade, *Chicago's Undocumented Immigrants: An Analysis of Wages, Working Conditions, and Economic Contributions.* Chicago, IL: Center for Urban Economic Development, University of Illinois at Chicago, February 2002. Ewing PhD , Walter A., " From Denial to Acceptance: Effectively Regulating Immigration to the United States," Immigration Policy Center paper, American Immigration Law Foundation, Vol.3, Issue 5, p. 8, November 2004.

	All Chargeability Areas Except Those Listed	CHINA-mainland born	INDIA	MEXICO	PHILIP-PINES
Family					
1st	01APR01	01APR01	01APR01	22OCT94	15JAN91
2A*	01MAR01	01MAR01	01MAR01	01MAR98	01MAR01
2B	08NOV95	08NOV95	08NOV95	15MAR92	08NOV95
3rd	22JAN98	22JAN98	22JAN98	22APR95	01SEP90
4th	01JUL93	01JUL93	22OCT92	01JUL93	22DEC82

Having the Courage to Make Legality the Norm and Fix a Broken System

An estimated eight million people today live in the United States without a legal immigration status. Even while they work hard, pay taxes, and contribute in many ways to this country, these immigrants live in constant fear of deportation and are vulnerable to exploitation by unscrupulous employers. We need to reform our immigration laws to create a safe, legal and controlled system that would meet our labor and security needs and reunite families in as effective a way as possible. Such reform would:

- Give permanent legal status to the people who are here, working, and contributing;
- Create a "break-the-mold" worker program; and
- Reunite families.

Why we need comprehensive reform that would provide a path to a permanent legal status to undocumented workers in the U.S. Such a measure would:

Be good for America. Hard-working immigrants have enriched our nation and improved the quality of our lives. Labor Department projections show that our need for foreign labor will only increase in the coming years. We need these workers to remain in the U.S. so that they can continue contributing to the growth of our economy and our tax base, and the solvency of our social security system.

In addition to a strong work ethic, immigrants have strong family values and a strong love of freedom and commitment to democracy. Their character enriches America beyond just the value of their labor. They have settled in many parts of the United States, established deep roots in our communities and made lasting contributions to the diversity of our nation.

Be good for workers and employers. Providing a permanent legal status to hard-working immigrants would provide employers with a more stable workforce, improve the wages and working conditions of all workers, and curtail an underground labor market susceptible to smuggling, fraud, abuse, and other criminal activity.

Enhance our national security. An earned adjustment program will allow hard-working, law-abiding individuals to come out of the shadows to be screened by the government. It will also

make our communities safer because, when immigrants' deportation fears are assuaged, they are more likely to report crimes and suspicious activity to local law enforcement.

What comprehensive immigration reform would accomplish:

It would create a fair and uniform earned adjustment program. Long-time, hard-working residents would be provided with an opportunity to become permanent members of our community. It would create a fair, uniform set of procedures to allow qualified immigrants to earn adjustment to U.S. permanent residence. Immigrants eligible for legal permanent residency must be persons of good moral character, present no criminal or national security problems, and legally eligible to become U.S. citizens. Permanent residence would be earned by those who can demonstrate that they have taken or are committed to take English and civics classes, and have undergone security and criminal background checks, paid taxes and contributed positively to their communities.

Reuniting Families on a Humane and Timely Basis

Unconscionable backlogs in family immigration keep families separated for years on end. Such separation creates not only unnecessary suffering and great instability in the family, but also the conditions for illegal immigration, as families seek to be reunited after years of separation. These backlogs directly result from an outdated legal immigration system that does not reflect the fact that the U.S. is a pro-family nation. The current visa allocation system, which Congress last revised in 1990, established inflexible statutory ceilings for family-sponsored immigrant visas that must now be changed.

Why we need this legislation:

Immediate family members are separated for long periods of time. Under current law, a U.S. citizen mother petitioning for her unmarried son or daughter must wait an average of 4 to 5 years. (For Mexicans, some family members must wait 13 years or more to be reunited, and certain Filipinos must wait 15 years.) A legal permanent resident must wait almost five years to be united with his spouse and minor children.

There is an increasing demand for family visas. The annual levels of family-sponsored immigration are established by statute, with no mechanism to adjust these levels based on need. Visa backlogs seriously undermine our most cherished values of family unity and fundamental fairness, and hamper the successes of immigrant families.

What this legislation would accomplish:

It would address the current backlog. We must develop an immigrant visa system that will reunite families in a timely and humane manner. We can do this in several ways including broadening the definition of Immediate Relatives to include spouses and children of permanent residents, and no longer subtracting Immediate Relatives from the annual cap on family immigration. Such a subtraction artificially depresses the number of available family preference visas.

It would address other obstacles that separate families for many years, and in some cases, permanently split them apart. These obstacles include: visa numbers that need to be recaptured, having been lost to processing delays; stringent income requirements that penalize hardworking, low-income immigrant families; and current barriers to reentry that are triggered by prior

attempts at family reunification. We must remove these obstacles so that close family members can be reunited.

Regularizing the Flow of Immigration: Reforming the Temporary Worker System

Many immigrants who come to the U.S. to fill voids in our workforce risk danger and even death crossing into the U.S. Too many hardworking immigrants who journey to the U.S. are subject to abuse, and too many decent U.S. employers are undercut by unscrupulous competitors who exploit unauthorized workers. We need to make legality the norm and create a legal flow by which people can enter and leave the U.S.

Why we need this legislation:

The status quo is unacceptable. The status quo must be replaced with sound immigration policies that provide a manageable and orderly system of migration. We need immigration policies that not only reflect current economic realities, but also adhere to our tradition as a nation of immigrants.

Our current system has made illegality the norm. Our current "hard" border has spurred the growth of a black market that profits from undocumented workers, as migrants increasingly have come to rely on professional smugglers to find their way past border guards. Once they arrive in this country, many are trapped here, unable to return. We need a program that would significantly diminish future illegal immigration by providing people with a legal avenue to enter the U.S, and return, as many wish, to their home countries, communities and families.

We need to effectively focus our national security efforts. We currently spend precious resources targeting people who seek to meet our labor market needs, rather than those who mean to do us harm. By channeling immigrant workers through the legal visa system, we free up resources at our border and elsewhere to focus on measures that truly enhance our national security.

What this legislation would accomplish:

It would create a break-the-mold temporary worker program. Past temporary worker programs were fraught with abuses and exploitation, and did not provide full labor protections, labor mobility, the right to organize, and a path to permanent residence. Effective comprehensive reform would include a worker program that provides legal visas, family unity, full labor rights, labor mobility, and a path to permanent status.

It would address employers' need for temporary workers without displacing U.S. workers. These "essential workers" would fill unmet needs in hotels, construction, restaurants and other sectors that rely heavily on unskilled and semi-skilled labor for temporary or seasonal positions. Employers seeking these temporary workers must show that they cannot find U.S. workers to fill the jobs, and that hiring these temporary workers will not displace U.S. workers or affect their pay or working conditions.

It would provide temporary workers full labor protections. Temporary workers would be afforded all of the labor protections U.S. workers have, including the right to organize, the right to change jobs freely—not only between employers, but across economic sectors—and the fully enforced legal protection of their wages, hours, and working conditions. Workers would be protected if they pursue legal redresses against unscrupulous employers who violate labor protection laws.

It would provide temporary workers with the opportunity to obtain permanent legal status. Many foreign workers prefer to work in the U.S. for a period of time and then return to their home countries. But others who choose to make the U.S. their permanent home should have the opportunity to do so if they would not displace U.S. workers.

Enhancing National Security: Comprehensively Reforming our Immigration Laws

Our immigration system is broken. Current laws provide no visa category for many needed workers to enter the U.S. legally and no clear path for undocumented workers to legalize their status. This dysfunctional system requires our government to expend valuable resources to identify, detain, and remove these workers, leaving fewer resources to pursue real national security threats and criminals. This situation is untenable. The public understands that it is unrealistic to deport the eight to ten million immigrants and their families residing here without legal status, or stop the flow of undocumented people crossing our borders to work. We can make immigration legal, safe, and orderly, and improve national security, if we place undocumented immigrants on a path to earned adjustment and create new rules for future immigration that make sense.

Why we need this legislation:

To bring immigration under the rule of law. Undocumented immigrant workers and their families are our neighbors, our co-workers, our children's nannies and our parents' caretakers. For too long, our immigration laws have been at odds with economic realities, leading to an increased reliance on smugglers and fake documents. Creating a path to legal status for these valued workers would allow them to come forward, undergo security screenings, and seek legal status. This legislation will allow us to know who is here and who is admitted in the future, and create a realistic and orderly immigration system that can be meaningfully enforced.

To make legality the norm and reduce illegal immigration. We need fair and reasonable rules that are realistic and enforceable. We must replace the chaotic, deadly, and illegal flows at our borders with orderly, safe, and legal avenues for immigrant workers and families. In the absence of legal means to obtain work and unite with family members, law-abiding people will take desperate measures. We need laws that embrace reality so that legality becomes the norm.

To improve our enforcement capacity. Enforcing a dysfunctional immigration system leads to more dysfunction and diversion from important objectives. Enforcement resources are inevitably overextended dealing with the undocumented population seeking employment. With laws that encourage illegality, our enforcement agencies waste time and resources investigating workers and families instead of tracking terrorists and criminals. Shrinking the pool of law enforcement targets will enable our officers to train their sights on those who mean to do us harm.

What this legislation would accomplish:

It would reduce crime and strengthen measures that enhance our intelligence capacity. By mandating the issuance of machine-readable, tamper-resistant documents with biometric identifiers, it would stem the tide of black-market documents and help eliminate a potential avenue for criminals and terrorists to gain entry to our country. Our intelligence capacities would be enhanced by mandating rigorous name-check clearances and extensive background checks.

It would enable our law enforcement agencies to focus on terrorists and criminals. By bringing undocumented workers and their families out of the shadows and requiring them to pass thorough security checks, we will dramatically reduce the pool of enforcement targets. Our investigative resources would be more effectively focused on terrorists and criminals.

It would encourage legality at our borders. By providing individuals with a legal mechanism to enter the country to work and reunite with family members, we encourage a legal, orderly admissions process. This limits the dangers confronting both immigrants and border patrol agents, and curtails the use of increasingly violent "coyotes" or human smugglers.

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U.S. Senate Judiciary Subcommittee on Immigration, Border Security and Citizenship
U.S. Senator John Cornyn (R-TX), Chairman

"Strengthening Border Security Between The Ports of Entry: The Use of Technology to Protect the Borders"

Thursday, April 28, 2005, 3 p.m., Dirksen Senate Office Building Room 138

This joint hearing of the Senate Subcommittee on Immigration, Border Security and Citizenship, and the Subcommittee on Terrorism, Technology and Homeland Security, shall come to order.

I want to thank Chairman Specter for scheduling today's hearing.

This hearing is the third in a series of joint hearings to examine our immigration system from top to bottom. I want to thank Senator Kyl for his hard work and for his leadership.

As we announced a few weeks ago, Senator Kyl and I are working closely together, and with other senators, to identify and develop solutions to the critical problems in our immigration system. I also want to thank the ranking member of this subcommittee, Senator Kennedy, as well as Senator Feinstein, the ranking member of the Terrorism subcommittee, and their respective staffs for working with my office to make this hearing possible. Any effort to reform and to strengthen enforcement of our immigration system, to be successful in the Senate, must be bipartisan, and I look forward to working with them both.

A few weeks ago, the Senate approved, by a broad bipartisan majority, a resolution introduced by Senator Feinstein and myself. That resolution demonstrated that there is a growing consensus, across the ideological spectrum, that our immigration system is badly broken, fails to serve the interests of our national security and our national economy, and undermines respect for the rule of law, and that in a post-9/11 world, national security demands comprehensive reform of our immigration system.

President Bush has articulated to the nation a vision for the comprehensive reform of our nation's immigration laws. I am sympathetic to the President's vision, and I look forward to the critical role that this subcommittee will play in the coming Congressional debate.

No serious discussion of comprehensive immigration reform is possible, however, without an overall review of our nation's ability and will to secure its borders and to enforce its immigration laws.

We must provide sufficient tools and resources to keep out of our country those who should be kept out, to identify those in our country who should be apprehended, and to remove from this country those who should be deported.

Accordingly, today's hearing is the third in a series of hearings focusing on identifying holes in our immigration system – places where enforcement has been badly deficient. Unfortunately, there are many such holes. Our immigration system has been poorly enforced for far too long. We have not done nearly enough to enforce our laws. That must end, and that will end.

For example, at our last hearing, we examined challenges to enforcement within the interior of our country.

We respect the hard work and efforts of immigration investigators, detention officers, and other professionals responsible for locating, detaining, and removing those who remain in this country in violation of our laws.

Yet, as that hearing made clear, our deportation system is over-litigated and under-resourced – over-lawyered and under-equipped. That hearing identified a number of specific problems, including the extra layer of appeals granted specifically to aliens who are deportable due to criminal activity and the judicially-mandated release onto our streets of potentially dangerous individuals. Over one million aliens face deportation proceedings this year, yet we have only approximately 19,000 beds in our detention facilities to hold them. As a result, as many as 80% of those ordered to leave the country never show up to be removed.

At our first hearing, we examined the challenges to enforcement along the border at the ports of entry. As that hearing made clear, we need better training and information for our front line personnel, and we need to improve the reliability of documents used for entry into our country. National security demands that we strengthen border inspection, ensure document integrity, and combat document fraud.

Today's hearing will focus on securing our borders *in between the authorized ports of entry*. We will examine what tools and resources are needed to protect our borders along the perimeter of the country. To put it simply, we must shut down all of the routes used to enter our country outside the authorized ports of entry.

Unfortunately, this is easier said than done. The U.S. border with Mexico runs almost 2,000 miles, while our border with Canada runs roughly 4,000 miles.

My home state of Texas alone accounts for the majority of the southern border, sharing about 1,285 miles, or 65%, of the southern border. In fiscal year 2004, we apprehended approximately 631,000 aliens illegally entering our country along the southern border. And the numbers are only increasing – indeed, we have already surpassed last year's number in the current fiscal year. These numbers demonstrate the hard work and dedication of our border patrol, under the most difficult of circumstances.

Yet, according to the Pew Hispanic Center, the U.S. averages 700 to 800 thousand new undocumented aliens every year. We can and must do better. And to do better, we must

explore the better use of technology. The effective use of technology in between the ports of entry can serve as a force multiplier for our border patrol agents and officers charged with securing the border. Technology allows these agents to conserve manpower and efficiently respond when we identify breaches in our border.

Technology is no panacea, however. There will inevitably be glitches in the deployment and use of technology. And clearly, technology is only as good as the men and women we have on the ground, who we must teach to utilize and take advantage of it.

Accordingly, today we will examine the existing technology used to secure the border and learn how it is actually utilized on the ground.

We will hear what problems we have experienced and what Congress can do to provide more support in this area. I hope that today's witnesses will give our subcommittees a better idea of what else can be done to fully secure our borders, in between the ports of entry, through the more effective use of technology.

And with that, I will turn the floor over to Senator Kyl, and then to Senator Kennedy and Senator Feinstein, for any introductory remarks that they each may have.

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Opening Statement

Of

Kirk Evans, Ph. D.
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Department of Homeland Security

ɜefore The Senate Committee on the Judiciary Subcommittee on Immigratioı
Border Security and Citizenship
&
ıe Senate Committee on the Judiciary Subcommittee on Terrorism, Technolo
and Homeland Security.

April 28, 2005

Introduction

Good afternoon, Chairman Cornyn, Chairman Kyl, Ranking Members Kennedy and Feinstein. It is my pleasure to come before you today to share our vision for and progress in developing sensor and information systems in support of the Border Patrol's mission.

BTS S&T Mission and Objectives

At the Science and Technology Directorate, the mission of the BTS portfolio is to develop and transition capabilities that improve the security of our nation's borders and transportation systems without impeding the flow of commerce and travelers. We consider the operating arms of DHS as our customers, and seek to work with those customers in a collaborative and cooperative environment.

In pursuit of that mission we have the following strategic objectives:

- Prevent entry of terrorists, criminals and illegal aliens
- Interdict terrorist instruments and contraband at the earliest opportunity
- Improve the security of U.S. transportation systems
- Facilitate flow of commerce and travelers – identify, disrupt & dismantle entities that threaten the United States

The new security environment requires us to completely secure our border and transportation infrastructure, not just stem the tide of illegal activities. That is a far more difficult goal and there will never be enough officers to cover the vast areas that must be secured. The key to improving our border and transportation security capability is to instantaneously be alerted when a threat presents itself at our borders or in our transportation system, and provide all relevant information to the appropriate decision makers and security forces so that they can mount an effective response. To carry that out, our goal is to develop a system of systems engineering view for overall view and develop an architecture and a set of technology programs that will gather, process and distribute real-time knowledge of the border and transportation situation. The systems should also provide decision support tools and labor saving devices for our security forces.

Background

Chief Aguilar is far more capable in describing for you the mission and operations of the Border Patrol. In what follows I will describe how we look at the Patrol's operations through the admittedly simplistic eyes of technologists. Today the Border Patrol employs both surveillance and tactical concepts of operations. Surveillance provides an operational picture and cueing that alerts the user to areas of likely activity and interest. Acting on cues, the tactical operations locate, identify, and detain (if appropriate) people or vehicles crossing the border illegally.

For surveillance or the cueing function the Border Patrol typically uses intelligence and "sign-cutting" – patrolling the border and finding the tell-tale indications of cross-border activity. For "tactical" detection the Border Patrol typically uses a combination of unattended ground sensors and cameras. In discussion with the Border Patrol, it is the surveillance or cueing mission that appears to most technically challenging, and the one with which the Border Patrol would like us to focus our efforts.

Key Technology Challenges:

To support the patrol we in S&T have 3 technical challenges. First is the magnitude of the area to surveillance. The second is finding sensor technology that will provide the cueing necessary for efficient and effective Border Patrol operations across those expanses. The third challenge we are pursuing is developing and integrating technologies for information networks to give field personnel connectivity and situational awareness in their rugged environment.

To understand how the size of the border area and the sensor performance issues are interrelated we can address the southern border, which is approximately 1500 miles long, and some of the considerations it would take to develop an "electronic fence" to span that stretch. It is probably not sufficient to just have a magic line along that border, some depth to the detection zone is needed, for two reasons: first, to develop at least some form of track (are the Items of Interest coming into or out of the country?), second, to have sufficient time within the field of view of the sensor to enhance detection and reduce false alarm rates. Consider covering the southern border with a ½ mile wide detection zone that has a probability of detection of 50%. If we were to use ground sensors with a 10 meter detection range we would require approximately 3,000,000 sensors. With a sensor detection range of 450 meters, we would require approximately 1,335 sensors. With a sensor detection range of 1600 meters (a mile) we would require approximately 375 sensors, and with a 5 km sensor detection range would require approximately 160 sensors. Clearly, for surveillance of the borders, sensor detection range is a major factor.

False alarm rate is a second factor. Consider the statistics if the Border Patrol manpower allowed them to respond to a false alarm rate of four per day along the southern border (not unreasonable if the Border Patrol has to respond to each alarm). For the 10 meter detection sensor that corresponds to one false alarm per sensor every 2,000 years – not achievable. For the 1 mile sensor, that is one false alarm per sensor every 90 days – perhaps achievable.

Arguably, we would like to have a sensor capable of detecting a person at one mile, with a low false alarm rate (one per 90 days), a field lifetime of a year, and a per unit cost much less than $30,000. Such a sensor does not now exist.

In all our programs, an over-riding factor is the operational utility and suitability for the Border Patrol. That is: do the technologies we develop and test fit within the Border Patrol concept of operations? Are they suitable in terms of ruggedness, maintenance requirements and training? Are they cost effective?

Technologies:
The following is by no means a complete or exhaustive list of technologies that could be brought to bear. It is, however, one that has our interest in terms of potential long-term payoff.

Radars:
Present radar systems that have been tested are mono-static (that is using the same transmitter and receiver antenna). Two Ku and Ka band radars have been tested in the Arizona Border Control Initiative with some success. For the wavelengths we are considering, any radar's detection range is limited by its line of sight, thus it needs to be placed on a tower or other elevation for maximum detection range. Detection ranges for the Ku band radar (mounted on a self rising tower) were on the order of 5 km and 300 m for the Ka band (ground mounted). These radars had limitations with shadowing due to topography, ground cover and vegetation. The state of technology for conventional Ku and Ka band radars is relatively mature, with the possible exception that additional signal processing may be applicable to enhance target recognition, penetrate vegetation, and reduce false alarms. The major costs for this class of radars, in addition to the radar itself, will be the elevation mechanism (either permanent or mobile) required to give them and advantageous field of view.

Bi-static or multi-static radars are systems that use separate transmitters and receivers. Multi-static technology has been developed for air defense purposes, and could have a number of advantages for detecting the intrusion across our borders. One form of multi-static is passive coherent localization (PCL) which utilizes one of a number of transmitters of opportunity (typically commercial TV, cell phone tower, direct broadcast satellite, and radio signals) with multiple receivers to detect moving targets. PCL has been effectively demonstrated for aircraft targets but its capabilities against marine targets, vehicles or humans have not been thoroughly evaluated. PCL has a number of attractive advantages. First, by using locally ambient signals, it does not give away the sensor operation as would conventional radar. The detection is through the Time - Doppler modulation of the energy reflected off a moving target in the field of view of the transmitted signal and the receiver antenna. The availability of some signals with sufficient strength and bandwidth for detection of small targets in all border areas may be an issue (depending on the signal used), but for areas with such coverage, the systems costs could be much lower than a conventional radar. The receive array may be relatively small (although would have to be elevated) and be easier to install than a conventional radar. There is a PCL system in place at Bolling AFB for detection of aircraft entering National Capitol Region. While PCL has considerable potential for marine, vehicle and human detection (if it worked it might meet the 1 mile, $30,000, 90 day criteria listed above); it has not been tested in this application. A technology testing and development effort is required to fully understand the phenomenology for surface targets (ground clutter and low velocities complicate matters), the signal and noise characteristics for a variety of signals (FM, HDTV, DBS, Cell Phone), the receive antenna requirements, and the signal processing needed to pull vehicle and humans out of the background clutter.

Fiber Optics

I understand you will be offered written testimony concerning the use of a long optical fiber, buried in the ground, to detect the vibration caused by a person walking. There have been a number of fiber optic concepts proposed; some with a sensor attached to the fiber every few tens of meters, and others which use the backscattering properties of the fiber itself. An above ground fiber optic sensor was prototyped in the ABCi along the Nogales border fence with some success. Although for most border applications the fiber cable must be buried, a consequential expense, such systems could offer some intriguing advantages. First, they are hidden and passive. Second, once the system is installed the maintenance and operating costs should be low. Third, apart from malicious damage, the system should have a lifetime on the order ten years or more.

The system concept consists of a fiber optic line, a laser source, and a light detector. A laser pulse is injected into one end of a fiber optic line, and disturbances to the fiber optic line generate backscatter, or reflections that returns to the light origin and is measured by the detector. The backscatter is measured for time of arrival, intensity, and, in some cases, phase change to determine the disturbance distance from the source and detector. The trick is in the specific detection mechanism used.

With the fiber optic line buried several inches to a couple feet under ground, a highly sensitive system has the ability to detect walking personnel from several meters or more away. Because of their sensitivity, the systems need to be buried in order to reduce background noise from the surrounding environment, and limitations originate from soil-to-fiber optic coupling and soil densities. Less sensitive systems are capable of being mounted above ground and on fences and are less susceptible to background noise. They are able to locate disturbances to a fence such as people climbing or cutting. Limitations include lack of concealment and ease of tampering.

If one could envision a 200 mile long sector of the border with a buried fiber "fence", it might have three parallel fibers (for redundancy, false alarm and tracking) with an amplifier every 10 miles and electronics (power, transmitter and receiver) every 50 miles (at each station). Such a system could have a price tag, exclusive of burial, below $10M. Because of its potential lifetime, this may be a very attractive option for long remote stretches of our borders, (where the topography and geology allow).

However, the technology needs to be further understood, improved and developed. First, there are a number of competing signal detection mechanisms and cable configurations. Second, the coupling between the cable and the ground, in particular achieving the maximum signal gain, is not totally understood. Third, there remains significant signal processing, particularly for signal enhancement, automatic detection and alerting, that needs to be developed and tested.

Unattended Ground Sensors

Unattended ground sensors are autonomous units deployed covertly or overtly by Border Patrol Agents. The sensors used include: magnetic, seismic, passive infrared, pressure mats, and contact closure devices. Detections are relayed by radio frequency communications to portable and fixed infrastructure.

The Border Patrol is currently using a number of sensors based largely on Vietnam era technology. While these sensors have flexibility in operational applications and low acquisition cost to added benefit ratio, manufacturers are no longer supporting many of the systems. Deployment can be difficult with large out-dated sensors that require large holes for burial and frequent attention for battery replacement. Covert deployment is difficult when large holes are required to hide the large environmental boxes and the need to replace batteries every thirty-days or so constitutes the continuous need to dig-up and rebury the systems. The America's Shield Initiative will be implementing new surveillance systems in the near term, and DHS S&T looks to assist in developing and assessing the technologies that will be used.

As a part of the ABCi, five different ground sensors were tested in the Tucson Sector. One system, built by Monitron, is in essence a replacement to the current Sparton technologies used by the U.S. Border Patrol, and used seismic sensors (point and line string configuration), magnetic sensors, and passive infrared sensors; and is an upgrade in processing and protocol from its predecessor. Fifty systems were installed in the Douglas station (east border area of Arizona close to New Mexico). As a result of the tests, this system was purchased and will be retained by the U.S. Border Patrol. This system is not considered a new technology but rather an upgrade to current systems.

The Army (at CERDEC) is developing a family of sensors and sensor network architecture, the Multi-Functional Intelligence Remote Sensor System (MFIRSS), which connects together ground sensors and imaging devices. Sensors, which include seismic / acoustic, infra-red, magnetic and radio frequency, day, low light, and infra-red imagers are imbedded in an end-to-end, open architecture system and much of the technology being developed. This is a technology development we intend to follow and look for technology transition opportunities for the Border Patrol. The technology areas of most interest include: new sensors, alternative power and energy management, covertness (low probability of intercept), near ground connectivity in foliage and terrain, data fusion, size, power, weight reduction and fiber optic sensors. The Army has a fiber-optic sensor concept that uses an array of fiber sensors and should be able to detect personnel at 75 meters and vehicles at twice that distance.

Airborne Sensors

Airborne sensors have the advantage of height of eye, thus giving excellent range for line of sight sensors. The two classes of platforms for these sensors are manned aircraft and UAV's.

UAV operations were demonstrated during ABCi showing that UAV's can provide the Border Patrol with strategic and tactical advantages, especially with the UAV an excellent tool for tracking vehicles. The UAV system was outstanding for giving ground agents situational awareness and allowed the Border Patrol to track and observe suspected vehicles carrying contraband that might otherwise be a risk to law enforcement officers. In ABCi, S&T funded two Hermes 450 UAVs, one primary aircraft and a back up, for a three-month period that started June 18 and finished September 30, 2004. The sensors on the UAV include EO/IR (visual and infra-red cameras) down linked to the

ground control station. Missions nominally consisted of 14 hours of flight, mostly at night, and involved un-alerted surveillance, cued response, and directed search operations (much of the illegal activity along the border occurs in the evening and continues under the cover of darkness).
UAV's, however, are limited in the size and power available for sensors, thus limiting their sensor range. In addition, UAV's have a number of FAA flight restrictions which can make their operations limited.

A desired airborne platform sensor combination should include EO/IR sensors, multi-spectral sensors for classification of targets, and synthetic aperture radar with Ground Motion Target Indication. For example, the Army is developing a VHF/UHF foliage penetrating (FOPEN) SAR radar, for application to manned aircraft and medium sized UAV's. Such a system could be incorporated into an existing CBP P-3 aircraft or a Dash-8. Flying at 20 – 30 kft altitude, it has a 13 to 20 km standoff range, allowing visibility not only along the border but over the border. The dual band VHF/UHF SAR penetrates foliage, non-metallic structures, and has robust wide-area change detection capabilities. An integrated payload with the SAR / FOPEN radar plus EO / IR sensors connected to a real-time on-board data exploitation and dissemination station could be prototyped using a payload in the bomb-bay of the CBP P-3 aircraft. Then following proof of concept, it could be miniaturized for smaller DHS aircraft (Dash-8) or medium sized UAV's. Such an integrated airborne sensor suite would provide both surveillance, plus an immediate tactical follow-up capability.

High Altitude or Space Based Sensors
Another area of interest is high altitude (above commercial airspace) or space based passive sensors. In particular, sensitive infra-red and multi-spectral imaging techniques may be capable of detecting border crossing routes, people gathering just across the border, or actual movements. In addition to satellites (both national and academic) as platforms for such systems, there are serious concepts being developed for semi-stationary unmanned lighter than air ships operating at 65,000 feet – primarily for broadband wireless coverage. Such a system, if developed, would be very interesting as a high quality EO/IR platform. Three or four such systems could cover the entire southern border.

Automated Scene Understanding
With increasing number of sensor systems, particularly EO / IR systems, having enough skilled operators to monitor and detect becomes problematic. Throughout DHS sensor technologies, there is a growing need for automated scene understanding technologies that will allow computers to detect and identify targets in real time, alerting operators for further analysis and follow-up. In no case is this more acute than with Remote Video Systems (RVS). RVS systems are real-time remotely controlled force enhancement camera systems, which provide 24/7 coverage along the northern and southern borders. The RVS systems significantly enhance the Border Patrol's ability to detect, identify, and respond to border intrusions. There are 269 completed sites in operation (200 along the southwest border and 69 along the northern border), and an additional 216 installations are in progress. While the RVS provides central monitoring capability, it is still very labor intensive. DHS S&T is pursuing technologies which will automatically scan large

areas looking for events of interest (while requiring a small number of cameras to cover large areas), maintain a domain-wide view for situational awareness and bring only targets of interest to operators' attention, keeping them focused only on the events that are important. Such a capability must be easy to configure and setup, allowing operators to specify exactly what types of targets/events are worth knowing about. The concept of operations is to have the software scan for moving objects (controlling cameras and searching zones for moving objects at high zoom), examine interesting targets, and have intelligent software classify any threats and alert the Border Patrol Agent. The technology to make this a reality is being pursued by DHS S&T for port security, transportation security as well as Border Patrol applications.

BTS Net

To support Border Patrol operations in the field, we developing and integrating technology through BTS Net to give field personnel connectivity and situational awareness in their rugged environment. BTSNet is an information management network test bed. It comprises it a set of hardware and software components that deliver information to the Agent in the field, provide a situational awareness, and provide for a federated database query. The overarching BTSNet goal is to provide information crucial to the BTS user's mission, whether field agent/officer, field station, sector command and control center, or national level agencies. The effort will integrate technologies developed under other programs as well as within the BTSNet program into a coherent system and insure performance goals are met through pilot deployments and rigorous testing. Specific requirements are as follows:

An initial increment of this multi-spiral development will be demonstrated in the Tucson, Arizona area in late 2005. It is envisioned that Tucson Sector will be established as the BTSNet test bed where additional spiral will undergo developmental and operational testing, and, if proven out, incorporated into ASI as CONOPS are developed and new technologies vetted. Specific capabilities include:

- Capability to Query Across All BTS / USCG and LE databases providing reach back and correlation across all BTS / CG and relevant LE databases in real time and from the field,

- Interoperable, reliable, OTH, wide band, data, video, secure, covert, mobile and fixed communications between operational elements, and

- Tactical Situational Awareness, providing local/sector common picture of real time location and status of operations, units, threats, and surveillance from multiple sources.

In the initial spiral, BTSNet will deliver to the US Border Patrol Douglas Station four hand-held digital assistants for field agent use and install a mobile data computer in four selected vehicles designated by the Douglas Station. Two workstations plus a server will also be installed the Douglas station. Appropriate communication infrastructure will be installed in key locations (RVS towers) within the Douglas area of operation in order to maximize communications coverage.

We will complete installation, site integration and test, and be ready to conduct an operational demonstration by mid October 2005. SPAWAR Systems Center-San Diego (SSC-SD) will coordinate with station technicians on the installation and integration as well as provide training to Sector personnel on the field and station equipment operation. The operational demonstration would span a two week period with field agents operating the equipment. If accepted as an operational asset by the Sector, all equipment would remain in place for Douglas Station use, and to provide on-going user feedback for input to subsequent spirals. BTSNet will provide maintenance support during the course of the development process.

Continuous user input in the BTSNet development process is essential to the successful deployment of BTSNet, accordingly, we continue to interface with Sector personnel, on a not to interfere with operations bases, and extend an open invitation to Sector and Headquarters personnel to attend program reviews and/or testing.

Conclusion

Developing and maintaining complete awareness and control of what and who approaches our land, sea and air borders is a key component of our security strategy since 9/11. This is a mission that the Border Patrol has faithfully carried out since 1924, but with heightened immediacy since the war on terror. As described by Chief Aguilar, in the America's Shield Initiative, the Border Patrol has in advanced planning, a systems architecture and framework for the enhancement and upgrade of Border Patrol capabilities in sensors, networks and information systems. The role of DHS S&T is to provide key technology capabilities that can be incorporated into ASI, both immediately and over time as technology upgrades. In supporting the Border Patrol and ASI, we are concentrating on advanced sensor technologies such as advanced radars, airborne sensors, fiber-optics and automated detection algorithms plus prototyping advanced networking and scene awareness capabilities in BTS Net. We are working with the Border Patrol in a collaborative manner, in particular using the Tucson Sector and the Arizona Border Control Initiative as a prototyping testing ground.

This concludes my prepared statement. With the committee's permission, I request my formal statement be submitted for the record. Senator Cornyn and Senator Kyl, I thank you for your attention and will be happy to answer any questions you may have.

Statement of Senator Patrick Leahy
Joint Subcommittee Hearing
"Strengthening Border Security Between the Ports of Entry: The Use of Technology to Protect the Borders"
April 28, 2005

Today marks the third joint hearing of the subcommittees on immigration and terrorism this year. In fact, the immigration subcommittee has yet to hold a hearing on its own. Although I think collaboration is commendable, I do wonder when we will begin the process of reviewing our immigration laws more generally and considering proposals for immigration reform. When a number of Senators sought to offer immigration amendments to the supplemental appropriations bill during the last two weeks, Senators Cornyn and Kyl urged them to delay on the grounds that they were preparing reform legislation. I know a number of other Senators, including Senators McCain, Kennedy, Hagel, and others, are intensely interested in immigration reform. If we are serious about living up to the Majority Leader's commitment that we will consider immigration reform on the floor this year, we need to get started on that work as soon as possible.

I do not mean to denigrate in any way the importance of protecting our borders. We need to walk and chew gum at the same time in this committee, however, and view immigration more broadly than as simply a question of security. I feel that is especially true when we are focusing on a rather narrowly-defined issue.

Turning to the topic at hand, I do believe it is critical that we develop and deploy top-notch technology between our ports of entry. I have worked in a bipartisan manner to increase the size of our Border Patrol, and I have expressed repeatedly in recent months my disappointment in the Administration's proposal to fund only 210 of the 2,000 new Border Patrol agents authorized by Congress for FY 2006. That being said, however, our Northern Border alone is about 4,000 miles long, and we could not hire enough Border Patrol agents to monitor every mile of that border personally. We will always need to supplement highly-trained law enforcement personnel with security technology. That is why I included a provision in the USA PATRIOT Act to authorize $100 million for improvements in technology for monitoring the Northern Border. I am curious to hear from our witnesses today where they think we stand and what more needs to be done to secure the safety of our border states and the nation as a whole.

# # # # #

Pew Hispanic Center

REPORT

March 21, 2005

Estimates of the Size and Characteristics of the Undocumented Population

By

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EXECUTIVE SUMMARY

The Pew Hispanic Center has developed new estimates for the size and key characteristics of the population of foreign-born persons living in the United States without proper authorization using data from the March 2004 Current Population Survey which is conducted by the U.S. Census Bureau and the Department of Labor. *

Major findings include:

- Following several years of steady growth, the number of undocumented residents reached an estimated 10.3 million in March 2004 with undocumented Mexicans numbering 5.9 million or 57 percent of the total.
- As of March 2005, the undocumented population has reached nearly 11 million including more than 6 million Mexicans, assuming the same rate of growth as in recent years.
- About 80 to 85 percent of the migration from Mexico in recent years has been undocumented.
- Since the mid-1990s, the most rapid growth in the number of undocumented migrants has been in states that previously had relatively small foreign-born populations. As a result, Arizona and North Carolina are now among the states with largest numbers of undocumented migrants.
- Although most undocumented migrants are young adults, there is also a sizeable childhood population. About one-sixth of the population—some 1.7 million people—is under 18 years of age.

SIZE AND ORIGINS OF THE UNDOCUMENTED POPULATION

Neither the Census Bureau nor any other U.S. government agency counts the unauthorized migrant population or defines their demographic characteristics based on specific enumeration. There is, however, a widely-accepted methodology for estimating the size and certain characteristics, such as age and national origins, of the undocumented population based on official data. This methodology essentially subtracts the estimated legal-immigrant population from the total foreign-born population and treats the residual as a source of data on the unauthorized migrant population (Passel, Van Hook, and Bean 2004).

The estimates reported here use this methodology with data from the March 2004 Current Population Survey (CPS). The CPS, a monthly survey of about 50,000 households conducted jointly by the U.S. Bureau of Labor Statistics and the Census Bureau, is best known as the source for monthly unemployment statistics. Every March both the sample size and the questionnaire of the CPS are augmented to produce the Annual Social and Economic Supplement which provides additional data on several additional subjects including the foreign-born population.

As of March 2004, there were an estimated 10.3 million unauthorized migrants living in the United States. A comparison to past estimates derived with the same methodology shows

* See "Note on Methods and Terminology" below for definitions, data sources, and methods.

that the undocumented population has grown rapidly in recent years. There were 8.4 million unauthorized migrants living in the United States in April 2000 according to estimates derived from Census 2000 (Passel, Van Hook, and Bean 2004). Thus, average annual growth over the 4-year period since 2000 was about 485,000 per year. Assuming this rate of growth held steady, the best estimate for March 2005 points to a figure of somewhat less than 11 million for the number of undocumented residents.

The 10.3 million undocumented migrants in March 2004 represent about 29 percent of the almost 36 million foreign-born residents of the United States (Figure 1).

Mexicans make up by far the largest group of undocumented migrants at 5.9 million or 57 percent of the total in the March 2004 estimates. This share has remained virtually unchanged for the past decade, even as the size of the undocumented population has grown very rapidly. In addition, another 2.5 million undocumented migrants or about 24 percent of the total are from other Latin American countries. About 9 percent are from Asia, 6 percent from Europe and Canada, and 4 percent from the rest of the world (Figure 2).

While the annual net growth of the unauthorized population has averaged roughly half a million per year since 1990, the number of new undocumented migrants reaching the country every year is significantly larger. While it grows through the arrival of new migrants, the undocumented population is reduced each year because many undocumented migrants depart, a few die, and significant numbers acquire legal status. Over the past decade the number of newly arrived unauthorized migrants added to the U.S. population has averaged 700,000–800,000 a year (Figure 3). Over the same interval, legal migrants arrived at roughly the same rate.

Overall, the Mexican-born population living in the United States, including both those with legal status and otherwise, has continued to increase dramatically. About 11.2 million Mexicans were in the United States as of March 2004 with just under half (47 percent) or about 5.2 million having legal immigration status. Mexicans overall represent about 32 percent of the foreign-born population, a high figure by historical standards but not unprecedented; both Irish and German immigrants accounted for a higher percentage of the foreign-born at various points in the mid- and late-19th century (Gibson and Lennon 1999).

The number of Mexican migrants in the United States has grown quite rapidly over the past 35 years, increasing almost 15-fold from about 760,000 in the 1970 Census to more than 11 million in 2004—an average annual growth rate of more than 8 percent, maintained over more than 3 decades. This remarkable growth has been largely driven by undocumented migration. On average the Mexican population living in the United States has grown by about half a million people a year over the past decade. Unauthorized migrants have accounted for about 80–85 percent of the increase (Figure 4). Since this growth has been fairly consistent, we estimate that the number of undocumented Mexicans in the United States reached 6 million before the end of 2004 and could surpass 6.5 million by the end of 2005.

DESTINATIONS

Almost two-thirds (68 percent) of the undocumented population lives in just eight states: California (24 percent), Texas (14 percent), Florida (9 percent), New York (7 percent), Arizona (5 percent), Illinois (4 percent), New Jersey (4 percent), and North Carolina (3 percent). (See Figure 5 and Table 1.)

The appearance of Arizona and North Carolina on this list of the states with large shares of the undocumented populations highlights another recent trend. In the past, the foreign-born population, both legal and undocumented, was highly concentrated. But, since the mid-1990s, the most rapid growth in the immigrant population in general and the undocumented population in particular has taken place in new settlement areas where previously the foreign-born had been a relatively small presence.

According to estimates for 1990, about 88 percent of the undocumented population lived in only ***six*** states that had been traditional settlement areas for the foreign-born—California. New York, Texas, Illinois, Florida and New Jersey. But, by 2004, only 61 percent of the undocumented population lived in those six states.

Another way of looking at this movement is that in 1990 only about 400,000 undocumented migrants lived in the remaining 38 states and the District of Columbia (Figure 6). By 2004, an estimated 3.9 million undocumented migrants lived outside of those traditional settlement states, nearly a tenfold increase. (Table 1 shows the available estimates for all states.)

The rapid growth of the undocumented population has been the principal driver of growth in the foreign-born populations in new settlement states such as Arizona, North Carolina, Georgia, and Tennessee (Passel, Capps, and Fix 2002; Passel and Zimmermann 2001). In 17 new settlement states stretching from the northwest through the mountain states to the southeast, the undocumented make up 40 percent or more of the total foreign-born population (Figure 7). Of the six traditional settlement states, only Texas has such a large ratio of its undocumented population to the total foreign-born. In the other five traditional settlement states, undocumented migrants make up less than 30 percent of the foreign born population and in New York the undocumented share is less than 20 percent.

DEMOGRAPHIC COMPOSITION

Although the stereotype of undocumented migrants being mostly young adult males is partly supported by our estimates, a somewhat different picture of the entire group emerges from a more detailed demographic analysis. About one in every six undocumented migrants is a child, accounting for about 1.7 million of the more than 10 million undocumented migrants (Figure 8). A relatively small percentage of the unauthorized migrants are of middle age or older with only about 1.1 million being over 40 years old and virtually none being over age 65. Among the younger adults, there is a predominance of males, but there is also a significant number of women in the undocumented population—about 3 million or 29 percent of the total. For undocumented migrants aged 18–39, nearly 60 percent or about 4.5 million are men; in this age group of the undocumented there are about 146 men for every 100 women.

An additional demographic category is important to any discussion of the undocumented population but is particularly difficult to measure—the U.S.-born children of undocumented parents. Previous work with estimates similar to those presented here has shown that there are about two such U.S.-born children of undocumented migrants for every undocumented child (Passel, Capps, and Fix 2004). Applying that ratio to the March 2004 estimates points to well over 3 million U.S.-born children in families headed by undocumented migrants.

The estimates completed to date do not give a direct measure of the number of undocumented migrants in the U.S. labor force. However, labor force participation estimates

from previous research conducted with data for 2002 (Passel, Capps, and Fix 2004) would lead to an estimate of about 7 million undocumented workers for 2004—representing about 5 percent of U.S. workers.

Note on Methods and Terminology

We estimate the number of undocumented migrants by subtracting *legal* foreign-born residents from the *total* foreign-born population. This total is based on the March 2004 Current Population Survey (CPS) with an allowance for immigrants not included in the CPS. To estimate the number of *legal* residents, we use official data, mostly provided by the Department of Homeland Security and other government agencies, for the following categories: (a) legal permanent residents, i.e., green-card holders including amnesty recipients under the Immigration Reform and Control Act of 1986; (b) refugees, asylees and parolees; and (c) legal temporary residents, which include students, professors, high-tech workers, and a number of other temporary visa categories.

The estimates of the total foreign-born population are based on the March 2004 Current Population Survey, but have been corrected for misreporting of place of birth. In developing the estimates of undocumented migrants, we employ assumptions about the coverage of legal residents and undocumented residents in the Current Population Survey. The correction factors are based on official estimates of census undercount from Census 2000 and other research on coverage of the foreign-born.

The state-level estimates were done with two different methods. For the 6 "historical" states (CA, NY, TX, FL, IL, and NJ) and the balance of the country, the residual method described in the above was applied "directly" with a comparison of the estimated number of legal residents to the foreign-born population counted in the state. For the remaining states, we used a so-called "synthetic method." The ratio of undocumented residents to the foreign-born population for the entire group of the remaining 44 states and the District of Columbia was applied to each state separately. Ratios were computed for four areas of origin (Mexico, Other Latin America, Asia, and the rest of the world) and for four periods of arrival (2000–04, 1995–99, 1990–94, and pre-1990).

Undocumented or unauthorized migrants are those who do not fall into any of our legal categories. Two groups account for most undocumented migrants: (a) those who entered the country without valid documents, including people crossing the Southwestern border clandestinely; and (b) those who entered with valid visas but overstayed their visas' expiration or otherwise violated the terms of their admission. Some "undocumented" migrants in our estimate have legal authorization to live and work in the United States. Two such groups—those with temporary protected status (TPS) and asylum applicants—may account for as much as 10 percent of our estimate.

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TABLE 1. ESTIMATES OF UNDOCUMENTED MIGRANT POPULATION, FOR STATES: 2002–2004

California	2,400,000
Texas	1,400,000
Florida	850,000
New York	650,000
Arizona	500,000
Illinois	400,000
New Jersey	350,000
North Carolina	300,000
All Other	3,150,000

200,000-250,000
- Georgia
- Colorado
- Maryland
- Massachusetts
- Virginia
- Washington

100,000-150,000
- Nevada
- Oregon
- Pennsylvania
- Michigan
- Ohio
- Wisconsin
- Tennessee

55,000-85,000
- Connecticut
- Utah
- Minnesota
- Kansas
- New Mexico
- Indiana
- Iowa
- Oklahoma
- Missouri

20,000-35,000
- South Carolina
- Rhode Island
- Idaho
- Arkansas
- Alabama
- Kentucky
- Nebraska
- Louisiana
- Hawaii
- District of Columbia
- Mississippi
- Delaware

Under 10,000
- New Hampshire
- Alaska
- Wyoming
- Maine
- West Virginia
- South Dakota
- Vermont
- North Dakota
- Montana

Source: Pew Hispanic Center estimates based on March 2002, 2003, and 2004 Current Population Surveys (Passel 2005); includes an allowance for persons omitted from the CPS. Estimates for California, Texas, New York, Florida, Illinois, and New Jersey use "direct" methods; other states based on "synthetic" methods. See text.

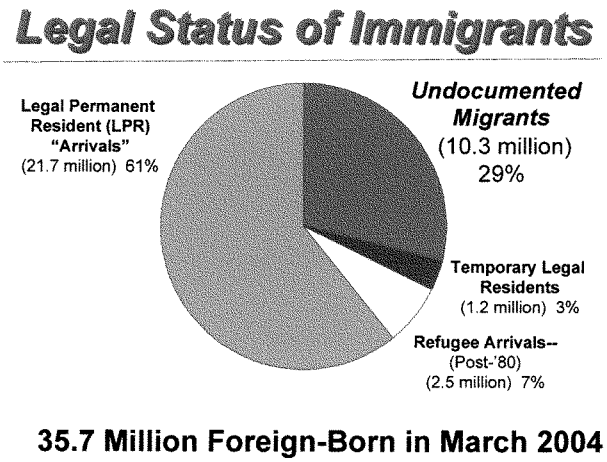

Figure 1. Legal Status of the Foreign-born Population: March 2004

Source: Pew Hispanic Center estimates based on March 2004 Current Population Survey (Passel 2005). Includes an allowance for persons omitted from the CPS. Note that LPR and refugee arrivals also include persons who have acquired U.S. citizenship through naturalization.

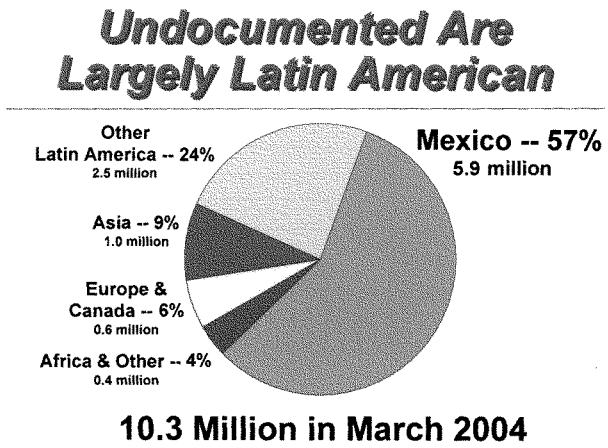

Figure 2. Country or Region of Birth for the Undocumented Migrant Population: March 2004

Source: Pew Hispanic Center estimates based on March 2004 Current Population Survey (Passel 2005). Includes an allowance for persons omitted from the CPS.

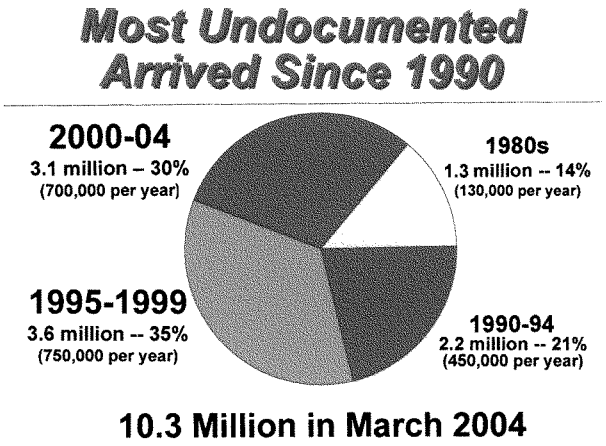

Figure 3. Period of Arrival for the Undocumented Population: March 2004

Source: Pew Hispanic Center estimates based on March 2004 Current Population Survey (Passel 2005). Includes an allowance for persons omitted from the CPS. Dates represent when the migrants "came to live in the United States."

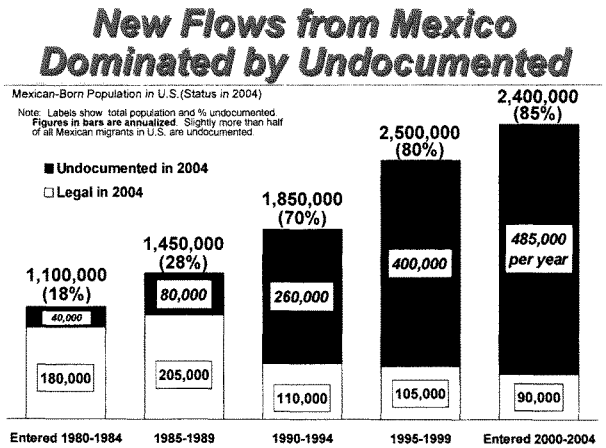

Figure 4. Mexican-Born Migrants in the United States by Legal Status and Date of Arrival—Average Annual Flows and Total Numbers: As of March 2004

Source: Pew Hispanic Center estimates based on March 2004 Current Population Survey (Passel 2005). Includes an allowance for persons omitted from the CPS.

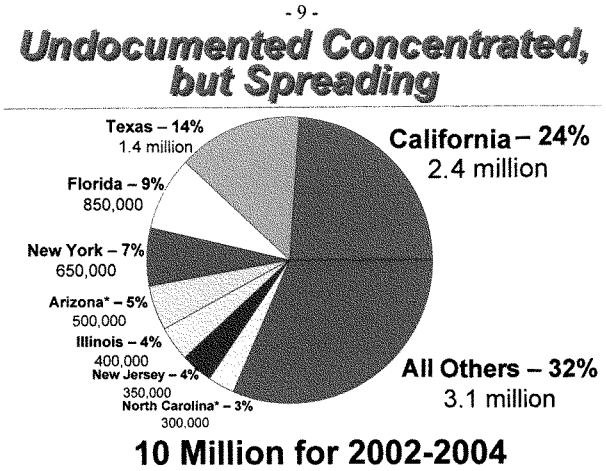

Figure 5. Undocumented Migrant Population, for States: 2002–2004

Source: Pew Hispanic Center estimates based on March 2002, 2003, and 2004 Current Population Surveys (Passel 2005). States denoted with an asterisk (*) use data for 2003–2004 only; see text. Includes an allowance for persons omitted from the CPS.

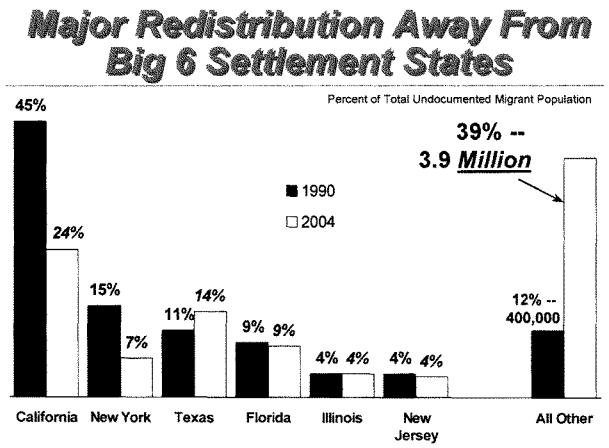

Figure 6. Distribution of Undocumented Migrants, by State: 1990 and 2004

Source: Pew Hispanic Center estimates based on March 2004 Current Population Survey (Passel 2005) and 1990 Census. Includes an allowance for persons omitted from the CPS or Census.

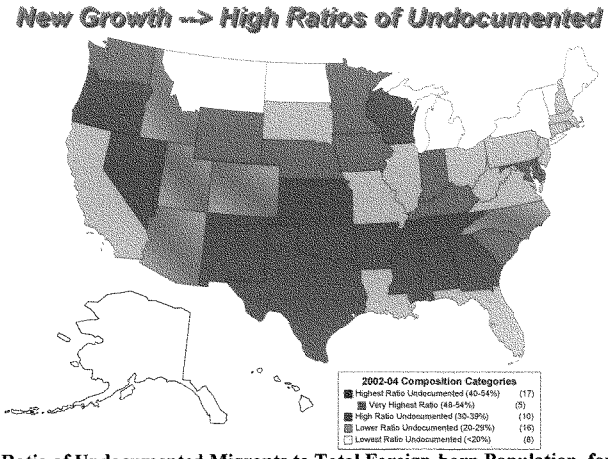

Figure 7. Ratio of Undocumented Migrants to Total Foreign-born Population, for States: 2002–2004

Source: Pew Hispanic Center estimates based on March 2002, 2003, and 2004 CPS (Passel 2005). Ratio of estimated undocumented migrants, including an allowance for persons omitted from the CPSs to average CPS foreign-born population for March 2002–2004, expressed as a percent.

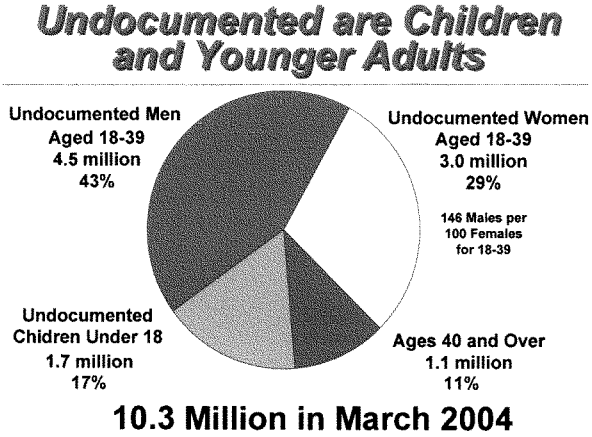

Figure 8. Undocumented Migrant Population by Age Group and Sex: March 2004

Source: Pew Hispanic Center estimates based on March 2004 Current Population Survey (Passel 2005). Includes an allowance for persons omitted from the CPS.

Testimony of

Dr. Henry F. Taylor
Distinguished Professor of Electrical Engineering
Texas A&M University

before the

Immigration, Border Security and Citizenship Subcommittee

and the

Terrorism, Technology and Homeland Security Subcommittee

of the

United States Senate Committee on the Judiciary

Hearing on "Strengthening Border Security between Ports of Entry: The Use of Technology to Protect the Borders"

Chairman Cornyn, Ranking Member Kennedy, Chairman Kyl, Ranking Member Feinstein, and Members of the respective Committees: I am honored by the invitation to testify on the topic "Buried Fiber Optic Intrusion Sensor: A New Technology for Border and Homeland Security".

BACKGROUND

Students, staff, and faculty at Texas A&M have been working on a new idea for a buried fiber optic sensor intended to detect and locate intruders crossing over monitored perimeters for the past 14 years. About 18 months ago, as a result of progress in a special laser light source which is the heart of the system, we started to get good results in the laboratory. Last summer we transported our equipment from Texas to Arizona to conduct field tests at the U. S. Marine Corps Air Station in Yuma. The positive outcome of these tests, coupled with further progress achieved since we returned from Yuma, have established the technology as a promising candidate to provide effective security for long (multi-mile) perimeters, at an estimated 10x reduction in cost vs. conventional sensors.

OVERVIEW

This testimony will cover how the sensor works, test results, what it will cost, how it compares with competing approaches, potential applications, and what additional work is

needed. Our goal: to put fieldable, user-friendly systems in the hands of Border Patrol and military personnel as soon as possible.

HOW THE SENSOR WORKS

Almost all sensors with which we are familiar (thermometers, scales, microphones) are "point sensors" which measure environmental effects or physical parameters at one location. By contrast, the buried optical fiber serves as a distributed sensor which detects disturbances anywhere along its length. The system responds to the effect of pressure produced by a person walking over or near the cable, typically buried at a depth of 1 to 2 feet, on light propagating in the fiber. It also responds to the pressure of seismic waves propagating in the earth.

A light pulse from a specially designed, ultra-stable laser is sent into the sensing fiber. As the pulse advances along the fiber, a phenomenon known as Rayleigh backscattering causes some of the light to reverse its direction. A photodetector collects this backscattered light and converts it to an electrical signal, which is then processed electronically on a personal computer to detect disturbances and determine where along the cable they are located.

TEST RESULTS

We've established a permanent test bed where cable is buried in clay soil near the Texas A&M campus, and last summer spent four weeks conducting tests in a desert environment at the U.S. Marine Corps Air Station in Yuma, Ariz. The Yuma tests established the ability to detect and locate intruders walking over or near the buried fiber optic sensor over long ranges (greater than 11 miles) and to observe simultaneous intrusion events occurring at different ranges. Vehicles traveling down a road parallel to the sensor line were also detected from seismic waves transmitted through the earth.

Following improvements over the past few months in the laser and the monitoring system, we are seeing better performance than we had thought possible. At our Texas test site, we are now getting strong signals from people walking more than 20 feet from the buried cable line, and from cars driving down a road at low speeds hundreds of feet away.

COST

The intrusion sensor system uses low-cost, reliable components developed over the past few decades for the optical communications industry. The fiber cable costs $750/mile, and burying it in a trench will usually be less than $250/mile. The monitoring equipment (including the laser, photodetector, and electronic signal processor) is estimated to cost $20,000. Thus, the cost per mile of an installed system is estimated to be $2,000 for a 20-mile system.

COMPARISON WITH COMPETING APPROACHES

Widely used "unattended ground sensors" for monitoring long perimeters include geophones (seismic wave sensors), microphones (acoustic wave sensors), short-range "multimode" fiber optic pressure sensors, and infrared motion detectors. These are all "point sensors", with typical detection ranges of the order of 100 feet. Each sensor transmits its data to a central monitoring/processing location, generally by a wireless link which requires an antenna. By contrast, the buried fiber optic sensor isn't evident or vulnerable to intruders from the presence of an above-ground antenna or radio frequency emissions.

Covertness is an important benefit of the fiber optic sensor, but its most important attribute is low cost – at least 10x less than the competition. The cost of monitoring perimeters with conventional unattended ground sensors is in the $25,000 to $50,000 per mile range.

APPLICATIONS

Border security is one of the most important applications for the buried fiber optic sensor. During the four weeks we spent in Yuma last summer, we shared a building with Marines who were engaged in 24/7 monitoring of the U. S. - Mexico border a few miles to the south. This gave us the opportunity to observe the present means of border surveillance with a radar and an infrared camera, and to discuss the fiber optic sensor with the Marines and with Border Patrol personnel who were working closely with them. The Yuma experience reinforced our feeling that the new technology could have a major impact on border security. The envisioned system would display the sensor line on a map of the surrounding terrain, would indicate the locations of intruders and their type (humans, vehicles, or animals), and would produce an audio alarm to alert the operator.

By providing two or more parallel cable lines a few hundred feet apart, information on the direction and speed of travel of intruders can also be deduced from the sensor data, at a relatively small increase in the system cost.

The maximum reach of the system in one direction from a single monitoring location is estimated to be about 20 miles without optical amplifiers. The use of such amplifiers – a mainstay in telecommunications systems – can greatly extend the range. It appears feasible to cover an entire national border from a single monitoring site.

Information from fiber optic sensors can complement that collected by other unattended ground sensors, as well as radars and video cameras. One frequently suggested scenario is to use the fiber sensor information in a controlling a video camera to point towards the location of a disturbance.

Aside from national borders, there are many homeland security applications for which the fiber optic sensor could provide a cost-effective solution: airports, pipelines, nuclear power plants, electrical power distribution centers, storage facilities for fuel and volatile chemicals, communication hubs, government offices, military bases, and embassies.

FUTURE DEVELOPMENT

In field tests, the fiber optic intrusion sensor has been shown to work better than originally anticipated. We feel that the question now is not whether the technology will become an option for perimeter monitoring, but when.

The next step is to develop a system which can be used effectively by unskilled operators and maintained by trained technicians. It is critical to achieve low false alarm rates and low missed intruder probability. The development path includes: (1) further improvements in the laser, including vibration isolation and acoustic isolation, and in the signal processor, (2) development of an algorithm to classify disturbances as humans, vehicles, or animals, (3) development of user-friendly software to display the location and type of intruder on a map of the cable line, and (4) improved techniques for cable installation in desert terrain.

How long will it take? We estimate that an accelerated development effort could put maintainable, user-friendly systems in the field within 18 months.