Security Controls on the Access of Foreign Scientists and Engineers to the United States

A White Paper of the Commission on Scientific Communication and National Security

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CONTENTS

Introduction

The U.S. State Department's visa policy is stated on its internet home page: "The U.S. is a free and open society. We welcome citizens from around the world who genuinely want to visit, study, and do business here."[1] The United States has strongly benefited from foreign engagement in the past and, in an increasingly globalized society, the value of foreign interaction continues to increase. Foreign trade constitutes a significant and increasing fraction of the U.S. Gross Domestic Product. Educational, scientific, and cultural exchange and active engagement with current and future foreign leaders promote better understanding of the United States and its values and have traditionally well-served U.S. foreign policy and national security objectives. The nation's scientific and technical infrastructure has long been enriched by foreign students, scholars, and professionals, and it is now highly dependent on them.

The globalization of science and technology means that no country has a monopoly on talent, or a unique ability to discover and apply the principles of nature. Only by drawing on and interacting with scientific and technical communities around the world can any nation's scientific and technical enterprise stay competitive. Therefore, the health and vitality of the U.S. science and technology base – and the continued ability of that base to support economic competitiveness, improve health and quality of life, and maintain and enhance national and homeland security – depend critically on foreign interaction.

However, openness can also facilitate those who threaten the security of this nation and its inhabitants. Law enforcement officials have long had to contend with individuals who seek to enter the United States without visas, or to remain after their visas have expired. Moreover, the national security community has to identify individuals who intend to spy on the United States and U.S.-based commercial enterprises or to illegally export controlled technologies. The September 11 terrorist attacks, however, starkly demonstrated a more immediate security threat posed by some foreign visitors: the planning and implementation of terrorist attacks. As a result, United States policies and procedures regarding foreign visitors underwent significant changes in the interest of tightening security. The immediate effect of these changes was to generate tremendous backlogs, disrupting the plans of many legitimate foreign visitors.

Although subsequent adjustments have ameliorated many problems, further work must be done to ensure that U.S. visa policies facilitate, rather than undermine, long-term U.S. interests. When prospective students cannot readily obtain visas to attend U.S. universities, world-class universities in other countries – with the help of visa systems that are simpler, less restrictive, and more predictable – will successfully compete for them. When foreign scientists cannot readily attend conferences, participate in collaborative research, or visit professional colleagues in the United States, U.S. researchers will have a difficult time staying competitive. And when corporations cannot readily bring suppliers, customers, or foreign employees to visit U.S.-based facilities,

[1] http://www.unitedstatesvisas.gov/visapolicy/index_text.html, last accessed October 3, 2005.

they will move those facilities abroad. Any of these outcomes harms U.S. economic and scientific interests immediately, and all of them will harm U.S. security in the long run.

Because prospective visitors base their travel plans on their perceptions of the difficulties they may encounter, improving foreign perceptions of the U.S. visa system is as important as improving the system itself. Indeed, there are growing misperceptions overseas that the United States no longer welcomes international student and scientists and is an unfriendly place to study and conduct research – fueled in part by reports of visa difficulties and delays that do not reflect recent improvements to the system.

Changes since September 11

The most visible change to U.S. visa policy in the wake of the September 11 attacks was to require that all visa applicants appear for a face-to-face interview at a United States embassy or consulate. Demand for these interviews instantly overwhelmed consular affairs staffs around the world, generating large backlogs. Moreover, consular staffs were required to collect biometric data – photographs and fingerprints – that are digitized, encoded in the visa, and used to confirm that a traveler entering the United States is the same person who was issued a visa.

A second important change involved applying existing security review procedures to a much greater number of prospective visitors. The number of so-called "Visas Mantis" reviews, triggered when a visitor's plans involve technologies considered to have national security implications, increased many-fold, and the corresponding time needed in Washington for these interagency reviews to be completed increased disproportionately. Mean review times grew to several months, with many cases taking far longer.

A third change established a new review, named "Visas Condor," for visitors from countries on the State Department's list of nations that sponsor terrorism, and for those whose country of origin and other information disclosed on their visa applications raised terrorism concerns.

These three changes substantially increased the time and the uncertainty associated with applying for a U.S. visa. Students and other visitors often were unable to secure visas in time to attend the event for which visas were requested. And in addition to being lengthy and uncertain, the process for reviewing visa applications was opaque to applicants and their sponsors. Prospective applicants and their sponsors had little basis on which to predict how long the process might take, and no information was given them on the status of their applications. Applicants were unable to determine whether their visas were likely to be issued within a few days of routine processing or were undergoing extensive review.

Changes also occurred in areas not strictly related to visa issuance:

- A new system (the United States Visitor and Immigrant Status Indicator Technology, or US-VISIT) was instituted to collect photos and fingerprints from

all foreign visitors at the border, even those foreign nationals who do not require visas to enter the United States (those from "visa waiver" countries). Although the actual photograph and fingerprint collection did not add substantially to visitor processing times, and although many other countries collect and keep track of data about foreign visitors, the program generated criticism overseas from those who took it to imply that the United States considered all visitors to be potential criminals or terrorists.

- A program to develop and implement a database to track foreign students and exchange visitors such as visiting scholars and scientists, which had taken years to develop and was in beta testing in 2001, was fast-tracked for full implementation. This system – the Student and Exchange Visitor Information System (SEVIS) – became mandatory for all foreign students and exchange visitors in January 2003.
- Foreign visitors received greater scrutiny, and in some cases hostility, as they entered the United States. Anecdotes began to accumulate with respect to disrespectful and accusatory treatment and harassment inflicted on foreign visitors by some U.S. border and immigration officials. Although these incidents were denounced by responsible officials, they were sufficiently publicized that they helped fuel the perception that the United States was becoming less hospitable for many visitors.

Taken together, the conditions experienced by many prospective visitors gave the perception – and too often the reality – that the United States was becoming an unwelcoming and increasingly hostile destination. At the same time, organizational responsibility – but not funding – for visa policy development was given to the new Department of Homeland Security (DHS), creating a bifurcation of responsibility with the State Department, which retained visa implementation. This structure complicated attempts to diagnose and fix problems.

Government officials from the Secretaries of State and Homeland Security on down have expressed concern about discouraging foreign visitors from coming to the United States,[2] and officials at all levels of government have been working in good faith with leaders from the scientific and technical communities to lessen the impact of visa policy changes on legitimate visits and exchanges and to make the process more secure and efficient. Hundreds of new consular officers have been added over the past two years. U.S. embassies are now posting information on the Internet regarding how long it takes to schedule a visa interview. Additional guidance has been provided to help consular officers better gauge when Visas Mantis and other reviews are necessary. The interagency process for handling Visas Mantis reviews has been streamlined and is increasingly employing interoperable computer systems for information sharing. Backlogs have been vastly reduced, and the duration for which such reviews remain valid has been extended.

[2] See, for example, the testimonies of Secretary of State Colin Powell and Secretary of Homeland Security Tom Ridge before the House Judiciary Committee, April 21, 2004 (available online from links at http://judiciary.house.gov/Oversight.aspx?ID=32 , last accessed October 4, 2005)

These changes have had some effect. According to the State Department, 97 percent of people approved for student visas get them within one or two days of their interview.[3] Visas Mantis reviews, approximately 2% of all visa applications but a higher percentage of applicants with scientific or technical training, took an average of 75 days to process in October 2003, but dropped to about 15 days by November 2004.[4] Of the visa applicants responding to the National Academy of Sciences' online questionnaire (a biased sample, because those experiencing delays are more likely to seek assistance from the Academy), those whose visa applications were delayed by more than 60 days dropped from 78% in 2003 to 38% in 2004, and those whose applications were still pending after 180 days dropped from 30% to 6%.[5] The National Academies regularly report to the State Department all visa cases submitted through the online questionnaire that have been pending for more than 30 days, but applicants facing long delays are still not able to learn exactly why their cases have been held up.

Additional improvements are necessary to ensure that the U.S. visa system does a better job at focusing on visitors who are legitimate subjects of scrutiny, while facilitating entry of the rest.

Importance of Foreign Interaction to American Science, Technology, and Security

Foreign interactions, visits, and exchanges are important to this nation's security, economy, and its quality of life, and particularly to the vibrancy of its scientific and technological enterprise.

1. *The United States depends heavily on foreign-born scientists and engineers.* A recent National Academies report on the policy implications of international graduate students and postdoctoral scholars found that "international graduate students and postdoctoral scholars are integral to the U.S. S&E [science and education] enterprise."[6] The report provided a number of examples, presented

[3] Maura Harty, "U.S. Visa Policy: Securing Borders and Opening Doors," *The Washington Quarterly* 28:2, pp. 23-34 (statistic quoted is on p. 29), Spring 2005. Other State Department officials have quoted the same statistic but without the limitation to student visas. This figure does not include time spent waiting for an interview.

[4] U.S. Government Accountability Office, "BORDER SECURITY: Streamlined Visas Mantis Program Has Lowered Burden on Foreign Students and Scholars, but Further Refinements Needed," Report 05-198, February 2005, p.7. Available online at http://www.gao.gov/new.items/d05198.pdf (last accessed October 4, 2005).

[5] International Visitors Office, Board on International Scientific Organizations, The National Academies, "Visa Questionnaire Statistics" (as of August 19, 2005). Available online at http://www7.nationalacademies.org/visas/Visa_Statistics.html (last accessed October 4, 2005).

[6] Committee on Science, Engineering, and Public Policy, *Policy Implications of International Graduate Students and Postdoctoral Scholars in the United States* (Washington, DC: National Academy Press, 2005), p. 4, available online at http://www.nap.edu/books/0309096138/html/4.html (last accessed October 4, 2005).

below.[7] Although some of the cited measures include permanent residents and naturalized citizens as well as temporary visitors, policies intended to affect one category can also affect another, as described later in this paper.

- In 2003, foreign students earned 58.9% of the engineering doctorates awarded in the United States.
- The share of science and engineering postdoctoral scholars who are temporary residents in the United States increased from 37% in 1982 to 59% in 2002.
- U.S. Census data from the year 2000 indicate that about 38% of doctorate-level employees in science and engineering occupations are foreign-born, compared with 24% in 1990.
- More than one-third of US Nobel laureates are foreign-born.
- Nearly half the doctorate-level staff at the National Institutes of Health campus are foreign nationals, as are 58% of the postdoctoral, research, and clinical fellows.
- Of the science and engineering tenure-track and tenured faculty, 19% are foreign-born; in engineering fields, foreign-born hold 36% of faculty positions.
- In 1966, 78% of science and engineering doctorates awarded in the United States went to individuals born in the United States and 23% to those born abroad; in 2000, the shares were 61% and 39%, respectively.

Given the fundamental contribution that foreign-born scientists and engineers make to the United States scientific and technical base, it is strongly in the national interest to ensure that this contribution can and will continue.

2. *Foreign engagement contributes directly to national and homeland security.* Efficient and effective engagement with the international scientific and technical communities is important for United States national and homeland security programs. Technologies that are developed overseas to mitigate or respond to terrorism can help meet U.S. security needs. Moreover, it is increasingly important to maintain a current awareness of the worldwide evolution, development, and dissemination of technologies, such as biotechnology, that can pose serious security threats as well as provide powerful new benefits. Active engagement with researchers around the world will be essential to assess the implications of these technologies and to begin to prepare countermeasures to potentially adverse applications. In addition, active engagement with scientists, engineers, and technicians who had previously worked in weapon of mass destruction programs (such as those in the former Soviet Union) is the best way to integrate them into the international scientific community and help ensure that their skills are put to legitimate use.

[7] The statistics that follow are presented, and sourced, on *ibid.*, pp. 1-2; available online at http://www.nap.edu/books/0309096138/html/1.html (last accessed October 4, 2005).

3. *Foreign interaction has a broader role in helping to communicate American values and in promoting a better understanding of this country abroad.* Educating tomorrow's foreign leaders and opinion makers in the United States allows them to experience this country's institutions and citizens directly, without having their perceptions filtered by the media or by the agendas of others. Foreign students can also develop networks of United States contacts that can help keep them engaged with the United States long after they return home. Indeed, more than 200 foreign participants in international exchange programs sponsored by the U.S. State Department have gone on to become heads of state or government.[8]

Disparate Border Control Objectives

Complicating the task of designing and enforcing United States border controls is the fact that these controls serve several missions – missions that may in principle have little in common but that in practice are tightly coupled by common procedures and explicit linkages.

Immigrant vs. non-immigrant visas: Section 214(b). Immigration policy governs those who seek to remain in the United States permanently; it need not have anything to do with policies governing short-term (non-immigrant) visits and exchanges. However, the principal tool used today to prevent illegal immigration is to deny entry to all visitors who cannot prove to the satisfaction of a U.S. consular officer that they will return home. Failure to prove intent to return is the most common reason for visa denial.[9] This requirement – mandated by Section 214(b) of the Immigration and Nationality Act of 1952[10] ─ was imposed at a time when the U.S. government had no program to monitor visitors' entries and exits and had almost no information on their whereabouts in between. Such a blanket screen does not distinguish Nobel Prize winners from unskilled laborers, and it prevents many prospective visitors who have no intention of staying in the United States from ever entering.

Authority to make Section 214(b) determinations – e.g., whether or not visa applicants have strong ties to their home country that indicate they intend to return – rests solely with consular officers in the field. These decisions cannot be appealed by applicants or overruled by courts in the United States,[11] although those applicants who are rejected under this provision can reapply if their circumstances have changed or if they can

[8] Maura Harty, "U.S. Visa Policy: Securing Borders and Opening Doors," *The Washington Quarterly*, Spring 2005, pp. 26-27

[9] Government Accountability Office, "BORDER SECURITY: Streamlined Visas Mantis Program Has Lowered Burden on Foreign Science Students and Scholars, but Further Refinements Needed," GAO-05-198, February 2005, footnote 7, p. 4.

[10] 8 USC 1184(b)

[11] 8 USC 1104(a)(1) assigns the Secretary of State the authority to administer and enforce all laws relating to the powers, duties, and functions of consular officers *except* those relating to granting or refusing visas, which resides solely with the consular officers.

provide new information. The government does not publish figures on the numbers of applicants who are rejected on 214(b) grounds, and consequently, it is difficult to determine whether this provision is being used appropriately and consistently. However, State Department representatives provided some verbal statistics on 214(b) denials to representatives of some of the societies that had issued a Joint Statement on visas (see footnote 16, below). These figures indicated that some 30-40% of the student visa applications from India and China were denied under Section 214(b).[12] It is commonly understood that consular officers who wish to deny a visa but cannot find other grounds on which to do so use Section 214(b) as the basis for a denial.

Regardless of whether foreign students should be encouraged or allowed to stay in the United States once they conclude their studies, there are means to detect overstays, such as the US VISIT program and the SEVIS database, that did not exist when Section 214(b) was first enacted. These means should allow a more sophisticated policy regarding the "proof" requirement under the statute.

Export control violations vs. technologies that can inflict harm: Section 212(a) and the Technology Alert List. The Immigration and Nationality Act also contains a legislative ban on admitting to the United States anyone seeking "solely, principally, or incidentally … to violate or evade any law prohibiting the export from the United States of goods, technology, or sensitive information."[13] To help consular officers identify which visa applications should be reviewed under this provision, the State Department created the Technology Alert List (TAL) that specifies areas of science and technology for which exports might be prohibited. Visas Mantis reviews were instituted to identify applicants whose proposed work or study plans involved technologies on the list.

As terrorism concerns grew, particularly those relating to weapons of mass destruction, the TAL implicitly took on a much wider role. A Government Accountability Office publication has recently described it as reflecting those "science and technology-related fields where … knowledge gained from research or work … could be harmful."[14] This is a definition that no longer refers to export controls, and in fact it includes many fields for which effective controls would be impossible. The unfortunately reality is that levels of technological sophistication sufficient to inflict great damage are available all over the

[12] In April 2005, State Department officials provide verbal statistics on 214(b) denials to representatives of some of the scientific and education societies that had issued a Joint Statement on visas (see footnote 16, below). As reported in background information released with a subsequent statement, 40% of the student visa applications from China in 2001 were denied on 214(b) grounds; 46% in 2003, and 23% in 2004 (an anomalously low figure that the State Department is investigating). For India, the 214(b) denial rates were 33% in 2000, 43% in 2003, and 40% in 2004. See "BACKGROUND Q & A: Proposed Changes to the Immigration and Nationality Act, *Section 214(b) and Other Relevant Section,* as called for in the Recommendations for Enhancing the U.S. Visa System to Advance America's Scientific and Economic Competitiveness and National Security Interests," May 18, 2005. This background information is available online at http://www7.nationalacademies.org/visas/INA%20214b%20Background%20Paper.pdf (last accessed October 4, 2005).

[13] Immigration and Nationality Act Section 212(a)(3)(A) [8 USC 1182(a)(3)(A)], specifying security grounds under which aliens are inadmissible to the United States.

[14] "BORDER SECURITY: Streamlined Visas Mantis Program …," op cit., footnote 9 above, pp. 5-6

world. Stemming flows of such technologies is futile when they are readily available internationally.

Screening potential visitors on the basis of their technological expertise, or their intentions to work in certain areas of science and technology, can improve U.S. security if the visitors pose a credible risk of illegally exploiting *controlled* technologies that are *uniquely available* in the United States (or in allied nations with similar controls), and if such reviews are conducted expeditiously. But restricting the export of widely available technologies is useless at best, and attempts to do so anyway have great potential to interfere with science, education, and commerce. Moreover, because education and fundamental research are generally excluded from export controls (see the Commission's companion White Paper on Security Controls on Scientific Information and the Conduct of Scientific Research[15]), there is little basis to screen academic visitors with Mantis reviews or other export-control mechanisms at all.

Technical vs. non-technical threats. Just as denying visitors access to U.S. technology adds nothing to U.S. security when those same technologies are available throughout the world, screens based on technical criteria do nothing to protect the United States from terrorists who do not have technical backgrounds or interests. To the extent that visitors with terrorist backgrounds, connections, or intentions can be identified and excluded from the United States, it is critically important to do so for *all* visitors, not just those illuminated under the lamppost of technical credentials. Although one of the September 11 hijackers entered the United States on a student visa (to attend flight school), the other 18 did not.

Efficient and Effective Screens a Necessity

The leaders of 35 leading scientific, technical, and education associations stated in their May 14, 2004 joint statement on visa problems that "the United States cannot hope to maintain its present scientific and economic leadership position if it becomes isolated from the rest of the world."[16] Certainly national governments have the responsibility to review those who cross their borders. However, security controls that are applied in an indiscriminate manner will be ineffective at best, if not disruptive and counterproductive. When looking for needles in haystacks, it doesn't help to add more hay. The joint visa statement goes on to say that "a more efficient [visa review and approval] system is a more secure one," and it expressed confidence that "it is possible to have a visa system

[15] CSIS Commission on Scientific Communication and National Security, "White Paper on Security Controls on Scientific Information and the Conduct of Scientific Research," June 2005, available online at http://www.csis.org/hs/0506_cscans.pdf (last accessed October 4, 2005).

[16] "Statement and Recommendations on Visa Problems Harming America's Scientific, Economic, and Security Interests," May 12, 2004 (available online at http://www.aau.edu/homeland/JointVisaStatement.pdf , last accessed October 4, 2005). This statement was followed a year later by a second one, "Recommendations for Enhancing the U.S. Visa System to Advance America's Scientific and Economic Competitiveness and National Security Interests," May 18, 2005 (available online at http://www.aau.edu/homeland/05VisaStatement.pdf , last accessed October 4, 2005).

that is timely and transparent, that provides for thorough reviews of visa applicants, and that still welcomes the brightest minds in the world."[17]

Not only is it essential that U.S. scientific and technological institutions and high-tech businesses be able to effectively engage the world scientific and technical communities, but given the dynamic nature of science and technology, they must do so in real-time. State-of-the-art science is incompatible with inflexible, extended review processes.

Short-Term Fixes

The Commission offers a number of proposals to improve visa processing, including both short-term tactical improvements to help resolve immediate problems and long-term, more fundamental shifts in how this issue is conceptualized.[18] Short-term fixes include:

1. Issue long-term, multiple-entry/exit visas.
Conditions on visas awarded to foreign nationals from a given country depend on the country. The privileges granted foreign nationals in the United States are usually set equal to the privileges that U.S. citizens are granted in that country. This reciprocity arrangement provides other nations an incentive to loosen visa controls on U.S. citizens. Citizens of China and Russia had faced the greatest difficulties in this respect, although the United States and China have just signed reciprocal agreements extending the validity of visas issued by each country to students and exchange visitors from the other.[19]

Given how important foreign visitors are to the U.S. science and technology base, issuing them long-term visas with the right to make multiple entries to the United States should not be seen as a favor granted to their home country, but rather as an action taken in our own interest to help ensure a dynamic, high-quality U.S. science and technology base. The United States should lead by example.

Recommendation:

A. *Renegotiate reciprocity agreements to extend the duration of visas granted to foreign students and scholars and to permit multiple entries on a single visa. Although requiring reciprocity offers diplomatic leverage, consider the possibility of granting long-term, multiple-entry visas even in situations when partner countries do not offer reciprocity to U.S. students and scholars.*

[17] Ibid.
[18] Some of these proposals had been previously made in the "Statement and Recommendations on Visa Problems," op cit., footnote 16.
[19] U.S. State Department Press Release, "U.S. Extends Visa Terms for Chinese Students, Exchange Visitors," June 15, 2005, available online at http://usinfo.state.gov/gi/Archive/2005/Jun/16-3190.html (last accessed October 4, 2005).

2. Facilitate in-country processing for visa renewals.
If a foreign student or scholar with a single-entry or expired[20] visa has to leave the United States, he or she must reapply for a visa before reentering. If this process were short and relatively automatic, it would not constitute a major problem. Unfortunately, it is neither. Applying for and receiving a visa can take an extended – and uncertain – period of time, making it difficult to plan travel and raising the possibility that a traveler may be unable to return. Therefore, the ability to renew visas while still inside the United States would provide tremendous advantages.

The State Department refuses to provide such a service for those on student or scholar visas, and it has terminated these services for other visa categories for which they had previously been provided. The justification offered for this refusal is that fingerprint biometrics must now be collected when visas are issued, and that it is "not feasible for the Department of State to collect the biometric identifiers" domestically.[21] This explanation is unconvincing. A government deploying hundreds of systems to collect these biometrics around the world can certainly find the capability to deploy a few more such systems at home. Visa holders would readily travel to a few centers for this purpose.

A much stronger motivation for the State Department to have all visas issued overseas is the principle of "consular non-reviewability," under which decisions of overseas consular officers regarding visa issuance cannot be reviewed in U.S. courts. Visa actions taken within the United States would be subject to judicial review. However, in-country renewals have not posed major problems in the past. Prior to July 16, 2004, the State Department revalidated six categories of visas domestically, and whatever burden of judicial review these re-validations posed was deemed to be tolerable.[22] Even if more visa categories were to be made eligible for domestic revalidation to accommodate students, scholars, and science professionals, refusals would be very rare, and court challenges even rarer, because all individuals requesting revalidation would be ones who had previously successfully received visas. Only in exceptional circumstances would an individual fail to meet the entry requirements on re-application. The disruption and uncertainty that would be avoided if visas could be renewed domestically would far outweigh any costs, in resources or in administrative effort, that in-country renewals might generate.

<u>Recommendation:</u>

B. Resume in-country revalidation of visas and extend such revalidations to foreign students and scholars.

[20] A visa's duration of validity governs how long the visa may be used to enter the United States. It is not the same as the length of time a visitor can legally remain in the United States, which is determined on entry. Therefore, a foreign visitor may be in legal status even if his or her visa has expired.
[21] "Discontinuation of Reissuance of Certain Nonimmigrant Visas in the United States," Department of State, Public Notice 4747, *Federal Register* Vol. 69, No. 120, June 23, 2004, p. 35121.
[22] These six categories did not include students and most visiting scientists, but they did include certain categories of foreign high-technology workers and individuals of "extraordinary ability" (which would include world-renowned scientists).

3. Ensure that Visas Mantis reviews are not unnecessarily repeated or inappropriately used to block access to the United States.

Until recently, Visas Mantis reviews were valid for one year. If a visitor requiring such a review reapplied for a visa more than one year later, another review would have to be conducted. It seems unlikely that a visitor's circumstances would change so much over the course of a year that someone who had previously been investigated and allowed to enter the United States would suddenly turn into a security risk. Nevertheless, the FBI found it useful to require new investigations because it enabled FBI agents to keep better track of individuals working in certain areas of technology.[23] The practical effect of such a policy was that foreign nationals who returned home (for example, for weddings or funerals) or who otherwise left the United States were reinvestigated, whereas their colleagues who remained in the United States were not.

In February 2005, the FBI and the Department of Homeland Security concluded an agreement providing the FBI access to information collected on foreign visitors through the SEVIS and US-VISIT systems. In return, the FBI agreed to extend the validity of Visas Mantis investigations for up to four years for students in approved academic programs, and for up to two years for others.[24] This policy change was a "win-win" outcome – it not only eliminated unnecessary Visas Mantis reviews and their associated delays, but it provided the security community access to information that did not depend on idiosyncrasies of individual student travel plans. This change is one example of how more efficient security can be more effective security.

Although the extended validity of Visas Mantis reviews is authorized, it is not required. Consular officers are still free to request new Visas Mantis investigations, no matter how recent the previous one has been.

Recommendations:

C. *The validity of Visas Mantis reviews should be extended to the maximum duration for which a visitor is eligible to remain in the United States. New reviews should be called for only when there is sufficient new evidence to warrant them.*

D. *Visas Mantis reviews should not be used to limit or delay access to the United States for undergraduate and graduate students who are accepted into programs based on catalog courses at accredited institutions. Instruction in such programs is excluded from export controls.*

E. *Visa Mantis reviews should not be used to limit or delay access for visitors who will be conducting fundamental research, the results of which are ordinarily published in scientific journals and made widely available in the international scientific community. Fundamental research is excluded from export controls.*[25]

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[23] "BORDER SECURITY: Streamlined Visas Mantis Program …," op cit., footnote 9 above, p. 16

[24] *Ibid.*

[25] See the CSIS Commission on Scientific Communication and National Security, "White Paper on Security Controls on Scientific Information and the Conduct of Scientific Research," *op cit.* (footnote 15

4. Ensure that the Technology Alert List remains up-to-date and realistic in terms of its objectives.

The Technology Alert List was promulgated to specify areas of science and technology in which exports may require a license or be prohibited altogether. The list is now also used to cue Visas Mantis reviews to screen for visa applicants who might illegally exploit controlled technology while in the United States. However, this export control mechanism has been adapted to other purposes to which it is less than ideally suited, such as to identify technologies that could prove harmful (regardless of how well they might be controlled). It is important that these disparate purposes be recognized as the list is updated and implemented. Input by senior scientists from outside the government would assist in keeping the list up to date and realistic. The relevance of maintaining controls in science and technology areas must be continually reassessed in a world where fewer and fewer capabilities are uniquely available within the United States or close allies with equivalent control systems.

Recommendation:

F. *Constitute an advisory panel of senior scientists from outside the government to meet regularly to (1) develop an addendum to the TAL that informs users as to technology that is readily available outside the United States in countries that do not control exports of this technology; and (2) advise on subjects that should be added to or deleted from the list.*

5. Allow third parties to vouch for visa applicants and assure that they will leave the country as promised.

Under Section 214(b), the overriding consideration for issuing a visa for a temporary visit to the United States is whether or not the applicant can be counted on to leave. Under the current system, third parties who are in a position to make such a promise credible do not have standing in the consular official's decision to grant a visa. Each applicant for admission is evaluated on his or her own circumstances, and not on the basis of sponsor's assurances or guarantees.

Nevertheless, many organizations or sponsors are in a position to assure that visitors leave – by staking their professional reputations, or posting a bond, or revoking academic support or affiliation. No such sponsor would be able to attest to the behavior of a visitor twenty-four hours a day, any more than they would be able to do so for domestic employees or affiliates. But they would be in a position to assert that the visitors were who they purported to be and had legitimate reason to be in the United States. Moreover, such a sponsor could judge whether or not to take the risk that it could guarantee that the visitor would return home.

Any program that would allow third parties some formal standing in vouching for, sponsoring, posting bond for, or otherwise guaranteeing the return home of temporary visitors would have to specify the obligations and responsibilities of the third party.

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above) for a discussion of the applicability of export controls to the conduct or dissemination of fundamental research.

Moreover, a mechanism would be needed to ensure that these third parties were legitimate and accountable, weeding out fraudulent schemes in which visitors have bought their way into the country in the past. Nevertheless, a third party sponsorship program appears to offer great promise.

Recommendation:

G. Provide a mechanism for sponsors to vouch for the qualifications of temporary visitors and to guarantee (by posting bond or some other mechanism) that these visitors will not remain in the United States.

6. Allow United States government officials to vouch for visa applicants and assure that they will leave the country as promised.

Even United States government officials have difficulty bringing key foreign visitors into the United States. Officials including Department of Energy scientists working with former Soviet nuclear weapons designers and State Department officials seeking to bring Iraqi scientists to the United States have suffered difficulties in getting visas for their guests.

These difficulties are likely another consequence of the principle of consular officer non-reviewability: because they have ultimate authority over whether or not to issue visas, consular officers do not take direction from other government officials. However, they can certainly take advice – and a compelling policy rationale for bringing a foreign national into the United States should factor into their decision.

Recommendation:

H. Provide a mechanism to facilitate issuance of visas to visitors whose presence in the United States serves United States government missions.

7. Communicate to the world that the United States welcomes and values foreign students and scholars.

Eliminating roadblocks and delays from the U.S. visa system will not improve this nation's ability to engage with foreign scientists and engineers if the perception remains that these problems have not been addressed. Too many students and scholars overseas have an image of an unwelcoming America, which in part has been fueled by excesses in the past. To ensure that foreign visitors seek to make America their destination of choice – in the midst of active and growing competition from universities and research laboratories in other nations who are also seeking the world's best minds – the United States needs to communicate that its visa procedures have been streamlined, and (to the extent that this paper's recommendations are adopted) that they will be even more efficient in the future. Unless the word gets out among students abroad, it will be years before perception catches up with reality.

Recommendation:

I. Conduct a public information campaign to correct misperceptions, convey that the United States has improved its visa processes, and make clear that the

United States continues to welcome foreign students, scholars, and other visitors.

More Fundamental Shifts

Fundamental changes to make the current system more effective and efficient would require rethinking some assumptions that have been built into current visa policy; they may also require legislative change.

1. Presumption of immigrant status

As discussed above, Section 214(b) of the Immigration and Nationality Act of 1952 requires that applicants for visas be presumed to be immigrants unless and until they can prove otherwise. In practice, this means that non-immigrant (i.e. temporary) visas cannot be issued unless applicants can demonstrate to a consular officer's satisfaction that they have significant ties to their home country – such as a family, a home, and employment – that would assure their return. This legislation assumes that all visitors are a threat to the United States, or at best a drain on its economy, in that any temporary visitor who overstays a visa is a much more serious threat than one who is prevented from entering in the first place.

There are valid reasons to be concerned about illegal immigration to the United States. However, distinguishing foreign students and scholars from other foreign potential immigrants would be a helpful measure. Foreign students and scholars who remain in United States make highly significant contributions to U.S. scientific and technological capability – making it particularly ironic that the only way they can enter the United States in the first place is by proving their intent to make those contributions somewhere else. Those admitting that they might be open to applying for immigration at a later point would be disqualified from entry.

At the time the 1952 Act was enacted, there were very few tools to prevent people from "disappearing" into the United States economy other than to keep them out of the country in the first place. However, modern information technology offers advanced ways to keep track of those who overstay visas. For example, anyone getting a job in the United States today is legally obligated to prove that he or she is eligible for employment – either by citizenship or by holding a valid visa. Therefore, any temporary visitor to the United States who applied for a job in the United States would have to forge a work-eligible visa. If employers could check a database to validate visas – perhaps a version of the SEVIS database extended to additional types of visitors – such fraud could be stopped. Full implementation of the US-VISIT program, including exit monitoring, will provide information on whether temporary visitors had indeed left the country or were remaining illegally. Under these circumstances, any professional or skilled researcher who hoped to remain in the United States would be left without an option to work in his or her field. It is certainly possible that he or she could disappear into the underground economy, but hardly likely.

Therefore, policy regarding the treatment of would-be immigrants should not be the basis for denying admission to students and other short-term visitors. In particular, all that should be necessary of prospective students is that they have legitimate academic intent and the financial means to complete their studies in the United States.

Recommendations:

J. *Decouple the issue of short-term visits from immigration policy by rethinking the rationale to include students and scholars under Section 214(b). Instead of demanding that students prove their intent to return to their home countries after completion of their U.S. studies – proof that may be difficult for them to provide – accept evidence of their ability to complete and to pay for their desired course of study. Do not penalize students for legally seeking to change their status to a category, such as an "H" visa, that permits them to seek employment in the United States.*

K. *Take better advantage of information technology tools and databases that can indicate whether students who have completed or left their courses of study, or other visitors who are in the United States for a specific purpose, might have overstayed their visas. Fund full implementation of the US-VISIT program, including entry and exit monitoring, to provide data on overstays. Such data would permit more selective targeting of groups who might be more likely to overstay their visas in the future.*

2. Technology awareness rather than technology controls

U.S. law requires that visas be denied to individuals seeking to violate U.S. technology export control laws and regulations. Although preventing these violations is a legitimate objective, excluding foreign nationals inferred to have that intent has a particularly low payoff, for both pragmatic and philosophical reasons.

Pragmatically, the visitors whose exposure to advanced technology is sufficient for them to be in a position to violate export control laws are a tiny minority of the number of visitors with expertise in or an interest in studying the areas of science and technology identified in the Technology Alert List. The number of such individuals whose intentions can be inferred to be illegitimate is even smaller. It is not clear how effectively a consular officer – even with the help of the Washington-based Visas Mantis reviews – can identify individuals who should be excluded under this provision. It is also not clear whether the security benefits to be gained by doing so are worth the cost of inconveniencing (and possibly excluding in error) the vastly larger set of individuals whose visits benefit the United States. The more difficult it is for technically trained individuals to visit the United States, the less likely it is that they will do so – an outcome that presumably lessens the risk that U.S. technology will be exploited, but at the cost of lessening the chance that U.S. technology will remain worth exploiting.

Philosophically, erecting barriers is an increasingly counterproductive way to ensure security in a world of globalized science and technology. In a world of globalized science and technology, security comes from windows, not walls. It is true that

knowledge gained by foreign nationals in "research and work" in certain areas of science and technology has the potential to "be harmful," in the language used by the Government Accountability Office to describe the Technology Alert List. But when the United States has very little ability to *control* the development and dissemination of such fields, our security depends on being able to *monitor and assess* them, and particularly on being able to identify illegitimate applications. We cannot remain aware of the global development and application of security-relevant fields of science and technology unless we interact with those researchers who are working in them.

The more information that can be gathered about foreign science and technology, the better – and reviews of foreign visitors with scientific or technical backgrounds can be quite useful if the objective of these reviews is to gather information, rather than to control admission. Such reviews of information already collected in visa applications or interviews would not inconvenience foreign visitors, but they might contribute to a better awareness of the status of global technology development and even provide some possibility of flagging suspicious activities.

Recommendation:

L. *With respect to visa and border control information systems, place greater emphasis on using information on the technical expertise and activities of foreign visitors to enhance our awareness of the global technical enterprise, and less on using it as a basis for restricting entry to the United States (in the absence of specific adverse information).*

3. Focus controls on technology uniquely available in the United States (and allies with similar control systems)

To the extent that visa controls are imposed on foreign visitors because of the specific areas of science and technology they may be exposed to in the United States, it only makes sense to control access they cannot gain elsewhere. Dr. John H. Marburger, the Director of the White House Office of Science and Technology (OSTP), acknowledged this principle in a statement before the House Committee on Science in October, 2002, which described work OSTP had done to implement a directive by President Bush to "prohibit certain international students from receiving education and training in sensitive areas, including areas of study with direct application to the development and use of weapons of mass destruction."[26] Marburger described a review process that agencies were (at the time of his testimony) implementing that would "focus on international students who wish to participate in sensitive science and technology areas that are *uniquely available* in the United States and who may use the knowledge gained to threaten the security of the United States" (emphasis added).[27] Implementation of this

[26] Homeland Security Presidential Directive 2, "Combating Terrorism Through Immigration Policies," October 29, 2001; section 3 on "Abuse of International Student Status" (available online at http://www.whitehouse.gov/news/releases/2001/10/20011030-2.html ; last accessed October 4, 2005)

[27] Statement of the Honorable John H. Marburger, Director, Office of Science and Technology Policy, Before the Committee on Science, U.S. House of Representatives, October 10, 2002 (available online at http://www.house.gov/science/hearings/full02/oct10/marburger.htm , last accessed October 4, 2005).

process – to be overseen by an Interagency Panel on Advanced Science and Security – was never completed and appears to have been put on hold, so it is not possible to assess how it would have worked. However, the proposed process appropriately recognized the limited circumstances in which denying access can stem the dissemination of potentially harmful technologies. Even then, any mechanism to implement a screen must involve science agencies of the U.S. government and scientific experts – and the security benefits of such a screen would have to exceed the costs of introducing delay, inconvenience, and uncertainty to those visa applicants not found to warrant exclusion.

Recommendation:

M. *If foreign nationals proposing to study or do research in the United States are screened and excluded from the United States on the basis of the fields of science and technology they are to work in, such reviews should focus on areas that are uniquely available in the United States, and they should involve qualified scientific experts who can accurately assess which technologies are uniquely available in the United States.*

Annex I: Members of the Commission on Scientific Communication and National Security

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Annex II: About the Commission on Scientific Communication and National Security

In partnership with CSIS, the National Academies in 2003 established the *Roundtable on Scientific Communication and National Security,* a deliberative body that represented a broad cross-section of the national security and scientific communities. The Roundtable provided a structured opportunity for the identification and discussion of the challenges posed by the potential conflicts between openness in science and requirements needed for enhanced national security. The roundtable format—a neutral discussion forum—enabled members of diverse and sometimes opposing institutions to engage in a continuing dialogue, and it provided them with the opportunity to build ongoing relationships that could, over time, facilitate collaboration. Consonant with policy and practices of the National Academies, the Roundtable did not make policy recommendations.

At the same time, the *Commission on Scientific Communication and National Security* (CSCANS) was created at CSIS with the same membership. Acting independently of the Roundtable, the Commission had the objective of generating actionable recommendations for public policy. This paper is a product of the CSIS Commission.

Goals

The CSIS-National Academies collaboration convened four times over a two-year period to discuss and study these issues as well as other urgent and ongoing issues associated with the central relationship between advancements in science and the preservation of security. The specific aims of the collaboration were:

- To foster dialogue between the science and technology and security communities as part of the process of formulating national policies regarding scientific collaboration and communication;
- To establish a focal point for unbiased and deliberative consideration of solutions to the dilemmas posed by balancing the need for open scientific communication with the need for protecting national and homeland security; and
- To propose policy-relevant research and analysis in this area.

Meeting these challenges is not a responsibility of the scientific community or the national security community alone; it requires an integrated effort. Science and security efforts must inform and support each other in order to successfully improve both the security and welfare of the United States.

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