S. Hrg. 116–286

SECURING THE U.S. RESEARCH ENTERPRISE FROM CHINA'S TALENT RECRUITMENT PLANS

HEARING

BEFORE THE

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS
OF THE

COMMITTEE ON
HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

NOVEMBER 19, 2019

Available via the World Wide Web: http://www.govinfo.gov

Printed for the use of the
Committee on Homeland Security and Governmental Affairs

SECURING THE U.S. RESEARCH ENTERPRISE FROM CHINA'S TALENT RECRUITMENT PLANS

S. Hrg. 116–286

SECURING THE U.S. RESEARCH ENTERPRISE FROM CHINA'S TALENT RECRUITMENT PLANS

HEARING

BEFORE THE

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS
OF THE

COMMITTEE ON
HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

NOVEMBER 19, 2019

Available via the World Wide Web: http://www.govinfo.gov

Printed for the use of the
Committee on Homeland Security and Governmental Affairs

U.S. GOVERNMENT PUBLISHING OFFICE
41–995 PDF WASHINGTON : 2021

COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS

RON JOHNSON, Wisconsin, *Chairman*

ROB PORTMAN, Ohio
RAND PAUL, Kentucky
JAMES LANKFORD, Oklahoma
MITT ROMNEY, Utah
RICK SCOTT, Florida
MICHAEL B. ENZI, Wyoming
JOSH HAWLEY, Missouri

GARY C. PETERS, Michigan
THOMAS R. CARPER, Delaware
MAGGIE HASSAN, New Hampshire
KAMALA D. HARRIS, California
KYRSTEN SINEMA, Arizona
JACKY ROSEN, Nevada

GABRIELLE D'ADAMO SINGER, *Staff Director*
DAVID M. WEINBERG, *Minority Staff Director*
LAURA W. KILBRIDE, *Chief Clerk*
THOMAS SPINO, *Hearing Clerk*

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS

ROB PORTMAN, Ohio *Chairman*

RAND PAUL, Kentucky
JAMES LANKFORD, Oklahoma
MITT ROMNEY, Utah
JOSH HAWLEY, Missouri

THOMAS R. CARPER, Delaware
MAGGIE HASSAN, New Hampshire
KAMALA D. HARRIS, California
JACKY ROSEN, Nevada

ANDREW DOCKHAM, *Staff Director and Chief Counsel*
AMANDA NEELY, *Deputy Chief Counsel*
JOHN KILVINGTON, *Minority Staff Director*
KATE KIELCESKI, *Chief Clerk*

CONTENTS

WITNESSES

TUESDAY, NOVEMBER 19, 2019

ALPHABETICAL LIST OF WITNESSES

APPENDIX

SECURING THE U.S. RESEARCH ENTERPRISE FROM CHINA'S TALENT RECRUITMENT PLANS

TUESDAY, NOVEMBER 19, 2019

U.S. SENATE,
PERMANENT SUBCOMMITTEE ON INVESTIGATIONS,
OF THE COMMITTEE ON HOMELAND SECURITY
AND GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10:03 a.m., in room SD–342, Dirksen Senate Office Building, Hon. Rob Portman, Chairman of the Subcommittee, presiding.

Present: Senators Portman, Romney, Hawley, Carper, Hassan, and Rosen.

Also present: Senator Scott.

OPENING STATEMENT OF SENATOR PORTMAN[1]

Senator PORTMAN. With Senator Carper's attendance, this hearing will come to order.

Last night, Senator Carper and I released an investigative report[2] detailing the threat of China's talent recruitment programs and what it poses to U.S.-funded research. This is, as some of you know, the Subcommittee's third investigation focusing on China issues. We exposed China's role in fueling the opioid crisis by shipping deadly synthetic fentanyl to the United States using the U.S. Postal Service (USPS). Earlier this year, we detailed China's propaganda efforts through the Confucius Institutes on U.S. college campuses and high schools. Both of these investigations have resulted in constructive bipartisan legislative efforts to address the serious problems we identified, and we expect the same will happen with regard to the issue we are talking about today.

This report follows an 8-month investigation into how the American taxpayer has, in effect, unwittingly funded research that has contributed to China's global rise over the past 20 years. Through talent recruitment programs, China has strategically and systematically acquired knowledge and intellectual property from researchers and scientists in both the public and private sector. Think artificial intelligence (AI) or 5G.

America built the world's most successful research enterprise based on certain values, including collaboration, integrity, peer review, transparency, and improving the public good. The open and collaborative nature of research in America is one of the reasons

[1] The prepared statement of Senator Portman appears in the Appendix on page 41.
[2] The Staff Report appears in the Appendix on page 75.

we attract the best and brightest in the world. Some countries, however, have exploited America's openness to advance their own national interests. The most aggressive is China.

For China, international scientific collaboration is not solely about advancing science for the global good. It is by their own admission about advancing China's national security and economic interests. They have been clear about it. China's stated goal is to be the world's leader in science and technology (S&T) by 2050.

To achieve its science and technology goals, China has implemented a whole-of-government campaign to recruit talent and foreign experts from around the world. China uses more than 200 talent recruitment programs to lure foreign-trained scientists, researchers, and entrepreneurs into providing China with technical know-how, expertise, and foreign technology.

Our investigation focused on China's most prominent program called the "Thousand Talents Plan (TTP)." Launched in 2008, China designed the Thousand Talents Plan to recruit 2,000 high-quality overseas experts. By 2017, China dramatically exceeded its recruitment goal, recruiting more than 7,000, and I quote, "high-end professionals."

Our report also details how the Chinese Communist Party controls and administers these talent recruitment programs. Thousand Talents Plan members typically receive a salary and funding for their research from Chinese institutions, such as Chinese universities or research institutions. In exchange for the salary and research funding, which sometimes include what is called a "shadow lab" in China, members sign legally binding contracts with the Chinese institutions that typically contain provisions that prevent the members from disclosing their participation in the program. This requirement, of course, runs counter to U.S. regulations that require grant recipients to disclose foreign funding sources. In effect, it incentivizes program members to lie on grant applications to U.S. grantmaking agencies and to avoid disclosing their funding from Chinese institutions.

China now wants to keep this quiet. Following increased public scrutiny, a year ago, in October 2018, 10 years into the program, China scrubbed online references to the Thousand Talents Plan and deleted the names of the participating scientists and researchers. The names of participating scientists and researchers are no longer publicly available, and we do not reveal the names of individual members in this report. But in the interest of transparency, our report does include examples of Chinese Thousand Talent Plan contracts[1] and case examples of members engaging in illegal and unethical behavior. We thought it was important to publish this information so that the U.S. higher education community and Federal Government agencies see firsthand that these contracts and case examples contradict our own research values.

These talent recruitment programs are a win-win for China. China wins twice. First, U.S. taxpayers are funding this research, not China. They do not have to pay for it. Second, China then uses the research it would not otherwise have to advance its own economic and military interests.

---

[1] The chart referenced by Senator Portman appears in the Appendix on page 236.

The Subcommittee reviewed the Federal Government's efforts to mitigate the threat posed by the Chinese talent recruitment programs to the U.S. research enterprise. We found that the U.S. Government was slow to recognize the threat and even today lacks a coordinated interagency strategy to secure U.S. research.

First and foremost, Federal law enforcement must recognize these threats and must inform the public. Despite China's publicly announcing the Thousand Talents Plan in 2008, it was not until mid-2018, last year, that Federal Bureau of Investigation (FBI) headquarters in Washington, D.C., took control of the response to the threat posed by the Thousand Talents Plan.

I do appreciate the FBI's candor in Mr. Brown's prepared statement for today's hearing where he says he wishes the FBI had taken "more rapid and comprehensive action in the past," and I told Mr. Brown that this morning. While I fully understand why there have been complexities in this case, I want you to know that we stand ready to work with the FBI to protect U.S. taxpayer-funded research.

Second, despite spending more than $150 billion of taxpayer money per year funding research and development (R&D), our Federal grantmaking agencies, like the Department of Energy (DOE), the National Institute of Health (NIH), National Science Foundation (NSF), who we will hear from today, lack a uniform and coordinated process to award, track, and monitor Federal grant funds. That leaves our research dollars vulnerable.

As an example, the Department of Energy's prominent role in advanced research and development make it particularly attractive to the Chinese Government. The Department of Energy is the largest Federal sponsor of research in the physical sciences. Most of this research occurs in our Nation's national labs.

Through our investigation, we learned that Thousand Talents Plan members worked at national labs on sensitive research and maintained security clearances. One Thousand Talents Plan member used intellectual property created during work in a national lab and filed for a U.S. patent under the name of a Chinese company, effectively stealing the U.S. Government-funded research and claiming it for the Chinese company.

Another member downloaded more than 30,000 files from a national lab without authorization right before this individual returned to China.

Just last year, the National Institutes of Health, started reviewing its grants for connections to the Thousand Talents Program. The NIH found instances of grant fraud by failing to disclose foreign funding and associations, theft of intellectual capital and property, and violations of the peer review process by sharing confidential grant applications, which is against NIH rules.

The National Science Foundation has taken several but yet insufficient steps in its attempt to mitigate the risk of Chinese talent recruitment programs. In July 2019, just a few months ago, the NSF prohibited its employees from joining talent recruitment programs, but the policy does not apply to the more than 40,000 NSF-funded researchers who actually conduct the research and are the most likely to be members and targets of a talent recruitment pro-

gram. NSF does not have any employees dedicated to grant oversight.

Third, the State Department is on the front lines here due to its responsibilities to vet visa applications for visiting students and scholars. The State Department has a process to review visa applicants it believes may attempt to steal sensitive technologies or intellectual property. But it rarely denies visas under that process.

Finally, U.S. universities and U.S.-based researchers must take responsibility in addressing this threat. If universities can vet employees for scientific rigor or allegations of plagiarism, they can also vet for financial conflicts of interest and foreign sources of funding.

These are complicated risks that the U.S. research community and the Federal Government must better understand. The threat to fundamental research is not always black and white. It is not always about legal or illegal.

On a more positive note, starting earlier this year the White House's Office of Science and Technology Policy (OSTP) has hosted productive seminars and listening sessions with Federal agencies and U.S. research institutions on how to respond to these threats. We look forward to working with the White House and the agencies to assist with appropriate legislation.

I will be the first to acknowledge that our relationship with China is complicated. However, one thing is very simple: It is not in our national security interest to fund China's economic and military development with U.S. taxpayer dollars.

I look forward to the hearing today, and with that, I turn to Ranking Member Tom Carper for his opening statement.

OPENING STATEMENT OF SENATOR CARPER[1]

Senator CARPER. Thanks, Mr. Chairman. Thanks for, I thought, really an excellent statement. We are joined here today by five witnesses, and some of you have been before us before, some not. Whether this is your first tour of duty here or maybe a second or third, we welcome you.

I sit before you as a recovering Governor, and as it turns out, I am not the only one here. To my left, former Governor Hassan from New Hampshire served two terms. Former Governor Romney chose to serve just one term as Governor of Massachusetts. He could have been elected Governor for life, if he had chosen—well, for half-life.

Senator ROMNEY. From your lips. [Laughter.]

Senator CARPER. Former Governor Scott from Florida. I approach this job as a recovering Governor. During the two terms I was privileged to be Governor of Delaware, more jobs were created in my little State than at any time in Delaware history before or since. I did not create one of them. What I did is I worked very hard with the legislature, which was half Democrat, half Republican, and with a lot of stakeholders in my State and outside of our borders to try to create a more nurturing environment for job creation and job preservation. Governors do not create jobs. Senators do not create jobs. Presidents do not create jobs. But working with a lot of

[1] The prepared statement of Senator Carper appears in the Appendix on page 45.

other folks in our States and out of our States, we can create a nurturing environment.

What else is in that nurturing environment? I spoke to a big, a transportation group from all over the country earlier today. Roads, highways, bridges—hugely important. Ports, airports, rail—hugely important. A well-educated workforce. We have 5 million jobs that nobody went to work today to fill because they do not have the training, the education, the skills, or the desire to do those jobs. Maybe they cannot pass a drug test. That is a big element.

Common-sense regulations, an affordable tax burden, public safety would be one as well; clean air and clean water; the ability to export goods and services all over the world and to make sure that other nations are not illegally dumping their stuff on our economy. Open space. Clean air, clean water, open space, beautiful beaches, cybersecurity, investments in R&D that can be commercialized and turned into economic ventures, successful entrepreneurial activity, protection of intellectual property, access to decisionmakers, and the list goes on.

What I am trying to do here at the outset is to put in context what we are focused on, and there is not just one way to create jobs and create that nurturing environment. There are a lot of ways. But among the most important is the ability to invest in R&D that actually leads to job creation and to make sure that we protect the intellectual property that is like mother's milk.

Every now and then I have used the phrase "eating our seed corn," and that is not something you want to do, whether you are a business or a State or a nation. In this case, China is attempting to, with some success, eat our seed corn, and we cannot allow them to do that.

Those of us serving in the Congress—in the Senate, the House—and those serving in the administration play a key role in ensuring that our country continues to be a place where businesses can thrive and create jobs.

A big part of our job when it comes to economic competitiveness involves helping the United States remain on the cutting edge with respect to R&D. We invest, as I am sure you know, a significant amount of taxpayer money every year in doing just that. I am told that the agencies before us today spend roughly $45 billion each year to fund research at colleges, universities, and other institutions across our country. These investments have led to major innovations. I will mention a couple of them.

For example, a National Science Foundation grant supported a Stanford University project that eventually led to the founding of Google, one of the most successful companies in the world.

NIH and Department of Energy grants were critical to the success of the Human Genome Project, an historic undertaking that will deliver medical and economic benefits for decades to come.

As the report we issued today points out, though, the Chinese Government has for more than a decade sought to boost its own research and innovation capabilities by exploiting investments that America has made and is making. They have recruited, as the Chairman said, thousands of experts from a wide range of fields to transfer intellectual property developed here in the United States of America to China in order to benefit Chinese researchers, Chi-

nese businesses, and ultimately, in many cases, the Chinese military.

A number of American researchers who have been drawn into this effort even sign contracts with their Chinese employers. In at least some cases, these contracts give China ownership of technologies and innovations that Americans have discovered and developed. Some of those contracts even require that information about the researchers' Chinese ties be kept from their American employers and the Federal agencies that fund their work.

Our report contains examples of contracts that researchers working with the Chinese Government must sign, along with case studies detailing the steps that some American researchers have taken to aid China while hiding their activities from our government.

I hope that the publication of this information will inspire a serious and urgent conversation on university campuses and among scientists and researchers about the growing threat that China's talent recruitment efforts pose for our country. I hope it also leads to an appreciation of the consequences that come from giving a foreign government so much access to and control over the vital research we rely on to fuel our economic engines for competitiveness and bolster our national defense.

Having said that, we should not step back from international collaboration in science and technology. As China's aggressive efforts show, our scientists, research institutions, and universities remain the best in the world and serve as a magnet for talented people to do meaningful, cutting-edge work. We need to keep investing in that work while doing more to keep scientists, their innovations, and the jobs that flow from those innovations here, right here in this country.

But we also need to be smart and take the steps necessary to ensure that conflicts of interest are disclosed and those who might be looking to cheat and steal to get ahead no longer receive Federal research dollars.

I was pleased to hear in preparing for this hearing about some of the steps that agencies have begun taking to better manage and secure Federal research programs. For example, agencies have reached out to universities and research institutions across our country to raise awareness about this threat and emphasize the importance of fully reporting foreign collaborators. Some have also implemented policies prohibiting employees from participating in foreign talent recruitment plans.

These are good first steps, but we need to do even more. Due to our lax oversight of Federal research grants and the ineffective and mixed messages that agencies have been delivering to schools and researchers on this topic over the years, we have given the Chinese and likely other countries a running start. We cannot continue to allow this to happen.

We look forward to hearing from all of our witnesses today about how we can further improve our efforts to deny our competitors and adversaries the opportunity to continue to reap economic and military gains at our expense in the future.

Delaware was the first State to ratify the Constitution. When we were kids in school, we had to memorize the Preamble to the Constitution. Maybe you did, too. But it starts off with these words:

"We the People of the United States, in Order to form a more perfect Union" Think about that. It does not say "a perfect Union." It says "a more perfect Union." I sort of capsulize that and say that everything we do we know we can do better. This is an area where we really need to do better. We need to be your partner. As we used to say in the Navy, all hands on deck.

All right. Let us go get them. Thanks so much. Thanks for joining us.

Senator PORTMAN. Thank you, Senator Carper.

We will now call the panel of witnesses. Again, thank you all for being here.

John Brown is with us. He is the Assistant Director with the Counterintelligence Division of the Federal Bureau of Investigation.

Dr. Rebecca Keiser is the Office Head of the Office of International Science and Engineering of the National Science Foundation.

Dr. Michael Lauer is the Deputy Director for Extramural Research within the National Institutes of Health.

The Honorable Dr. Christopher Fall, who is a confirmed member of the panel, is the Director of the Office of Science with the Department of Energy.

Edward Ramotowski is the Deputy Assistant Secretary for Visa Services at the Bureau of Consular Affairs of the State Department.

It is the custom of this Subcommittee to swear in all witnesses. I would ask you to please stand and raise your right hand. Do you swear that the testimony you will give before this Subcommittee will be the truth, the whole truth, and nothing but the truth, so help you, God?

Mr. BROWN. I do.

Ms. KEISER. I do.

Dr. LAUER. I do.

Mr. FALL. I do.

Mr. RAMOTOWSKI. I do.

Senator PORTMAN. Thank you. Please be seated.

Let the record reflect that the witnesses all answered in the affirmative. All of your written testimony will be printed, and I encourage people to look at that testimony because, as I said earlier, there are some very interesting elements to it. But we would ask you to try to limit your oral testimony to 5 minutes this morning, and then we will have the opportunity to have questions.

Mr. Brown, we will hear from you first.

TESTIMONY OF JOHN BROWN,[1] ASSISTANT DIRECTOR, COUNTERINTELLIGENCE DIVISION, FEDERAL BUREAU OF INVESTIGATION, U.S. DEPARTMENT OF JUSTICE

Mr. BROWN. Thank you, Chairman Portman, Ranking Member Carper, Members of the Subcommittee. Thank you for the opportunity to appear before you today, and thank you for highlighting the national security and economic threat from Chinese talent plans. I want to thank you for your report as well. I had a chance

[1] The prepared statement of Mr. Brown appears in the Appendix on page 48.

to go through it a little bit last night. We all want to do better, absolutely, and I think that is why we are all here today.

Time and time again, the Communist Government of China has proven that it will use any means necessary to advance its interests at the expense of others, including the United States, and pursue its long-term goal of being the world's superpower by 2049.

As you well know, make no mistake: We are in a fight, a fight where the attack surface is our institutions, companies, and universities. Admittedly, in 2008, America did not fully understand the threat that we face today. The Chinese Government knows that economic strength and scientific innovation are the keys to global influence and military power, so Beijing aims to acquire our technology—often in the early stages of development—as well as our expertise to erode our competitive advantage and supplant the United States as a global superpower. As part of this effort, China has been making extensive use of nontraditional collectors. These individuals are not "spies" in the traditional sense of intelligence officers, but they are nonetheless collecting information sought by the Chinese Government.

Among its many ways of collecting information, prioritized in its national strategies, the Chinese Government oversees expert recruitment programs known as "talent plans." Through these programs, the Chinese Government offers lucrative financial and research benefits to recruit individuals working and studying outside of China who possess access to or expertise in high-priority research fields. These talent recruitment programs include not only the well-known Thousand Talents Plan but also more than 200 similar programs, all of which are overseen by the Chinese Government and designed to support its goals, most of the time at U.S. taxpayers' expense.

While mere participation in a talent plan is not illegal, investigations by the FBI and our partner agencies have revealed that participants are often incentivized to transfer to China the research they conduct in the United States, as well as other proprietary information to which they can gain access, and as such remain a significant national security threat to the United States. In some cases, this has resulted in violations of U.S. law, including economic espionage, theft of trade secrets, and grant fraud.

Talent plan participation can also violate conflict-of-interest policies put in place by American research institutions or Federal grant agencies, particularly if talent plan participants fail to disclose their sources of funding.

In addition, many talent plan participants sign contracts outlining work that mirrors the research they perform at American institutions. These contracts subject participants to the broad laws of the Chinese Government and, ironically, strictly protect China's right to the patents and other intellectual property developed during work within the talent plan.

It is also important to mention that last year, after we began some high-visibility arrests and prosecutions of talent plan members, the Chinese Government responded by abruptly removing their public information about these programs and their participants, as the Chairman mentioned. If these plans are as innocuous as they try to imply, why the shift to secrecy?

By contrast, anyone can go online and search every grant awarded by the National Science Foundation. The U.S. Government does not conceal our research funding because we have nothing to hide. The Chinese Government's abrupt concealment is not just an admission of the ulterior motives of their talent plans; viewed more broadly, it is yet another illustration of China's lack of openness, fairness, and reciprocity, as contrasted with the behavior of free nations like the United States and our allies.

I would also like to note that people of any ethnicity may be recruited to join talent plans, so I cannot overstate that ethnicity plays no role in our investigations. Instead, we follow facts and evidence wherever they lead. We have never asked any university, company, or other entity to profile people based on ethnicity, and we would be appalled if they did. As is true for all FBI programs, we investigate specific individuals when we have specific evidence that they are engaged in unlawful activity or pose a threat to national security.

Nor do we have any intention of chilling academic freedom or curtailing international exchange. Quite the reverse. International collaboration plays a crucial role in the development of scientific breakthroughs throughout U.S. research institutions. The open and collaborative nature of the American academic environment produces advanced research and cutting-edge technology, but it also puts our universities at risk for exploitation by foreign adversaries looking to advance their own scientific, economic, and military development goals. Our goal is to preserve academic freedom and free enterprise by maintaining a fair, open environment and protecting campuses and companies from malign foreign actors.

It is essential for the FBI to continue protecting American research from unfair exploitation while ensuring that our academic and business environments remains free and open. To advance that mission, we have developed strong partnerships with other Federal agencies, some of whom sit beside me today, and we will continue working together to safeguard American research, technology, and ingenuity.

As a sign of the importance we place on our partnerships, since my arrival, beginning October 1, each of our 56 field offices has established a Counterintelligence Task Force, akin to the Joint Terrorism Task Forces (JTTFs), which brings together the capabilities of participating agencies in that field office's area of responsibility. We support this through a centralized National Counterintelligence Task Force, which will assist as a coordinating entity with matters such as budget, memoranda of understanding (MOU), as well as serving as a coordination element in its own right with the interagency.

Engagement outside of government is another essential part of our work. Each of our 56 field offices has frequent, substantive engagement with universities and businesses in its area of responsibility, thereby allowing a customized exchange of information about cases, threats, and trends. This engagement by counterintelligence personnel is done in tandem with private sector coordinators, who are field office personnel whose full-time job is to develop and coordinate private sector relationships across all programs.

We also direct national-level engagement from FBI headquarters; this takes many forms, so I will provide just a few examples. Since June of 2018, the Counterintelligence Division has been partnering with the three largest university associations: the American Council on Education, the Association of American Universities, and the Association of Public and Land-grant Universities. We have also been doing this through a series of meetings and events outlined by the Office of the Private Sector (OPS).

Since my arrival, we have also created an Engagement Office, which works with OPS, field offices, and other components to strengthen engagement and promote messaging on key threats.

The FBI previously also conducted university engagement through the National Security Higher Education Advisory Board (NSHEAB), a small subset of university presidents who periodically met at FBI headquarters. Today the FBI's OPS continues to hold events for university presidents, including an annual academic summit that includes approximately three times as many universities as NSHEAB did.

That said, we always seek new ways to improve our effectiveness. With our present-day knowledge of the threat from Chinese talent plans, we wish we had taken more rapid and comprehensive action in the past, and the time to make up for that is now. We appreciate the conclusions of your report, and we welcome your questions. Thank you for allowing me to go over my time.

Senator PORTMAN. Thank you, Mr. Brown.

Again, your full written statement will be part of the record, so please try to keep your oral testimony to 5 minutes. I thank you for your candor at the end of that statement about what we should have been doing. Dr. Keiser.

TESTIMONY OF REBECCA KEISER, PH.D.,[1] OFFICE HEAD, OFFICE OF INTERNATIONAL SCIENCE AND ENGINEERING, NATIONAL SCIENCE FOUNDATION

Ms. KEISER. Thank you, Chairman Portman, Ranking Member Carper, and Members of the Subcommittee. My name is Rebecca Keiser, and I am the head of the National Science Foundation's Office of International Science and Engineering. I would like to echo my appreciation for your report and bringing these issues to the attention of the public.

It is a pleasure to be with you today to discuss the steps NSF is taking to advance the United States' position as a global innovation leader, ensure our economic strength, and provide for national security.

An independent agency created by Congress in 1950, NSF's mission is unique in the Federal Government. We support fundamental research across all fields of science, technology, engineering, and mathematics (STEM) and all levels of STEM education.

NSF investments have been vital to many discoveries, and the agency has a strong record of investing in groundbreaking research that not only advances the frontiers of science but changes the world. Senator Carper mentioned Google, there are many others.

[1] The prepared statement of Dr. Keiser appears in the Appendix on page 53.

The United States leadership in scientific R&D is built upon sustained investment in fundamental research and a strong public-private partnership among government, academia, and industry. It is this uniquely American model that has propelled innovation and driven our economy for decades.

As AI, quantum computing, and other rapidly emerging technologies set the stage for the future, NSF is committed to advancing U.S. leadership and funding the most promising research and researchers. To do so, it is important that we reaffirm our commitment to the global research enterprise while also taking the necessary steps to protect federally funded research.

International collaboration is essential to advancing the frontiers of science. This was most recently illustrated by the Event Horizon Telescope team, which included more than 300 researchers at 60 institutions in over 20 countries. Together, they used an array of eight ground-based radio telescopes to image a black hole 55 million light-years from Earth. As the scientific community strives to answer complex questions, this type of global cooperation becomes increasingly necessary.

The United States also benefits significantly from the influx of international talent to our country. The best and brightest scientists from around the world have come to the United States due to the freedom, openness, creativity, and resources available here. We must continue to foster an open and inviting environment for these researchers.

We must also confront current threats to the global research enterprise. The principles that drive the NSF and our global partners are openness, transparency, and reciprocal collaboration for mutual benefit. However, when others endeavor to benefit without upholding these principles, the entire system is put at risk.

Indeed, as the Committee's report points out, some governments are currently sponsoring activities such as foreign government-sponsored talent recruitment programs that do just that. That is why NSF is taking steps and working with our colleagues across the government, including those here today, to address these risks. NSF's actions include emphasizing compliance with disclosure rules, both for NSF staff and the institutions and researchers we fund; requiring all NSF personnel to be U.S. citizens or in the process of becoming citizens; barring NSF staff from participating in foreign talent recruitment programs; and increasing awareness of the risks throughout the scientific community.

We have also engaged the JASON Advisory Group to conduct a study and recommend ways NSF can ensure security while maintaining the open fundamental research system. We expect that report to be released before the end of the calendar year.

Finally, we work closely with our Office of Inspector General (OIG) to stay aware of and respond to these dynamic threats as they arise. We have and will continue to take steps such as terminating grants and debarring researchers when such action is appropriate. NSF is dedicated to maintaining a vibrant and diverse research community that thrives on the principles of openness, transparency, and merit-based competition. With communication and coordination across the Federal Government, including with

our law enforcement and intelligence agencies, and collaboration with our colleagues in academia, we are confident we can do so.

Thank you again for the opportunity to testify before you today. Thank you.

Senator PORTMAN. Thank you, Dr. Keiser. Dr. Lauer.

TESTIMONY OF MICHAEL S. LAUER, M.D.,[1] DEPUTY DIRECTOR FOR EXTRAMURAL RESEARCH, NATIONAL INSTITUTES OF HEALTH, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Dr. LAUER. Thank you, Chairman Portman, Ranking Member Carper, and Subcommittee members. I am honored to be here today to represent the National Institutes of Health as the Deputy Director for Extramural Research.

As this is not a Committee before which NIH has appeared often, I think it would be helpful to say a bit about the work we do and provide that as a context for the hearing.

NIH is the world's largest leading public funder of global biomedical research enterprise supporting more than 300,000 researchers and staff each year across the Nation. Groundbreaking research funded by NIH conducted in institutions in each of your home States has transformed the health of America. Every generation has benefited from the scientific advances and increased life expectancy that NIH helps to usher in.

To support the very best science, NIH pioneered the gold standard for peer review of research grant applications. In fiscal year (FY) 2018, we asked more than 26,000 peer reviewers to assess the merit of more than 80,000 applications under consideration for funding. Unfortunately, it has become apparent that a small number of scientists have received foreign research support that they did not properly disclose in their grant applications as required, have obligations to institutions other than those identified in their grant applications, and have attempted to subvert the peer review process for personal gain. In all these instances, these behaviors may lead to inappropriate funding decisions and ultimately to the diversion of proprietary information from American institutions.

As of October 2019, we have contacted more than 70 awardee institutions about specific concerns we have related to these issues, and this process is ongoing. Partnering with research institution leadership is key as NIH awards are made to institutions, not to individuals.

Our efforts have led to discoveries of significant violations of terms and conditions that have led to personnel being removed from grants or even being terminated from their institutions. Increasingly, institutions are adopting better monitoring and reporting systems. NIH staff have been explicitly trained to objectively identify suspicious activity of peer reviewers and of key personnel in grant applications and to report this to NIH research integrity officers.

We regularly partner with colleagues at the Department of Health and Human Services (HHS) and other Federal agencies to exchange information on emerging threats. We also engage our

[1] The prepared statement of Dr. Lauer appears in the Appendix on page 58.

stakeholder community through a variety of fora, including the Advisory Committee of the NIH Director, which promotes the public discussion about best practices to prevent and detect untoward foreign influences in our system.

We are working closely with the Office of Science and Technology Policy, OSTP, and others to develop resources to help awardee institutions understand our expectations regarding research investigators who, in addition to NIH funding, receive additional research funding from domestic or foreign sources. The OSTP has convened a Subcommittee on Research Security under the National Science and Technology Council, Joint Committee on the Research Environment, to coordinate Federal efforts to effectively communicate and provide outreach to research institutions, develop guidance and best practices for research institutions, and standardize conflict of interest and disclosure policies and procedures of research funding agencies across the Federal Government. I am privileged to serve as a co-chair of the Subcommittee.

That stated, we remain conscious of how these actions could affect the morale of honest and dedicated foreign-born researchers who are hard at work assisting in and often leading the advancement of scientific knowledge. Since 2000, 38 percent of U.S. Nobel Prizes in physics, chemistry, and medicine have been awarded to foreign-born scientists. U.S. scientists routinely collaborate productively with investigators in foreign countries. Furthermore, because disease emerged from many parts of the world, we must rely on productive research collaborations with foreign entities in order to share information on seasonal and pre-pandemic influenza or emergent and reemerging infectious diseases such as SARS and MERS, Zika and Ebola.

The individuals violating laws and policies represent a small proportion of scientists working in and with U.S. institutions. We cannot afford to reject brilliant minds working honestly and collaboratively to provide hope and healing to millions around the world.

In closing, we at NIH are devoted to ensuring that American taxpayers get the full benefit of their investment in NIH, the very best science conducted in the most ethical way that leads to improvements in health for them and their families.

Thank you, and I look forward to your questions.

Senator PORTMAN. Thank you, Dr. Lauer. Dr. Fall.

TESTIMONY OF THE HONORABLE CHRIS FALL, PH.D.,[1] DIRECTOR, OFFICE OF SCIENCE, U.S. DEPARTMENT OF ENERGY

Mr. FALL. Chairman Portman, Ranking Member Carper, and Members of the Subcommittee, thanks for the invitation to testify before you today on the threat that foreign government talent recruitment programs in science and technology pose to the United States. The Department of Energy appreciates the opportunity to discuss our policies and procedures concerning this issue, and we are grateful that the Committee is leading on this important problem. We feel that the report you have just issued will be especially useful in highlighting the scope of the challenge.

[1] The prepared statement of Dr. Fall appears in the Appendix on page 65.

The intersection of science and security is one of the most important issues of our time in science and technology. At the Department of Energy, we are addressing this problem carefully, thoughtfully, and deliberately in order to ensure that any new policies that we introduce in this space are considered, effective, and do not harm the world-leading science enterprise of the United States.

While I am here to represent the Department of Energy, the testimony from my colleagues here highlights the fact that the administration is taking a whole-of-government approach to these issues and that the Department of Energy is fully involved in science security policy decision processes across the government.

The DOE is committed to preserving the foundational principles of the science and technology enterprise like open data access, transparency, reciprocity, and meritocracy that are the bedrock of global science and technology.

Great scientific discoveries come from collaborations and reciprocal exchanges that cross national borders, that leverage the best minds from around the world, and that adhere to these traditions and principles of collaborative basic science. American participation in overseas projects like the Large Hadron Collider at CERN in Europe and foreign participation in U.S.-based projects like the Long Baseline Neutrino Facility at Fermi Lab are outstanding current examples of deep international collaboration and cooperation, both the exchange of people and funding.

The Department of Energy plans to accelerate the identification and execution of opportunities for S&T cooperation and knowledge sharing with counterparts and investigators from around the world who share those foundational scientific principles.

While international cooperation is essential to accelerate research and development, some governments are aggressively pursuing access to U.S. science and technology advancements and intellectual property to the detriment of our economic prosperity and national security.

The Department of Energy is aware of situations in which individuals have been offered hundreds of thousands or even millions of dollars to conduct research on behalf of foreign talent recruitment programs while supported by U.S. agencies.

We have also seen DOE laboratory personnel recruited by talent programs and who are now affiliated with foreign military R&D programs.

The Department has provided for inclusion in the Subcommittee's report specific examples of foreign talent recruitment programs successfully targeting our national laboratory employees.

The Department of Energy is taking action to tighten compliance with existing rules and to implement a series of new policies regarding international science and technology cooperation involving the DOE laboratories.

For example, we announced in February and have since implemented a new policy related to foreign government talent recruitment programs sponsored by identified countries of risk. These talent recruitment programs are often part of broader whole-of-government strategies to reduce costs associated with basic research while focusing investment on military development or dominance in emerging technology sectors, as was discussed by the Chairman.

At this time, these countries of risk are limited to China, Russia, Iran, and North Korea. Under this order, DOE Federal and contractor personnel, including laboratory employees, are prohibited from participating in talent recruitment programs sponsored by these countries of risk while employed by the DOE or performing work within the scope of a Department of Energy laboratory contract.

DOE Federal employees have longstanding broad restrictions on their outside work activities. At this time, though, the policy does not currently extend to our non-contractor grantees, such as at universities.

The DOE considers relevant programs to include any foreign State-sponsored attempt to acquire U.S. scientific-funded research or technology through foreign government-run or funded recruitment programs that target scientists, engineers, academics, researchers, or entrepreneurs of all nationalities working or educated in the United States. That is pretty comprehensive.

History suggests that these programs, their names, and their characteristics can change over time as we scrutinize them and implement policies to mitigate their effects. Therefore, we continue to collaborate closely with law enforcement and intelligence agencies charged with identifying and monitoring those threats.

The Department of Energy is working closely with laboratories, scientific and academic communities to develop these ideas and policies, and any further policy actions affecting DOE activities outside our own laboratories, such as extramural support to universities, is being fully coordinated through the interagency.

In conclusion, the Department of Energy takes the threat posed by foreign government talent programs extremely seriously. The moment the leadership team at the Department of Energy found out about the changing landscape and the scope of this problem, the leadership and particularly Deputy Secretary Brouillette directed us to tackle this and solve the problem. The Department has taken steps to limit the impact to our own laboratory system while preserving and enhancing international scientific collaboration, and we are working to develop additional policies and procedures such as the technology risk matrix that we can talk about along with the other science and technology mission agencies.

Thank you for the opportunity to come before you today, and I look forward to discussing this critical topic with you and to answering your questions.

Senator PORTMAN. Thank you, Dr. Fall. Mr. Ramotowski.

TESTIMONY OF EDWARD J. RAMOTOWSKI,[1] DEPUTY ASSISTANT SECRETARY OF STATE, BUREAU OF CONSULAR AFFAIRS, U.S. DEPARTMENT OF STATE

Mr. RAMOTOWSKI. Good morning, Chairman Portman, Ranking Member Carper, and distinguished Members of the Committee. Thank you for the opportunity to testify today about the Department of State's visa screening process, particularly as it pertains to Chinese nationals and threats to sensitive or proprietary technology. We share the concerns of this Subcommittee regarding the

[1] The prepared statement of Mr. Ramotowski appears in the Appendix on page 68.

risks that nontraditional Chinese collectors pose to our Nation. National security remains our highest priority when adjudicating U.S. visas.

International exchange between citizens of the United States and China is crucially important to our bilateral relationship. We welcome legitimate Chinese students and exchange visitors, as President Trump himself reiterated in October. China consistently sends more students to the United States than any other country, and their presence benefits our economy and society in multiple ways. Nevertheless, the United States must remain clear-eyed and vigilant against the Chinese Government's repeated attempts to abuse the good will and openness of our country.

The Chinese Government is actively engaged in large-scale collection of sensitive technological expertise from the United States. The publicly stated policy of military-civil fusion seeks to accelerate the modernization of its military and industrial capabilities. As Assistant Secretary for East Asia and Pacific Affairs David Stilwell noted in his Senate testimony last month, this raises serious concerns for the United States. It increases the risk of diversion of U.S.-origin equipment, material, technology, and other kinds of intellectual property to China's military programs.

Moreover, the Chinese Communist Party has declared the Chinese university system to be on the front line of military-civil fusion efforts for technology acquisition, for weapons research, and the expansion of key scientific and engineering talent to drive Chinese innovation.

The Department of State is the first line of defense in border security. We work closely with partner agencies which identify and define new threats and areas of concern, including visa applicants who seek to work or study in sensitive fields that might have military applications. Therefore, State and partner agencies have taken initial steps to mitigate the risks posed by China's military-civil fusion strategy by increasing scrutiny of certain Chinese visa applicants. This effort will augment already existing criteria for enhanced vetting of certain applicants as well as specialized training for consular officers serving in China.

This carefully calibrated response is part of a greater national effort to address the threat of any foreign visitors, whether from China or anywhere else, who seek to acquire sensitive U.S. technology. We and our partners have built a layered visa and border security screening system. We continue to refine and strengthen the five pillars of visa security, which are technological advances, biometric innovations, personal interviews, data sharing, and training for consular officers in the field.

The Immigration and Nationality Act (INA) currently allows consular officers to make visa ineligibility findings for only a narrow set of applicants whose expected activities involve violation of a current export control law. While we work in close partnership with other government agencies to protect our borders, ultimately the law as it is currently written restricts the discretion of consular officers to find visa applicants ineligible, even when there is reason to believe the applicant may intend to export technology that many consider to be sensitive but which is not currently controlled.

Ultimately, this threat cannot be countered through the visa applicant screening process alone. An effective strategy requires a comprehensive approach involving all stakeholders, not just the U.S. Government, as the Chairman has outlined.

Congress can play an important role to increase engagement with business leaders, U.S. academic institutions and research laboratories, and others to explain the reality of these and our actions to counter the Chinese Government's efforts to modernize its military using U.S. technology. We need Congress' help to counter the false narrative that the United States is somehow weaponizing visas against ordinary Chinese citizens. By involving Chinese students and researchers in its pursuit of these technologies, the Chinese Government itself has put at risk the visas of some of its own citizens. We must not allow the Chinese Government to control this narrative. We are taking reasonable and appropriate steps to protect our intellectual property, sensitive technology, and national security, while at the same time facilitating legitimate travel and international education.

Thank you, and I look forward to your questions.

Senator PORTMAN. Thank you, Mr. Ramotowski. Well said.

I am encouraged by the participation this morning, so because I will be here until the very end, I am going to keep my initial questions very short and just sort of set the stage and then turn to Senator Carper. Then we have Senators Hassan, Romney, Hawley, and Rosen.

Let me just start, if I could, with a very quick yes-or-no answer. Mr. Brown, let us start with you. The Chinese media has reported extensively on the Thousand Talents Plan—it has not been a secret; it has been out there for over 10 years—noting that they had more than 7,000 participants as of 2017, so they say in their media.

Yes or no, to you, Mr. Brown, without providing specifics or names of individuals, does the FBI have active, ongoing cases involving individuals associated with Chinese talent recruitment programs, including the Thousand Talents Plan?

Mr. BROWN. Yes.

Senator PORTMAN. Do individuals associated with Chinese talent programs compromise a significant percentage of the FBI's economic espionage cases?

Mr. BROWN. Yes.

Senator PORTMAN. Now, quick questions for Dr. Fall, Dr. Keiser, and Dr. Lauer. Dr. Keiser, first for you, yes or no, are you aware of NSF-funded researchers that have failed to disclose their participation in Chinese talent recruitment programs, including the Thousand Talents Plan?

Ms. KEISER. Yes.

Senator PORTMAN. Dr. Fall, yes or no, are you aware of any DOE-funded researchers that failed to disclose their participation in a Chinese talent recruitment program, including the Thousand Talents Plan?

Mr. FALL. Yes, sir.

Senator PORTMAN. Dr. Lauer, you said in a media interview a couple months ago that NIH "does not know the scale of the problem," and "is concerned that the scale is much worse than we are seeing." I appreciate your testimony this morning as well. Yes or

no for you, are you aware of NIH-funded researchers that have failed to disclose their participation in Chinese talent recruitment programs, including the Thousand Talents Plan?

Dr. LAUER. Yes.

Senator PORTMAN. Thank you. I look forward to getting into some more detail and digging into these questions further, but, again, I want to give my colleagues the opportunity to ask questions.

With that, I would turn it over to Senator Carper.

Senator CARPER. One of my other committees has a hearing underway right now on clean water, and I need to be in two places at once. I will be leaving right after I ask a couple of questions. But thank you very much for coming.

I want to take a moment and thank our staffs who have done a great job getting us ready for today and preparing this important report.

Very briefly, let me just go down the line, starting with you, Mr. Brown. Tell me one thing we need to do differently on this Committee to better ensure a better outcome going forward, one thing that we should do. Very briefly.

Mr. BROWN. Briefly. I think you have done it, sir, with your report. I thank you for that. I think it brings greater awareness of the threat, and that is what we need right now, is awareness.

Senator CARPER. Thank you. Thanks so much.

Dr. Keiser? Very briefly.

Ms. KEISER. I agree that, yes, more attention being focused on this issue is key. We especially value that you have made these contracts public in your report because we need the community to understand what some of our researchers are signing up for. It is extremely concerning to us.

Senator CARPER. OK. That is good. Thank you. All right. Dr. Lauer.

Dr. LAUER. Coordinated work and extensive outreach.

Senator CARPER. That was good. [Laughter.]

You have been practicing. That is good.

Mr. FALL. I would echo awareness among the academic community of the scope of the problem.

Senator CARPER. Thank you.

Mr. RAMOTOWSKI. We would welcome the opportunity to work with the Committee on broadening authority.

Senator CARPER. All right. Thanks very much.

I want to start, if I could, with Mr. Brown—I do not mean to pick on you, but why do you think the FBI was slow to recognize this threat? As sort of follow-on to that: What is the FBI doing differently now? A third part would be: What has changed since the FBI's efforts to counter Chinese talent recruitment were moved I believe from New Haven to FBI headquarters? Those three, please.

Mr. BROWN. First, from my perspective, we absolutely should have been faster without a doubt. But I would tell you that as that threat evolved in 2008, you had folks working it, but it just was not clear exactly the extent of it. Once it kind of crystallized in 2015, that is when we said, "Hey, we have a problem here," and then obviously moved that to headquarters.

What have we done now? I will tell you that since my arrival, we have actually nearly doubled the personnel within the unit that handles our talent plan program. We have also created the Counterintelligence Task Force to be more integrated within our field offices. I have created an Engagement Office within my Division to work on our messaging, because I agree with your report, our messaging is not—it was good, but it was not synchronized as it should be. We are continuing to focus on that.

What changed being moved from New Haven to headquarters? I think we recognized that the threat was larger in scope than just a regional threat within the New Haven area, and that required a focus from a headquarters perspective and what I would call active program management from a headquarters perspective, directing field offices, OK, you have a threat over here in this field office, you had a threat in this field office. It needed to be a more national focus on it from that standpoint.

Senator CARPER. All right. Thank you.

The second question would be really for all witnesses. We will start to my right, if you will, and we will come the other way. Our Subcommittee came away from its recent investigation concluding that American taxpayer-funded research has contributed to China's economic and military rise. This may be a hard question to answer, but initially I thought I might ask you to provide an estimate of how much we may have lost to China over the years. I think if that is too hard, I would ask you to say how might we go about measuring how much we have lost to China over the years. You can have your choice of either question. How much have we lost to China over the years as a result of this? Or if you do not have a good shot at that, a good idea for that, how might we go about measuring that loss, the extent of that loss? Please.

Mr. RAMOTOWSKI. Senator, unfortunately I do not think the State Department is in the best position to analyze that question. I would defer to the experts here who actually conduct the research.

Senator CARPER. All right. Thank you.

Mr. FALL. Sir, I would get back to you on the details, if that is all right. I am sure that we can come up with a reasonable way. But patents is one example. You see a big change in the number of patents that are filed out of China. Some of those are based on appropriated research, some not.

Senator CARPER. Thank you.

Dr. LAUER. I agree that this would be hard to measure. I suppose one thing we can look at is the number of researchers and proportion of research dollars that we are currently spending and model that against known outcomes of NIH-funded research.

Senator CARPER. Good. Thank you. Dr. Keiser.

Ms. KEISER. It is challenging for NSF because, of course, we fund basic research, and we require those research outputs to be made open. The challenge that we face is if those research projects are taken to China before our U.S. investigators can actually make them open. It is challenging to measure. I think what we would suggest doing is looking at the number of Chinese publications that are actual repeats of what NSF and other U.S. Government agencies are funding and our true overlap. Of course, that is unfair.

Senator CARPER. OK. Thank you.

Mr. Brown, same question.

Mr. BROWN. I do not know that you can estimate. I think it is significant, no doubt. I think the patents, the rise in patents from China shows that, and it is a problem that we have to continue to address. It is not going to go away, and from our standpoint, I think our partnership and awareness is key in this fight.

Senator CARPER. Thank you. One last question, if I could, Mr. Brown. At least one university president wrote in a public opinion piece that he interpreted the FBI's outreach on this topic that we are discussing as inappropriate direction to spy on foreign-born students. Several other universities felt compelled to issue public letters to the university communities to clarify that their communities remain, and this is a quote, "open to people from all over the world."

What is the FBI doing differently in terms of outreach to address concerns like those?

Mr. BROWN. Sir, we see our relationship with the universities as a partnership, to collaborate, to protect their research institutions within the universities themselves. We have no intention of spying on students. That is not what we are trying to do. The bottom line is we are trying to come with a message that you may have a threat within your university, and you may want to address it.

But at the same time, I will tell you that over the course of my tenure here, I believe—and I have seen universities I think change a little bit in how they perceive the threat. I think there is a willingness to partner with the FBI, recognizing that we are not coming there to arrest and we are not going to arrest our way out of it. We are coming there with a message to work together for the betterment of the United States and to the universities.

Senator CARPER. Good. Thanks.

Mr. Chairman, sometimes when we have a hearing like this with five excellent witnesses and a tough, important issue before us, I will ask the witnesses to give us one thing that we ought to do more of on our side, on this side of the dais. Oftentimes what we hear is "more oversight." Part of our job on this Committee is to be a little bit like if we could go back in time to Boston, Massachusetts, when the British were coming, the warning was sounded: "The British are coming." Down in Houston, when we have a NASA mission that goes badly or goes wrongly, what we hear from up in space, "Houston, we have a problem." Part of our job here on this Committee is to say we have a problem here. I think you realize we have a problem. It is a significant problem. This is an "all hands on deck moment," and we appreciate the serious way that you approach this, and let us give it our best efforts. A lot of people are counting on us.

Thank you.

Senator PORTMAN. Thank you, Senator Carper. Senator Hassan.

OPENING STATEMENT OF SENATOR HASSAN

Senator HASSAN. Thank you, Mr. Chairman and Ranking Member Carper, and thank you and your staffs for this report. I want to thank all the witnesses who are coming before this Subcommittee today to discuss what is a critical matter. What we are really trying to do here is to find ways to develop a strategy to com-

bat that our adversaries, and particularly China, are doing while staying true to our American values and what Dr. Keiser referred to as our "uniquely American model." I am very grateful.

I want to follow up first with you, Mr. Brown, on something that you and Senator Carper were really just drilling down on. As I understand from this report, no regulations or Federal guidelines currently exist to govern how research institutions and their researchers should interact with foreign talent programs and help to avoid academic or economic espionage from countries like China. Mr. Brown, what do you think we can do to develop clear requirements for universities to address talent recruitment programs while maintaining research integrity and not compromising national security interests?

Mr. BROWN. It is a difficult question. It is one the universities ask of us as well. I think part of that is our awareness with them in this report, as was mentioned up here, and continuing that engagement and with the understanding that the engagement is not to spy but to bring awareness to the problem with the talent plan, and hopefully they would be open to that type of engagement with us.

But from a university perspective, like I said, I think I have seen that occurring, and there is a real willingness to engage with us.

Senator HASSAN. That is helpful to know. What I would suggest and hope is that as universities grapple with this challenge, they are likely looking for help from people, entities, our national security and law enforcement infrastructure, for how you go about doing fair, unbiased investigations to get at facts without subjecting people to some level of overreach, right? I think law enforcement and national security experts are really well positioned to help universities develop this kind of technique and structure, and I would really look forward to hearing more from the FBI as you all move forward about ways we can do that and more from university partners as well.

Mr. BROWN. Thank you, ma'am.

Senator HASSAN. Mr. Ramotowski, can you walk us through how the State Department vets foreign nationals who are seeking a visa to come to the United States to participate in research projects? How does the State Department work with the FBI and the Department of Homeland Security (DHS) to try to determine if a visa applicant has a preexisting contract with a foreign government that could threaten U.S. intellectual property?

Mr. RAMOTOWSKI. Yes, thank you, Senator, and this process applies all over the world, not just in China.

Senator HASSAN. Right.

Mr. RAMOTOWSKI. We require a personal interview for each applicant. They complete a detailed application form electronically in advance so the officer has that information.

Senator HASSAN. Right.

Mr. RAMOTOWSKI. If they are coming to study or to become an exchange visitor researcher, there will be additional materials that they have to provide in advance of the interview. The officer will look at the results of biometric checks, facial recognition checks, name checks, and any other information that might be available to U.S. Government agencies about that particular applicant.

The officer will ask questions about the applicant's intentions, why they chose a particular research institution or a particular university to enroll, to make sure that their story measures up. They will also look at sources of funding to ensure that the costs can be covered and if there are any particular concerns about funding sources.

I would point out, though, Senator, that the visa application is a point in time, and, unfortunately, as we have seen with a lot of these talent programs, recruitment does not happen prior to the interview. It can happen in some cases years afterwards.

Senator HASSAN. But to back up for a moment, is there a way or can you—I think the answer to this is yes. Will you work more collaboratively with Homeland Security as well as the FBI to try to get at this issue of whether applicants have preexisting contracts? If the Chinese Government is telling them that they cannot share that with us and we know that there have been instances of applicants lying to us about it, how are we going to go about trying to get at that issue?

Mr. RAMOTOWSKI. Yes, we will work much more closely with the FBI and other agencies such as Homeland Security and research partners here to gather as much information as we can before adjudicating the visa.

Senator HASSAN. OK. I thank you for that, and I think it is critical not just in this area, but State and Homeland Security. I have been a supporter of increased visa security teams for a variety of reasons, and this leads me to believe that there is an area of expertise here that we could really all benefit from. I look forward to continuing these discussions with you and the Department.

Last question for Dr. Keiser. In the face of increasing cyber threats, including the growing use of artificial intelligence, the United States must protect its national security interests by investing in cutting-edge technology and leading global research efforts. We have to entice the best and brightest research talents from all across the globe to come to the United States to fortify our technological advantage.

However, we know that China's Thousand Talents Plan is recruiting some of the very same researchers. This raises concerns about the potential for academic and economic espionage and how the United States can recruit research talents and maintain our strategic research edge over our rivals.

Dr. Keiser, what is the research community doing to crack down on threatening international influence while supporting appropriate international collaboration?

Ms. KEISER. We need to really truly protect our know-how and our knowledge. It is very true. However, we also need to make sure that we fund the best researchers based on two criteria. We have two criteria by which we select our research. It is intellectual merit, and it is broader impact of the research.

If we select the best and then we encourage the best to continue with that research, we grow our system.

Senator HASSAN. Right.

Ms. KEISER. We do not have enough funding right now to do that, as you know. It would be wonderful to do more. We want this research to be made open, and so when we are talking about

threats in things like AI, we are more concerned about the theft of that knowledge before our researchers are allowed to make it open. What we need to do is increase awareness at universities of the obligations that, unfortunately, some researchers are signing up to that are made clear in these talent contracts that they are obligated to take this information back to China and not give credit to the U.S. researchers who are also being funded as part of this, publish it in China, get patents in China, and that is not OK.

Overall, the best way, in our view, is to increase awareness of these obligations that are not fair to the system, number one; Number two, to make sure that we emphasize disclosure. As we have all said, our concern is that we do not know about these obligations that these researchers are signing up to. We cannot do anything about it unless we do know what these inherent conflicts are. We need to make sure that we communicate and emphasize disclosure of all of these unfair obligations as much as we possibly can.

Senator HASSAN. I thank you for that. Mr. Chairman, thank you for allowing us to go a bit over. I hope very much that this is one of the first steps we take in developing a real national strategy in combating this because, clearly, China has a strategy, and we need one of our own. Thank you.

Senator PORTMAN. Absolutely, I look forward to working with you on that. Senator Romney.

OPENING STATEMENT OF SENATOR ROMNEY

Senator ROMNEY. Thank you, Mr. Chairman, for organizing this very important discussion today.

Various members of the panel today have spoken about the need for awareness and disclosure. It would strike me that having spoken with some people that are concerned about this issue, they are aware of it; they recognize that even though they are aware, they are looking to say, "What should we do about it?" Just being aware of a problem does not tell them what to do. We are not giving them guidance as to what they should do. If they are aware someone might be willing to steal technology, what can they do about it?

Likewise, if we say, "Look, we want you to disclose," the bad guys will not disclose. The people who are planning on stealing technology are not going to disclose. They are stealing it for a purpose. They are getting paid to do it in some cases; in others, they are just doing it out of a sense of pride or nationalism for another nation.

Apparently, Mr. Brown, there are thousands of people who are in this country that are intent on stealing technology. Is that right?

Mr. BROWN. I do not have an exact number in terms of our caseload, but it is significant, yes, sir.

Senator ROMNEY. Let us say thousands. How many are being prosecuted now?

Mr. BROWN. I do not have those exact numbers. Why don't I get them to you, though, sir?

Senator ROMNEY. But it would probably be single digits.

Mr. BROWN. Yes. It is not large, no, sir.

Senator ROMNEY. It is not 1 percent. We have a problem. Expecting the FBI to investigate, find these people, and prosecute them is not going to stop the theft of intellectual property. Letting people

be aware of it is not going to stop the theft of intellectual property. We have to come up with something different.

A number of you have spoken about the importance of bringing people over internationally and being able to advance technology by having a free flow of people internationally, and I certainly agree with that. At the same time, you pointed out, but we have some people that are stealing, and that is a real problem. But how do we bring the two together? What can we do? Because if you think back to a very different time during the Cold War, the idea that we would have invited Soviet students to come over and go to our universities, to go to our labs and so forth, saying, "Hey, we are probably going to learn by all coming together," we probably would have. But we would not have brought them into our most sensitive research facilities because we knew they were intent on dominating or stealing those things in a way that would be not in our national interest.

What do we do now? What suggestions do you have? For instance, at the Department of Energy, we just heard from Dr. Fall that the Department of Energy says we are not going to allow even though who are under contract with us, doing research for us, we are not going to allow them to participate in these talent recruitment programs, and yet that is not true at NIH with the people that are researchers under contract with you. Why should you not adopt that same policy? Dr. Keiser, Dr. Fall is doing it. Should NIH not do the same?

Ms. KEISER. From NSF's standpoint—and maybe Mike can talk from NIH—these contracts are a strange hybrid of employment contracts and research contracts. We were able to bar our NSF employees and those who are rotating into NSF from participating in these talent contracts because, of course, they cannot have two employers.

Similarly, we need to work with the U.S. universities because these researchers who are part of these contracts are employed by the U.S. university, and then they are getting a second employer, and they are not disclosing that to the U.S. university.

We are making sure that we communicate the unfairness, of course, and the concern that we have to the U.S. universities, and we are finding that they are truly stepping up in taking action against those who are not disclosing that they are getting money from a foreign government and working at their university.

Within the past few weeks, we have had several U.S. research institutions come to us saying that they have taken personnel action. They have requested transfer of the grants that these people have gotten away from them because of this conflict that they have.

I think we just need to make sure that we continue to work together in partnership with our law enforcement collaborators as well as the U.S. universities who are the employers of these people to make sure that we all take action together.

Senator ROMNEY. I would note that we have all acknowledged that China has as its objective becoming the world's superpower, the hyper-power, by the middle portion of this century; that the point of the spear for them is technology, both for their economic dominance as well as for their military dominance. They are here stealing technology from us in every way they possibly can.

I would suggest in a circumstance like that that relying on those that are being recruited by the Chinese, Russians, North Koreans, or Iranians to voluntarily tell us, "Here is what I am going to be doing, here is the technology I am planning on stealing," that is just not going to happen. They are not going to do that. Therefore, relying on awareness and disclosure is not going to advance the ball for us. If we are serious about protecting America's future, we are going to have to put in place not just programs of awareness but programs with specific policy that we communicate to our research institutions and our universities, policies, regulations, and perhaps legislation. I do not know what that legislation looks like, but I think we are looking to you who are at this juncture where we want to have the exchange of ideas with other people and other nations, but with regards to those hostile powers that have been spoken about, do we not need to put in place specific policies, regulations, and legislation which can guide the State Department on issuing visas, which can guide each of your research institutions themselves, and with regards to NSF, cannot only guide your own researchers but those that are under contract with you? I think we need something more robust than just talking about letting our universities become more aware of it.

We had a chance this last week in Utah to have members of the FBI and others come and present to the Governor and members of our legislature about these threats. Afterward, the comment that came to me was this was very interesting to hear and become aware of this concern, but what are you telling us we should do about it? Because they feel, gosh, if we do anything, we are going to look like perhaps we are ethnically insensitive or we are targeting people, profiling. What should we do? We have not given anyone guidance as to what they should do.

I hope you can help us do that. I would love to get your recommendations after these hearings are over.

Senator PORTMAN. Senator Romney, thank you, and I totally agree with you. We will be talking in a moment about some of those legislative ideas, because I think you are right. I think this is a matter not of just awareness and encouraging our researchers and our universities and, for that matter, Federal agencies to do the right thing, but establishing what those standards are and making them uniform and giving everybody more clarity.

By the way, this has been going on for 20 years and the Thousand Talents Program for 11 years. We have lost a lot. I talked to a Federal Government employee this morning for whom I have a lot of respect, and his name will remain confidential because I do not think it would be appropriate to disclose it. But his view was this is going to get worse. It is going to get worse. That 20 years of being negligent has now built a foundation that makes it even more challenging for us in terms of our competition on the military side and on the economic side. I think you are exactly right. Senator Hawley.

OPENING STATEMENT OF SENATOR HAWLEY

Senator HAWLEY. Thank you very much, Mr. Chairman, and thanks to all of the witnesses for being here.

I would like to explore some possible solutions here, some proactive steps that we can take to address what has become a very critical problem. I want to talk a little bit about my own proposal, the Homeland Security Counterintelligence Threat Reduction Act. That is a mouthful, but it is a big problem and one proposal that I have put forward with others and developed partly with the help of DHS. I will talk about that in just a second.

First, let me just reference a letter that I found striking from the Director of the White House Office of Science and Technology Policy. That letter notes that American research institutions have historically benefited from the foreign talent recruitment programs that we are talking about here today, but observes that now in this new era of government-sponsored science, what was once a benefit has now become really a liability for us, as you have been pointing to in your testimony. We are seeing, I think, how China abuses our open education system to directly benefit their military and their government, and I have to say having visited the streets of Hong Kong myself just a month ago, I can say that I have personally seen what the Chinese Government is doing with technology that it has acquired in part from the United States and how it is weaponizing it against its own citizens, against Chinese citizens on the streets of Hong Kong and elsewhere.

Let me start, if I could, Mr. Ramotowski, with you. I recognize that your Bureau has relatively limited scope when it comes to the broader problem set here of technology and research theft in that your mandate is confined to visas. But I was somewhat surprised to learn, I have to say, from the Subcommittee's excellent report, for which I thank the Chairman, that less than 5 percent of those visa applications have been denied and that apparently the Bureau lacks a systematic means of tracking visa applications that are linked to China's talent programs. Can you tell us why that is the case and explain what the current situation is?

Mr. RAMOTOWSKI. Yes, Senator. As I mentioned in my opening statement, the authority of consular officers to deny visas on the basis of suspect technology transfer is quite limited and is basically limited to items or technologies that are on the export control list maintained by the Department of Commerce.

When we screen visa applicants for potential access to export controlled technologies, that covers only a small percentage of the total, and that results in only a few, comparatively few refusals.

Senator HAWLEY. Then it seems to me that the implication of what you are saying is maybe we ought to be putting additional technologies on the export control list, particularly those that we know that the Chinese Government has a very distinct interest in, like the Made in China Program, for instance. I think there are 25 separate technologies that are targeted there. Maybe those ought to go on the export control list. What is your view on that?

Mr. RAMOTOWSKI. Yes, we would welcome working with the Committee and the Congress and other agencies to close those gaps.

Senator HAWLEY. Yes, I think that that is a very urgent need, and I have proposed doing just that. I look forward to working with you on that.

Let me ask you about something else in this vein. Do you think that a task force would help with this, a task force stood up to review programs, make recommendations about improving counterintelligence vetting, conduct counterintelligence awareness training for faculty of colleges and universities, enhance the requirements of the student exchange visa program? Sort of tightening like this, would that be helpful?

Mr. RAMOTOWSKI. In my opinion, Senator, outreach like that is very useful to raise consciousness about the seriousness of the problem. Yes, sir.

Senator HAWLEY. I agree with you, and I hope that those are solutions that we might take up and that this Committee might take up.

Dr. Lauer, let me come back to you. NIH has been at the center of a number of high-profile cases that have been reported in the media related to the issues we are discussing today, like the husband and wife working at Emory as neuroscientists who double-dipped on both American and Chinese research funds before they were caught; the Los Alamos physicist who lied about participating in the Thousand Talents Program was eventually charged.

In your written testimony, I noted, you state that "individuals violating laws and policies represent a small proportion of scientists working in and with U.S. institutions." Yet—and this is the part that concerns me—this Subcommittee's report notes that your Division of Grant Compliance has dropped in its site visits from 28 in 2012 to only 3 last year. Tell me about that. What kind of oversight is currently in place at NIH? How can you be confident that your testimony is accurate given the oversight capabilities and tools you currently have?

Dr. LAUER. Thank you, Senator. As the Chairman mentioned, we do not really know the extent of the problem. We do know that the number of integrity cases overall and foreign influences concerns in particular have gone up dramatically. We now have a caseload that is in the hundreds, and it has been mentioned publicly we are now looking at over 140 scientists of concern.

Senator HAWLEY. Are there additional tools, Dr. Lauer, that you think you need in order to conduct rigorous oversight?

Dr. LAUER. We do work very closely with other agencies and in particular with law enforcement and intelligence. I think that over the past year in particular that degree of cooperation and joint learning has dramatically increased, and I think there is no question that that has helped us to identify problems and also to address them as we work with individual institutions.

Senator HAWLEY. Thank you.

Dr. Keiser, finally, for you, you noted at a recent event at UCLA that theft of research by China is very different in kind from the sorts of threats we faced, say, in the 1990s when our biggest concern was that research dollars would go to former Soviet weapons scientists. I just wonder, at a 30,000-foot view, do you think our research institutions are seeing this difference in kind clearly? Are they clearly understanding that we are dealing with a qualitatively

different issue, different problem, different challenge now than we were 20 years ago? What has been your experience?

Ms. KEISER. Senator, I think that they do. I think that the fact that the nature of the threat is so different today, meaning before, it was dual use, it was proliferation, it was things that we were used to dealing with in the classification system and the export control system and controlling. Because the difference is so strong now about threats to research integrity to our openness, to our transparency, that are creating economic benefit in China, it has been a challenge, I think, to convey why this is a threat. Why is openness a threat? Openness is a threat because it is being used in ways that we are very concerned about.

As we have been talking more and more to the research community, I think they are understanding that these threats in the area of research integrity are jeopardizing our whole system. This is a system, as I said, that has made America incredibly successful. We want to make sure it is open, but others are taking advantage of it. I think we have an increased understanding of that throughout the community.

Senator HAWLEY. Thank you very much for that.

Mr. Chairman, thank you for this excellent report and the work of the Subcommittee, and thank you for your continued leadership on this very important topic.

Senator PORTMAN. Thank you, Senator Hawley. We look forward to working with you. I am going to now be looking into your legislation as well on the broader issue. Senator Rosen.

OPENING STATEMENT OF SENATOR ROSEN

Senator ROSEN. Thank you. I, too, want to thank you so much for this spectacular report and, of course, to all of you for doing what you are doing, for your research, for your dedication, and your concern about all of this.

I want to build upon the theme of coordination between entities because we know taxpayer-funded research at our Nation's universities and academic institutions play a pivotal role in developing innovative technologies, scientific advances that are used by the public, our businesses, our military, and, of course, the government. However, we also know that researchers and their institutions lack the resources needed to protect assets from foreign cyber attacks and espionage. The major challenge they face is a lack of coordination among Federal agencies, intelligence, security, science agencies, to assess the risks and determine specific steps agencies should take to address these risks.

Senator Cornyn and I introduced the Secure American Research Act, which would establish an interagency working group that will identify and track risks, coordinate activities, and develop policy guidance to protect the federally funded research that you are working on, and protect them from foreign interference. This working group, of course, would include representatives from each of your agencies, FBI, NSF, NIH, DOE, Department of State, and over a dozen more.

Drs. Keiser and Lauer, how do you think legislation like this and potentially others would amplify or support your current efforts to identify and mitigate the threats?

Ms. KEISER. Coordination among our agencies is essential. We have to do this. We have been working much more closely together on this issue than I have ever seen before. I have been part of the government for more than 20 years. If you think that the threat came to our attention really a little over a year ago, within this past year we have talked to each other; we have coordinated policy. We are doing all sorts of things together more than I have ever seen.

I think a mandate to have even more coordination and talk to each other more, so much the better. I welcome that, because I think that we do need that mandate to make sure that we can tell our leaders, look, we have to do this together. We might have to change a little bit as an agency to adopt to what others are doing, but we need to in the interest of the Federal taxpayer.

Senator ROSEN. Perfect. Thank you. Dr. Lauer.

Dr. LAUER. I completely agree with Dr. Keiser. She and I see each other very often. We work together on a number of trans-government committees.

I would also say that the efforts that you have made with your Committee's report and the publicity that comes along with it about the nature of the problems that we have is very helpful.

Senator ROSEN. Thank you. I want to move on then to our universities, because we have research happening within the university, within departments, and between universities. How can we ensure not just that administration, faculty members, but also students are aware of the threats of cyber attacks and espionage and we can coordinate, like I said, not just between universities but inter-university? Would anyone like to speak to that perhaps?

Ms. KEISER. Right now, we already require from NSF responsible conduct of research training, and there is a very clear definition of "responsible conduct of research." In my view, we need to add this ethical and research integrity training to that responsible conduct of research.

Senator ROSEN. How often does that training occur in research departments?

Ms. KEISER. It does vary very much by institution. We require them to have a rigorous program and for everybody to be trained. I think the standard is that they up the training once a year. I am a firm believer that we cannot ask to have training. We need to provide models. We need to provide modules. We need to provide what we are actually talking about to help the research institutions. Then we do need to check up on them.

Senator ROSEN. Right.

Ms. KEISER. We need to make sure that this is happening and that they are asserting it. So, much the better.

Senator ROSEN. Please. Then I will go on to my next point.

Mr. BROWN. Ma'am, if I may, in each of our 56 field offices, even right now there is an FBI agent, analyst, or professional staff interacting with the university, whether it is on cyber, counterintelligence, you name it. That type of interaction, that spread of the message, we have to do a better job of coordinating our message out. I will tell you that I think we are here today because the message has gone out. I take solace in the fact that the regulatory

measures that they have put in place, the fact that we see the threat the same now, that we are making progress in this.

Senator ROSEN. I want to say to that regard as well, we know that we have these cyber threats, so in the interest of time, I am just going to say quickly that I have introduced with Senators Thune, Wicker, and Cantwell the HACKED Act and the Cyber Ready Workforce Act with others that is going to support the necessary cyber training and expertise funding across a multi-platform. Can you outline, in the short time I have left, some of the investments we have in cybersecurity training so we have the support personnel to help you do the research?

Mr. BROWN. Ma'am, I will tell you that there is a Cyber Task Force in every one of our field offices as well, and they are routinely going out and doing interaction with the universities. As the Special Agent in Charge in San Diego, I went out with our cyber folks. When we go out, we are doing one-day read-alongs usually to share classified information. I think in this environment right now, we have to share until it is uncomfortable toward your working group, right? We cannot have those compartments, those barriers, and we have to recognize that we are all in this together to defeat the threat.

Senator ROSEN. Thank you.

Ms. KEISER. I want to emphasize, Senator, in addition to training, we need to do research on what are the best techniques to protect cyberspace. NSF has a program called "Secure and Trustworthy Cyberspace," and that is funding research into how to best protect our systems at universities and in the research environment overall. We would be happy to provide you with more information on that.

Senator ROSEN. Yes, I would love more information on that to see how I can help amplify that.

I only have 3 seconds left, so I yield back. I know you have been waiting patiently. Thank you. Thank you all.

Senator PORTMAN. Thank you, Senator Rosen. Great line of questioning. I look forward to working with you, too, going forward. To our panelists, thank you again for your expertise. I did not get the chance to sort of dig a little deeper. I hope you do not mind sticking around for a while.

Let us start with this issue of targeting scientists of Chinese descent. Earlier, Mr. Brown, you addressed this by saying from the FBI point of view, your investigations are not based on ethnicity. That is the word that you used. Let me ask some of the other panelists as well. Dr. Lauer, you and your colleagues have conducted a lot of investigations of grant applications that failed to disclose foreign conflicts of interest and commitment. Is it your assessment that Chinese talent recruitment programs only target scientists and researchers of Chinese descent?

Dr. LAUER. No.

Senator PORTMAN. Haven't some of the most egregious cases you have found involved scientists and researchers who are not of Chinese descent?

Dr. LAUER. Yes.

Senator PORTMAN. I think that is important to get on the record. That is certainly what we found in our investigation.

Dr. Keiser, is it your assessment that the Chinese Government only is targeting scientists and researchers of Chinese descent?

Ms. KEISER. No, sir.

Senator PORTMAN. Dr. Fall, same question for you.

Mr. FALL. Absolutely not.

Senator PORTMAN. Let me ask you, Mr. Brown, because that might be confusing to some people. Why don't you tell us who you think the Chinese Government through the talent recruitment program are targeting? Who are they looking for?

Mr. BROWN. Sir, from our experience, they are looking for individuals who have access to information that is of value to their plans and their strategies moving forward, pure and simple. That is what they are trying to do, is build out toward their plan and strategy toward 2049.

Senator PORTMAN. It can be researchers and scientists of whatever, as you said earlier, ethnicity or nationality.

Mr. BROWN. Yes, sir.

Senator PORTMAN. It is more about what they have access to and what they are looking for.

Another misconception, I think, as I have talked to some of my colleagues about this issue, is that China is identifying people in China and then sending them our universities. That is not the case, is it?

Mr. BROWN. No, sir, it is no.

Senator PORTMAN. Why is that not the case? Why are they targeting those people who are already here doing important research?

Mr. BROWN. They are targeting people that are here because they are already established and have access to the research.

Senator PORTMAN. Established doing the research that they want.

Mr. BROWN. Yes, sir.

Senator PORTMAN. It is really much more cost-effective.

Mr. BROWN. It is.

Senator PORTMAN. Much more efficient, I suppose, to go after people who are here already doing research, including research funded by the $150 billion a year that our taxpayers are providing.

Let us talk a little about the contracts. Can we put the poster up of the contract? I appreciate the fact that earlier Dr. Keiser said that she was glad we were making people aware of these contracts. This is an example of a Chinese talent plan contract that we were able to access. We will talk in a moment about my frustration that we were not able to access more of those contracts. But let me ask you, Mr. Brown, first, what is the FBI's assessment of the impact these contracts have on U.S.-based researchers and scientists?

Mr. BROWN. The impact is significant because it basically forces the researcher to adhere to the contract with the Chinese Government, and so it is significant.

Senator PORTMAN. You have before you the copy of that poster, so you can see some of the specific provisions that violate U.S. research values, incentivize unethical and possibly illegal behavior. I would like to point out some of the differences between the U.S.-funded research and the Chinese-funded research.

Provision 1 states, as you can see, that the talent plan member is bound by Chinese law and a commitment is made not to interfere with China's internal affairs. It says, and I am reading, "shall observe relevant laws and regulations of the People's Republic of China and shall not interfere in China's internal affairs."

Mr. Brown, why does the FBI believe the Chinese Government has that provision in its contracts?

Mr. BROWN. Obviously, sir, they want them to adhere to the requirements within China. They are adhering to the Communist Party doctrine while they are working in China.

Senator PORTMAN. One thing I have heard is that this is often used as leverage over researchers to ensure that they follow through on these contracts. Would that be accurate?

Mr. BROWN. Yes, sir, it would be.

Senator PORTMAN. Dr. Lauer, and I guess for Dr. Keiser, Dr. Fall, and Dr. Lauer, all three of you, if you could just answer yes or no, do your researchers sign contracts requiring them not to interfere in U.S. internal affairs?

Dr. LAUER. Not that I know of.

Ms. KEISER. No, sir.

Mr. FALL. No, sir.

Senator PORTMAN. OK. Dr. Lauer, would you like to amend your answer? [Laughter.]

Dr. LAUER. No.

Senator PORTMAN. Thank you. You are not a lawyer. You are a medical doctor. You can actually answer the question. But it is so ridiculous that "Of course not" is the answer, right?

Is it in line with U.S. research values to agree to abide by Chinese law in conducting U.S. taxpayer-funded research? For all three of you.

Ms. KEISER. No, sir, it is not in line.

Senator PORTMAN. Dr. Lauer.

Dr. LAUER. No.

Mr. FALL. Of course not.

Senator PORTMAN. Dr. Keiser, do NSF researchers sign contracts requiring them not to be involved in internal affairs and to not reveal that they have signed a contract?

Ms. KEISER. Not at all.

Senator PORTMAN. OK. The Subcommittee found that these talent contracts often included these nondisclosure provisions which prevent the disclosure from participation. Look at Item 8 there. It says, and I quote, "shall not disclose the contract to unrelated parties without consent."

Dr. Lauer, do you read that provision to mean that researchers who are doing U.S.-funded research are not able to disclose to U.S. agencies or universities that they are receiving payments from Chinese talent recruitment programs?

Dr. LAUER. Yes, and that means they cannot disclose it to NIH either.

Senator PORTMAN. Right. In your investigations that you have done, have you seen similar provisions in Chinese contracts?

Dr. LAUER. Yes.

Senator PORTMAN. All three of you, are your researchers forbidden from acknowledging the fact that the U.S. Government has funded their research?

Dr. LAUER. Au contraire.

Ms. KEISER. Yes, exactly. In fact, the opposite.

Senator PORTMAN. Dr. Fall.

Mr. FALL. I have to be a little cautious, sir, because the Department of Energy does a lot of highly classified research as well. With that, the answer is no.

Senator PORTMAN. OK. That is understandable.

Dr. Fall, let us follow up on DOE. Given that talent plan members are sometimes contractually forbidden from disclosing their participation in the program, do you believe Energy's recent directive for employees and contractors to self-disclose their affiliation will be followed?

Mr. FALL. I have to be honest. It remains to be seen. We have the directive in place, and so——

Senator PORTMAN. Again to Senator Romney's point, particularly with regard to the Thousand Talents Program, they have gone underground now. They were up online a year and a month ago, and now they have taken it underground, so it is tough for us to have the transparency we had before to enable the FBI and others to do their work. I think it may be naive to think that a directive to self-disclose is going to be followed.

By the way, our investigation also found that some contract provisions stated that intellectual property created by the talent plan member was the property of the Chinese institution, even if the research overlapped with U.S.-funded research. Dr. Lauer, has that been your experience in looking at some of these contracts?

Dr. LAUER. Yes.

Senator PORTMAN. Look at Item 2 there, intellectual property rights, including copyright, patent rights, trademark rights, are owned by the Chinese institution. Mr. Brown, why would the Chinese Government want to include provisions on intellectual property in a talent recruitment contract?

Mr. BROWN. They recognize that the researcher that they have recruited is actually probably stealing some of the proprietary information, then using it to their benefit.

Senator PORTMAN. Is that in the interest of the United States?

Mr. BROWN. No.

Senator PORTMAN. Thank you.

Let me ask about NSF funding, Dr. Keiser. People who may be watching this are not sure where this U.S. tax dollar goes. What is supposed to happen to products of fundamental research created under these NSF-funded grants?

Ms. KEISER. We actually are mandated to make all products of fundamental research open and available. They need to credit NSF for funding these projects.

Senator PORTMAN. In effect, credit the taxpayers.

Finally, our investigation found contracts with provisions that required talent plan members to recruit other researchers to be part of the team, effectively expanding the scope of the members, researcher, and influence. Point 6 on there, Item 6, "focus on recruit-

ing one to two postdoctoral students each year." Dr. Lauer, is that something you have seen in other contracts as well?

Dr. LAUER. Yes, we have.

Senator PORTMAN. It is a recruitment requirement as well.

Dr. Keiser, you said earlier that you think making people aware of these contracts is a good idea, and I appreciated you saying that.

I will say for all of you, particularly NIH, NSF, and DOE, what is preventing you from releasing more of these contracts to us? We tried very hard to get more contracts to be able to understand this better. I chose not to subpoena you for additional contracts because we had enough in conjunction with your testimony to get a flavor for it. But I do think that your willingness to give us more of these contracts would be very helpful.

I think, Mr. Brown, the answer is going to be that the FBI discouraged them from doing so. That is certainly our experience. Could you just comment on that briefly?

Mr. BROWN. Sir, I do not know specifically, but I will go back and look at it and get back to you.

Senator PORTMAN. OK.

The Subcommittee learned that these talent recruitment programs also have established shadow labs often in China. We mentioned that earlier briefly, but we have not gotten into that yet. These labs are typically undisclosed and designed to conduct nearly identical research in parallel with the U.S.-funded research in the United States.

Dr. Lauer, you have looked at some of these. Most U.S.-funded research is designed to be published openly, as Dr. Keiser has said. Why is it advantageous for the Chinese Government to run these shadow labs in China?

Dr. LAUER. This way they get priority. They are able to know what is happening in an American laboratory before the rest of the world does.

One commentary I saw said it is an opportunity to avoid making mistakes. By knowing what the mistakes are, you do not make them, and that way you get a head start and you are able to get to the answer faster than anybody else.

Senator PORTMAN. In effect, leapfrogging the U.S. research.

Dr. LAUER. Yes, exactly.

Senator PORTMAN. By taking advantage of the taxpayer-paid research. Can you describe what you have uncovered as it relates to shadow labs in China more broadly? Are the U.S.-based institutions typically aware that the researchers have these shadow labs in China?

Dr. LAUER. Actually, what is particularly striking is that many of the American institutions had no idea that their own faculty had a laboratory in China or were spending substantial time in a foreign country. They became aware of this only by virtue of the fact that the government came asking.

Senator PORTMAN. As we have asked questions in this investigation, we have found exactly that. In fact, one case that comes to mind is a major U.S. university that did not realize that the scientist in question had gone back to China and spent the summer in a shadow lab in China. No clue. I think these shadow labs also, it would be fair to surmise, are in place to act as an incentive. In

other words, it is not just that they are paying individuals. They are saying, "We will set you up with a first-class lab in China." Is that accurate?

Dr. LAUER. Yes.

Senator PORTMAN. To Dr. Lauer, Dr. Fall, and Dr. Keiser, just generally, setting the table here, how quickly have China's science and technology capabilities developed over the past, let us say, 10 years? How quickly?

Ms. KEISER. Incredibly quickly. We have found that the number of Chinese publications and the amount of funding has increased immensely, and as you said, it has been over the past 10 years.

Senator PORTMAN. Dr. Lauer.

Dr. LAUER. Yes, I agree with that.

Senator PORTMAN. Dr. Fall.

Mr. FALL. I would add it is not just about papers. It is about areas where I think we believe that they are closing in on the quality of the research.

Senator PORTMAN. This goes to the point I made earlier about talking to this individual at a senior level in government who believes that some of the impacts of what we have seen in the last 20 years really is maybe yet to be seen quickly on the military side.

Four months ago, the FBI Office of Private Sector formed a team dedicated to outreach to universities, colleges. That did not exist before 4 months ago. I am glad you did it. How will the FBI now better coordinate its messaging across the 56 field offices to ensure that the tailored threat information is being conveyed to our research institutions?

Mr. BROWN. Sir, I will say that through our Office of Private Sector, they are engaging daily now with the academic associations, and working with the 56 field offices, the Special Agents in Charge (SACs), the Assistant Special Agents in Charge (ASACs), the agents, the analysts within those field offices become the FBI's message, point of message to the universities. We are confident with that model that we will continue to get our message out. Clearly, I think our message, as your report indicated, needs to be more synchronized, needs to be more tailored. We are committed through the Office of Private Sector and, quite frankly, I created an Engagement Office to work with the private sector, just created it to ensure that we are getting our message out as needed.

Senator PORTMAN. As was said earlier on the panel, awareness, transparency is critical, but it is not enough. For you to contact a university as an example and make them aware of the fact that there are members of these talent recruitment programs who are researchers there is a good thing. But the question is: What is the follow-up?

You said earlier that you encouraged them to take action, but you don't require them to take action. Among the solutions that have been discussed today and that we have looked at—and as I mentioned at the outset, this Subcommittee is known for digging deeply into something and then actually coming up with something constructive and bipartisan to address it. We have had some success with that.

One idea is to simply require that all these Federal grant applications be harmonized, be uniform, because there are differences

even among the three of you, and others as well. How do you feel about that so that we have clarification on what the grant applications ought to look like?

Ms. KEISER. We agree with that as well, and we are moving toward that point in a couple of ways. I think as was pointed out in the written testimony, we, NSF, are adopting NIH's form for disclosure of biographical information, and we are developing a web-based form for disclosure of all sources of support, current and pending support, that both NIH and Department of Energy would like to adopt as well. We are moving toward standardization as well as talking about more ways to do that through the OSTP Committee that you mentioned. We welcome any ideas for further standardization, absolutely.

Senator PORTMAN. Dr. Lauer.

Dr. LAUER. I totally agree, and just as NSF is leveraging NIH's software technology for bio sketches, we will be leveraging the work that they are doing on disclosure of outside research support.

Senator PORTMAN. Dr. Fall.

Mr. FALL. Yes, we are coordinating as well, and I would say that, you mentioned a very good point, that self-disclosure is not the answer to all the problems, but oftentimes we see that the self-disclosure is different to different agencies, and that is where commonality of forms and processes starts to uncover suggestions of impropriety.

Senator PORTMAN. Another one which is about collaboration between you all and other Federal agencies is requiring information sharing. I know some of that has started to go on. I mentioned the White House Office of Science and Technology opening to open up more communication, but when you have an investigation in your agency, do the other agencies know about it? When you have chosen to terminate a grant fund, do you share that information? Do you disclose conflicts of interest? I assume there is some overlap with some of the researchers and scientists. Is that information being shared already? If not, should it be?

Ms. KEISER. Information on active investigations, the active investigations occurring by our Office of Inspector General, is not shared, often is not shared even with us as an agency for obvious reasons.

Information on debarments and suspensions I believe we do share among the grant agencies to make sure that we are consistent in that.

Senator PORTMAN. That is not required, but as a practice you are starting to do that. Is that your answer?

Ms. KEISER. I think there are some U.S. governmentwide debarments. Obviously, for that reason, we would share those. When it is an agency debarment, we share that information. I believe it is voluntarily. There is no requirement, but we definitely do share that information.

Senator PORTMAN. Dr. Lauer.

Dr. LAUER. I think we are sharing more information now than we were in times past, particularly on specific cases. We also are working—we have software by which agencies can share information about grants applications with one another. One of the reasons

why we do that is to avoid inadvertent duplicate publication of funding, and that is something that we are doing more of.

Senator PORTMAN. Another one which I think you, Mr. Ramotowski, asked us to look into at the end of your opening statement is what additional authorities you could have to be able to properly vet. We heard in our investigation that U.S. university officials are relying on you, relying on the State Department to vet foreign researchers for intellectual property theft. They feel like they do not have to do it because you are doing it. Yet as we looked into it, very rarely does State deny a visa related to intellectual property theft. Do you need additional authorities to be more effective at this to be able to vet foreign researchers before issuing a visa?

Mr. RAMOTOWSKI. Yes, Senator, we would like to work with you and the Committee to close gaps in the authorities that have been identified, not only State authority but other agencies also.

Senator PORTMAN. OK. Those are some areas where I think there could be a fruitful legislative and regulatory response.

Let me ask you a broader question, which is probably on the minds of people who are listening today or watching. Why should any federally funded research go to somebody who is a member of a talent recruitment program? Dr. Lauer. Dr. Keiser looked at you, so—— [Laughter.]

Dr. LAUER. I think the real concern is why should any money go to any researcher who is not being open, honest, transparent, and playing by the rules. There is an established set of norms and rules that have been in place for many decades by which the biomedical and the scientific enterprise runs. I think we would all be agreed that we should not be supporting scientists who are unethical and willfully breaking rules.

Senator PORTMAN. In that case, anybody that signs ones of these contracts as we have seen here would be in that category by definition.

Dr. LAUER. Yes.

Senator PORTMAN. Dr. Fall.

Mr. FALL. I agree.

Senator PORTMAN. Dr. Keiser.

Ms. KEISER. I think the challenge that we have is exactly as you stated in your report. These contracts are going underground. They also are evolving and changing. Part of the concern we have is keeping up with understanding what people are signing and what the terms are that they are signing. That is why we do definitely need the help of our FBI partners in that regard.

Senator PORTMAN. That brings us to our final question. Good segue. I think, Mr. Brown, we are going to ask you about this, but our report looked at just one of China's more than 200 talent recruitment programs. It is the best-known one and may be the largest one. We are not sure. Again, their goal was to have a couple thousand people. Now they have 7,000 people. They have exceeded their expectations on this.

We know that a lot of the efforts we talked about this morning were based on the information that was publicly available online until just last year. Frankly, a lot of our work is based on information that was publicly available.

The Chinese Government has now deleted that information and has issued directives to its research institutions not to talk about these programs publicly anymore to any of you and certainly not to us.

How can we be confident that the FBI will have the capability to detect, assess, and mitigate the risks with China's talent plans or the next one or the next one after that? Are you prepared to evolve your efforts as the Chinese Government changes its tactics?

Mr. BROWN. Yes, sir. As it comes to this, I will tell you that the team that we have that has been focused on this, I know your team met with them. We have turned the corner when it comes to the talent plan problem. But at the same time, we recognize we have to have other means to discover talent plan members, and we are working that. Whether it is through the USIC, whether it is with our partners at this table, we recognize that we need to develop that. We are developing that. I cannot go into specifics of exactly what we are doing, but we know that we need to have targeted discovery more than ever now because of it going underground.

Senator PORTMAN. You are not able to tell us how you are going to deal with this now that the contracts are not publicly disclosing their membership?

Mr. BROWN. Sir, we can discuss ways we can find additional talent plan members, but I prefer not to do it in an open forum.

Senator PORTMAN. I would be interested, and I know Senator Carper would as well, to have the opportunity to be with you in a classified setting to talk about that.

Mr. BROWN. Absolutely.

Senator PORTMAN. Because it is clearly a challenge, and if we can be helpful, I think that is important as well.

Do you think your agencies are prepared? Dr. Keiser, are you prepared as this threat evolves?

Ms. KEISER. Frankly, this threat is evolving so quickly, and we were just made aware of it so recently, in 2018, that we are taking the steps to be as prepared as we can be to this point. But, frankly, we can do more. We know we can do more. We need to coordinate among the interagency on what additionally we need to do.

Senator PORTMAN. I must say one thing. I was tempted to say this earlier in response to your notion that you just learned about it last year, which I do not dispute. But it has been out there for 20 years.

Ms. KEISER. It has.

Senator PORTMAN. Certainly since 2008, it has been very publicly out there.

Ms. KEISER. Absolutely.

Senator PORTMAN. China has not tried to hide the ball. They have said they are going after your taxpayer-funded research.

Ms. KEISER. That is right.

Senator PORTMAN. Why did you not know about it until last year?

Ms. KEISER. I think because we are an open science funding agency, this is such a different kind of threat of taking advantage of our values and the openness and transparency that it was just so hard to understand. We are very grateful to our FBI and Inspector General partners for bringing it to our attention. It was quite

recent because often a lot of these things are not in the area of being illegal. But they are against research integrity and they are unethical, so this is a different kind of threat that we are getting to understand.

Senator PORTMAN. Thank you for your candor.

Dr. Lauer, are you prepared?

Dr. LAUER. I think we are much better prepared than we were awhile back, and we have a lot more work to do.

Senator PORTMAN. Dr. Fall.

Mr. FALL. First, I would just like to echo Dr. Keiser that this is so contrary to fundamental scientific values that it is hard to get your head around that this is being done to you.

In terms of the Department of Energy, I think we are already looking beyond the talent programs and not using that as a screen. We have developed, along with our laboratories, a risk matrix for technologies that are national security relevant or economic security relevant, and you can imagine a sort of stoplight chart of technologies in countries of risks and whether our national laboratories will be willing to work with people, will be viewed through that lens.

Senator PORTMAN. You mentioned that earlier, and if you are willing, the Subcommittee would like to find out more about that risk matrix and how that maybe could be used in other agencies as well, understanding that you have more classified research than most.

I just want to thank the witnesses for being here today. It is a complicated issue, a very important issue for our future, and really for the future of the globe. This notion of our rules of integrity, transparency, and collaboration has been essential to, as Dr. Lauer said earlier, some of the huge advances as an example and the health of not just Americans but citizens all around the globe. It has been extraordinary. In a sense, that is at risk as well. This is not just about taking our secrets and using them often in effect against us economically and militarily, but it is about also what is the ethic here, what is the standard, and who is going to set it.

It is clear that the threat China's talent recruitment programs pose to U.S. research is one where we need a stronger and more coordinated response. It is also clear to me that this threat is not going away. I think it is going to increase unless we do things differently. With the Thousand Talents Plan going underground, again, China is going to likely change how it attempts to gain access to our research institutions. We have to be nimble. We have to understand that it is going to evolve. We have to be prepared for whatever form this threat takes going forward.

I certainly stand ready to work with you all and others to be sure we are helping our Federal agencies fully address this threat from China and, therefore, helping our research institutions. We want to do it in a thoughtful, bipartisan way, and I think my colleagues on this Subcommittee you saw here today all want to get at the same issue. I think we can work together to come up with some help for you at the legislative level, and I look forward to working with our partners in the Executive Branch and the Administration to ensure that we are better prepared to protect America's research equities.

I thank you for being here today. The hearing record will remain open for 15 days for any additional comments you might have or questions from any of the Subcommittee members. With that, this hearing is adjourned.

[Whereupon, at 12:05 p.m., the Subcommittee was adjourned.]

APPENDIX

STATEMENT OF CHAIRMAN ROB PORTMAN
U.S. SENATE PERMANENT SUBCOMMITTEE ON INVESTIGATIONS
Securing the U.S. Research Enterprise from China's Talent Recruitment Plans
NOVEMBER 19, 2019

Last night, Senator Carper and I released an investigative report detailing the threat of China's talent recruitment programs and what it poses to U.S.-funded research. This is, as some of you know, the Subcommittee's third investigation focusing on China issues. We exposed China's role in fueling the opioid crisis by shipping the deadly synthetic opioid fentanyl into the United States using the U.S. Postal Service. Earlier this year, we detailed China's propaganda efforts through the Confucius Institutes on U.S. college campuses and high schools. Both of these investigations, by the way, have resulted in constructive, bipartisan legislative efforts to address the serious problems we identified. And we expect the same will happen with regard to the issue we're talking about today.

This report follows an eight-month investigation into how the American taxpayer has, in effect, unwittingly funded research that has contributed to China's global rise over the past 20 years. Through talent recruitment programs, China has strategically and systematically acquired knowledge and intellectual property from researchers and scientists in both the public and private sector—think artificial intelligence of 5G. America built the world's most successful research enterprise based on certain values, including collaboration, integrity, peer review, transparency, and improving the public good. The open and collaborative nature of research in America is one of the reasons we attract the best and brightest in the world. Some countries, however, have exploited America's openness to advance their own national interests. The most aggressive is China. For China, international scientific collaboration is not solely about advancing science for the global good, it is, by their own admission, about advancing China's national security and economic interests.

They have been clear about it; China's stated goal is to be the world's leader in science and technology by 2050. To achieve its science and technology goals, China has implemented a whole-of-government campaign to recruit talent and foreign experts from around the world. China uses more than 200 talent recruitment programs to lure foreign-trained scientists, researchers, and entrepreneurs into providing China with technical know-how, expertise, and foreign technology.

Our investigation focused on China's most prominent program called the Thousand Talents Plan. Launched in 2008, China designed the Thousand Talents Plan to recruit 2,000 high-quality overseas experts. By 2017, China dramatically exceeds its recruitment goal, recruiting more than 7,000 'high-end professionals.' Our report

also details how the Chinese Communist Party controls and administers these talent recruitment programs. Thousand Talents Plan members typically receive a salary and funding for their research from Chinese institutions, such as Chinese universities or research institutions. In exchange for the salary and research funding, which sometimes include what's called a shadow lab in China, members sign legally binding contracts with the Chinese institutions that typically contain provisions that prevent the members from disclosing their participation in the program. This requirement, of course, runs counter to U.S. regulations that require grant recipients to disclose foreign funding sources. In effect, it incentivizes program members to lie on grant applications to U.S. grant-making agencies and to avoid disclosing their funding from Chinese institutions. China now wants to keep this quiet.

Following increased public scrutiny, a year ago in October 2018, 10 years into the program, China scrubbed online references to the Thousand Talents Plan and deleted the names of the participating scientists and researchers. The names of participating scientists and researchers are no longer publicly available, and we do not reveal the names of individual members in this report, but in the interest of transparency, our report does includes examples of Chinese Thousand Talent Plan contracts and case examples of members engaging in illegal and unethical behavior. We thought it was important to publish this information so that the U.S. higher education community and federal government agencies see firsthand that these contracts and case examples contradict our own research values.

These talent recruitment programs are a win-win for China; China wins twice. First, U.S. taxpayers are funding this research, not China. They don't have to pay for it. And second, China then uses that research it wouldn't otherwise have to advance its own economic and military interest. The Subcommittee reviewed the federal government's efforts to mitigate the threat posed by Chinese talent recruitment programs to the U.S. research enterprise. We found that the U.S. government was slow to recognize the threat and even today lacks a coordinated interagency strategy to secure U.S. research.

First and foremost, federal law enforcement must recognize these threats and must inform the public. Despite China publicly announcing the Thousand Talents Plan in 2008, it was not until mid-2018, last year, that FBI headquarters in Washington, D.C. took control of the response to the threat posed by the Thousand Talents Plan. I do appreciate the FBI's candor in Mr. Brown's prepared statement for today's hearing where he says he wishes the FBI had 'taken more rapid and comprehensive action in the past.' And I told Mr. Brown that this morning. While I fully understand why there have been complexities in this case, I want you to know that we stand ready to work with the FBI to protect U.S. taxpayer-funded research.

Second, despite spending more than $150 billion of taxpayer money per year funding research and development, our federal grant-making agencies – like the Department of Energy, NIH, National Science Foundation that we'll hear from today – lack a uniform and coordinated process to award, track, and monitor federal grant funds. That leaves our research dollars vulnerable. As an example, the Department of Energy's prominent role in advanced research and development make it particularly attractive to the Chinese government. The Department of Energy is the largest federal sponsor of research in the physical sciences. Most of this research occurs in our nation's National Labs. Through our investigation, we learned that Thousand Talents Plan members worked at National Labs on sensitive research and maintained security clearances. One Thousand Talents Plan member used intellectual property created during work in a National Lab and filed for a U.S. patent under the name of a Chinese company, effectively stealing the U.S. government-funded research and claiming it for the Chinese company. Another member downloaded more than 30,000 files from a National Lab without authorization right before this individual returned to China.

Just last year, NIH, the National Institutes of Health, started reviewing its grants for connections to the Thousand Talents Plan. The NIH found instances of grant fraud by failing to disclose foreign funding and associations; theft of intellectual capital and property; and violations of the peer review process by sharing confidential grant applications, which is against NIH rules. The National Science Foundation has taken several, but yet insufficient, steps in its attempt to mitigate the risk of Chinese talent recruitment programs. In July 2019, just a few months ago, the NSF prohibited its employees from joining talent recruitment programs; but the policy does not apply to the more than 40,000 NSF-funded researchers who actually conduct the research and are the most likely to be members and targets of a talent recruitment program. And NSF doesn't any employees dedicated to grant oversight.

Third, the State Department is on the front lines here due to its responsibilities to vet visa applications for visiting students and scholars. The State Department has a process to review visa applicants it believes may attempt to steal sensitive technologies or intellectual property, but it rarely denies visas under that process.

Finally, U.S. universities and U.S.-based researchers must take responsibility in addressing this threat. If universities can vet employees for scientific rigor or allegations of plagiarism they also can vet for financial conflicts of interests and foreign sources of funding. These are complicated risks that the U.S. research community and the federal government must better understand. The threat to fundamental research is not always black and white—it's not always about legal or illegal.

On a more positive note, starting earlier this year, the White House's Office of Science and Technology Policy has hosted productive seminars and listening sessions with federal agencies and U.S. research institutions on how to respond to these threats. We look forward to working with the White House and the agencies to assist with appropriate legislation.

I will be the first to acknowledge that our relationship with China is complicated. However, one thing is very simple: It is not in our national security interest to fund China's economic and military development with U.S. taxpayer dollars. I look forward to the hearing today and with that, I turn to Ranking Member Carper for his opening statement."

Opening Statement of Senator Tom Carper
"Securing the U.S. Research Enterprise from China's Talent Recruitment Plans"
November 19, 2019

Thank you, Mr. Chairman.

During the two terms I was privileged to serve as Governor of Delaware, more jobs were created in our state than any other eight-year period in Delaware history. I did not create one of them. Working with our state legislature and many stakeholders throughout Delaware and beyond our borders, we sought to create a nurturing environment for job creation and job preservation.

Among the elements of that nurturing environment are a well-educated workforce, an affordable tax burden, commonsense regulations, public safety, access to capital, transportation infrastructure, quality health care at reasonable prices, the ability to export goods and services, clean air and water, open space, beautiful beaches, cybersecurity, investments in R&D that can be commercialized, protection of intellectual property, access to decision makers, and the list goes on.

To this day, my team here in DC and in Delaware and I continue to work every day with many partners to improve that nurturing environment.

Those of us serving in Congress and the administration play a key role in ensuring our country continues to be a place where businesses can thrive and create jobs.

A big part of our job when it comes to economic competitiveness involves helping the United States to remain on the cutting edge when it comes to science and research. We invest a significant amount of taxpayer money in doing that. The agencies represented before us today spend $44 billion each year to fund research at colleges and universities and other institutions across this country. These investments have led to major innovations.

For example, a National Science Foundation grant supported a Stanford University project that eventually led to the founding of Google, one of the most successful companies in the world.

And NIH and Department of Energy grants were critical to the success of the Human Genome Project, an historic undertaking that will deliver medical and economic benefits for years to come.

As the report we issued today points out, though, the Chinese government has for more than a decade sought to boost its own research and innovation capabilities by exploiting investments that America has made and is making. They've recruited thousands of experts from a wide range of fields to transfer intellectual property developed here in the United States to China in order to benefit Chinese researchers, Chinese businesses, and ultimately, in many cases, the Chinese military.

A number of American researchers who've been drawn into this effort even sign contracts with their Chinese employers. In at least some cases, these contracts give China ownership of technologies and innovations that Americans discover and develop. Some of those contracts even require that information about the researchers' Chinese ties be kept from their American employers and the federal agencies that fund their work.

Our report contains examples of contracts that researchers working with the Chinese government must sign, along with case studies detailing the steps that some American researchers have taken to aid China while hiding their activities from our government.

I hope that the publication of this information will inspire a serious and urgent conversation on university campuses and among scientists and researchers about the growing threat that China's talent recruitment efforts pose for our country. I hope it also leads to an appreciation of the consequences that come from giving a foreign government so much access to and control over the vital research we rely on to fuel our economic competitiveness and bolster our national defense.

Having said that, we should not be stepping back from international collaboration in science and technology. As China's aggressive efforts show, our scientists, research institutions, and universities remain the best in the world and serve as a magnet for talented people looking to do meaningful, cutting edge work. We need to keep investing in that work while doing more to keep scientists, their innovations, and the jobs that flow from those innovations here in our country.

But we also need to be smart and take the steps necessary to ensure that conflicts of interest are disclosed and those who might be looking to cheat and steal to get ahead no longer receive federal research dollars.

I was pleased to hear in preparing for this hearing about some of the steps agencies have begun taking to better manage and secure federal research programs. For example, agencies have reached out to universities and research institutions across the country to raise awareness about this threat and to emphasize the importance of fully reporting foreign collaborators. Some have also implemented policies prohibiting employees from participating in foreign talent recruitment plans.

These are good first steps but we need to do more. Due to our lax oversight of federal research grants and the ineffective and mixed messages agencies have been delivering to schools and researchers on this topic over the years, we've given the Chinese and likely other countries a running start. We can't continue to allow this to happen!

I look forward to hearing from our witnesses today about how we can further improve our efforts to deny our competitors and adversaries the opportunity to continue to reap economic and military gains at our expense in the future.

My thanks again, Mr. Chairman, for your leadership on this issue and for the work you and your staff, along with my own staff, have put into this hearing and our report.

Department of Justice

STATEMENT OF

JOHN BROWN
ASSISTANT DIRECTOR
COUNTERINTELLIGENCE DIVISION
FEDERAL BUREAU OF INVESTIGATION

BEFORE THE

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS
COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS
U.S. SENATE

AT A HEARING ENTITLED

"SECURING THE U.S. RESEARCH ENTERPRISE
FROM CHINA'S TALENT RECRUITMENT PLANS"

PRESENTED
NOVEMBER 19, 2019

STATEMENT OF
JOHN BROWN
ASSISTANT DIRECTOR
COUNTERINTELLIGENCE DIVISION
FEDERAL BUREAU OF INVESTIGATION

BEFORE THE

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS
COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

AT A HEARING ENTITLED
"SECURING THE U.S. RESEARCH ENTERPRISE FROM CHINA'S TALENT RECRUITMENT PLANS"

PRESENTED
NOVEMBER 19, 2019

Chairman Portman, Ranking Member Carper, Members of the Subcommittee, thank you for the opportunity to appear before you today, and thank you for highlighting the national security and economic threat from Chinese talent plans.

Time and time again, the Communist government of China has proven that it will use any means necessary to advance its interests at the expense of others, including the United States, and pursue its long-term goal of being the world's superpower by 2049.

The Chinese government knows that economic strength and scientific innovation are the keys to global influence and military power, so Beijing aims to acquire our technology—often in the early stages of development—as well as our expertise, to erode our competitive advantage and supplant the United States as a global superpower. As part of this effort, China has been making extensive use of nontraditional collectors. These individuals are not "spies" in the traditional sense of intelligence officers, but they are nonetheless collecting information sought by the Chinese government.

Among its many ways of collecting information, prioritized in national strategies such as the Five-Year Plan, the Chinese government oversees expert recruitment programs known as talent plans. Through these programs, the Chinese government offers lucrative financial and research benefits to recruit individuals working and studying outside of China who possess access to, or expertise in, high-priority research fields. These talent recruitment programs include not only the well-known Thousand Talents Plan but also more than 200 similar programs, all of which are overseen by the Chinese government and designed to support its goals, sometimes at U.S. taxpayers' expense.

While mere participation in a talent plan is not illegal, investigations by the FBI and our partner agencies have revealed that participants are often incentivized to transfer to China the research they conduct in the United States, as well as other proprietary information to which they can gain access, and remain a significant threat to the United States. In some cases, this has resulted in violations of U.S. laws, including economic espionage, theft of trade secrets, and grant fraud.

Talent plan participation can also violate conflict-of-interest policies put in place by American research institutions or federal grant agencies—particularly if talent plan participants fail to disclose their sources of funding.

In addition, many talent plan participants sign contracts outlining work that mirrors the research they perform at American institutions. These contracts subject participants to the broad laws of the Chinese government and—ironically—strictly protect China's right to the patents and other intellectual property developed during work within the talent plan.

It is also important to mention that last year, after we began some high-visibility arrests and prosecutions of talent plan members, the Chinese government responded by abruptly removing their public information about these programs and their participants. If these plans are as innocuous as they try to imply, why the shift to secrecy? By contrast, anyone can go online and search every grant awarded by the National Science Foundation, for example; the U.S. Government does not conceal our research funding because we have nothing to hide. The Chinese government's abrupt concealment is not just an admission of the ulterior motives of their talent plans; viewed more broadly, it is yet another illustration of China's lack of openness, fairness, and reciprocity, as contrasted with the behavior of free nations like the United States and our allies.

I would also like to note that people of any ethnicity may be recruited to join talent plans, so I cannot overstate that ethnicity plays no role in our investigations. Instead, we follow facts and evidence wherever they lead. We have never asked any university, company, or other entity to profile people based on ethnicity, and we would be appalled if they did. As is true for all FBI programs, we investigate specific individuals when we have specific evidence that they are engaged in unlawful activity or pose a threat to national security.

Nor do we have any intention of chilling academic freedom or curtailing international exchange—quite the reverse. International collaboration plays a crucial role in the development of scientific breakthroughs throughout U.S. research institutions. The open and collaborative nature of the American academic environment produces advanced research and cutting-edge technology, but it also puts our universities at risk for exploitation by foreign adversaries looking to advance their own scientific, economic, and military development goals. Our goal is to preserve academic freedom and free enterprise by maintaining a fair, open environment and protecting campuses and companies from malign foreign actors.

It is essential for the FBI to continue protecting American research from unfair exploitation while ensuring that our academic and business environments remains free and open. To advance that mission, we have developed strong partnerships with other federal agencies, some of whom sit beside me today, and we will continue working together to safeguard American research, technology, and ingenuity.

As a sign of the importance we place on partnerships, since my arrival each of our 56 field offices has established a counterintelligence task force, which brings together the capabilities of participating agencies in that field office's area of responsibility. We support this through a centralized National Counterintelligence Task Force (NCITF), which assists with matters such as budget and memoranda of understanding, as well as serving a coordination function in its own right.

Engagement outside of government is another essential part of our work. Each of our 56 field offices has frequent, substantive engagement with universities and businesses in its area of responsibility, thereby allowing a customized exchange of information about cases, threats, and trends. This engagement by counterintelligence personnel is done in tandem with private sector coordinators, field office personnel whose full-time job is to develop and coordinate private-sector relationships across all programs.

We also direct national-level engagement from FBI Headquarters; this takes many forms, so I will provide just a few examples. Since June 2018, the Counterintelligence Division has been partnering with the three largest university associations: the American Council on Education (ACE), the Association of American Universities (AAU), and the Association of Public and Land-grant Universities (APLU). We have been doing this through a series of meetings and events coordinated by the FBI's Office of the Private Sector (OPS), which facilitates the FBI's private-sector engagement work across all programs. Since my arrival, within the Counterintelligence Division we have also created an Engagement Office, which works with OPS, field offices, and other components to strengthen engagement and promote messaging on key threats, including threats to U.S. innovation.

The FBI previously also conducted university engagement through the National Security Higher Education Advisory Board (NSHEAB), a small subset of university presidents who periodically met at FBI Headquarters. Today, the FBI's Office of Private Sector continues to hold events for university presidents, including an annual academic summit that includes approximately three times as many universities as NSHEAB did. However, as I mentioned before, our greatest asset in this area is field offices' ongoing engagement with university officials at all levels—presidents, vice presidents for research, campus police, chief information officers, and others—surpassing what could be done through NSHEAB in scope, specificity, and timeliness.

That having been said, we always seek new ways to improve our effectiveness. With our present-day knowledge of the threat from Chinese talent plans, we wish we had taken more rapid and comprehensive action in the past, and the time to make up for that is now. We appreciate the conclusions in the report released yesterday by the Subcommittee, including areas for improvement, so we will take action accordingly.

Thank you for taking time to highlight the critical issue of Chinese talent plans, and I look forward to our discussion.

Dr. Rebecca Keiser
Office Head
Office of International Science and Engineering
National Science Foundation

Before the
Permanent Subcommittee on Investigations
Committee on Homeland Security and Governmental Affairs
United States Senate

on
"Securing the U.S. Research Enterprise from China's Talent Recruitment Plans"

November 19, 2019

Introduction

Chairman Portman, Ranking Member Carper, and Members of the subcommittee, it is a privilege to be here with you today to discuss the steps that the National Science Foundation (NSF) is taking to advance the United States' position as a global innovation leader, ensure our economic strength, and provide for national security. NSF takes all matters of national and economic security very seriously, and we work closely with our partners in academia, the federal law enforcement agencies, and the Administration to identify and address foreign threats to taxpayer-funded research. NSF is committed to implementing all reasonable and necessary steps to ensure the integrity of federally-funded research while protecting the ecosystem of innovation and discovery that has propelled the United States to global leadership in science and engineering.

Established by the National Science Foundation Act of 1950 (P.L. 81-507), NSF is an independent Federal agency whose mission is "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF is unique in carrying out its mission by supporting fundamental research across all fields of science, technology, engineering and mathematics (STEM) and all levels of STEM education. NSF is also committed to the development of a future-focused science and engineering workforce that draws on the talents of all Americans. NSF accounts for approximately 25 percent of the total federal budget for basic research conducted at U.S. colleges and universities and has been vital to many discoveries that impact our daily lives and drive the economy. NSF is and will continue to be a responsible steward of taxpayer dollars, operating with integrity, openness, and transparency.

NSF investments sustain, accelerate, and transform America's globally preeminent innovation ecosystem. This investment in basic research is responsible for many of the technological advancements we rely upon today—from the internet and touchscreen technology to advanced medical imaging and improved organ donor matching systems. A long-term vision dedicated to expanding human knowledge and a commitment to pursuing risky, yet potentially extraordinary discoveries are the hallmarks of NSF. NSF's investments empower researchers to ask the questions and develop the technologies that lead to extraordinary breakthroughs.

In a given year, NSF awards reach over 1,800 colleges, universities, and other public and private institutions in the 50 states, the District of Columbia, and U.S. territories. In FY 2020, NSF expects to support approximately 350,000 researchers, postdoctoral fellows, trainees, teachers, and students, with roughly 93 percent of the agency's annual budget used to fund research and education grants and research infrastructure in the science and education communities. NSF's merit-based, competitive proposal review process fosters the highest standards of excellence and accountability—standards that have been adopted around the world. These expert reviewers evaluate which proposals have the greatest potential to promote the progress of science and seek to identify two key factors in every proposal: intellectual merit and broader impacts. Evaluating proposals based on these factors ensures that the Foundation's activities are in the national interest.

The Global Science Enterprise

International collaboration is essential to advancing the frontiers of science. This was most recently illustrated by the Event Horizon Telescope (EHT) team's successful work to produce the first image of a black hole. The EHT team included more than 200 members representing 60 institutions, operating in over 20 countries and regions. They used a planet-scale array of eight ground-based radio telescopes, forged through international collaboration, to image the black hole at the center of a massive galaxy in the Virgo galaxy cluster, 55 million light-years from Earth. This momentous achievement was the product of a team building on decades of investment in telescopes, computing, and training the next generation of scientists.

The need for such global cooperation in fundamental research is essential as the scientific community strives to answer complex questions dealing with everything from the evolution of cells to the origins of the universe. Cooperation underpins Nobel prize-winning work such as the discovery of gravitational waves and can currently be seen in the ambitious Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAiC) project, a partnership between 19 countries, where scientists from around the world will be iced-in on a vessel above the Arctic Circle to study Arctic changes. These impressive scientific inquiries are illustrative of what can be accomplished when scientists around the globe work together to solve problems that are otherwise too complex for any given nation to pursue unilaterally.

NSF has developed criteria to determine when international engagement is appropriate. Consistent with our mission, any collaboration must expand knowledge in science, engineering, and education. First, we expect every partner to contribute; the research should leverage the resources of all. Second, the benefit of cooperation must be clearly demonstrable, and results should be shared equitably. Lastly, we expect reciprocity. Such reciprocity includes not only the timely sharing of data and samples, but also recognition of contributions in all appropriate forms. Maintaining the right balance between collaboration at an international scale and protection of the taxpayer's interest in federally-funded science is critical to the United States' long-term success.

In addition to global cooperation, the United States benefits significantly from the influx of international talent to our country. Dating back to the Manhattan Project era, the United States has attracted the best and brightest scientists from around the world by allowing great thinkers to pursue, and benefit from, their ideas. Since its creation in 1950, NSF has supported 242 Nobel Prize winners at some point in their career. Most recently, this includes two of the three winners of the 2019 Nobel Prize for Economics who immigrated to the United States as students and stayed here to build their careers. According to research from the National Foundation for American Policy, more than one-third of the U.S. Nobel Prizes winners in Chemistry, Medicine and Physics since 1901 have been immigrants.[1]

The need to continue to attract and cultivate this talent has been reinforced by countless studies of the research enterprise, including most recently by the National Security Commission on Artificial Intelligence, whose *Interim Report to Congress* states that "One of America's advantages is the fact that its universities, companies, and innovation culture are magnets for the world's best AI talent. We need to encourage that talent to come, contribute, and stay."[2] Indeed, historically, a majority of foreign students receiving post-graduate training in the U.S. prefer to stay here once they receive their degrees. Overall, about 80% of all science and engineering doctoral students coming from abroad report a definite postgraduate commitment to remain in the U.S. for employment or further training. The long-term stay rates, defined as remaining 10 years or more in the U.S., stood at 70% in computer and mathematical sciences in 2015. However, recent reports suggest this stay rate may be decreasing.

Discoveries do not happen without discoverers. At NSF, we are focused on cultivating the talent pool domestically through our robust support for science and engineering education, as well as ensuring that we are fostering an environment that welcomes those international researchers and students who share our values.

Addressing Risks to NSF-Funded Research

Values that drive the NSF and its global research partners are openness, transparency, and reciprocal collaboration for mutual benefit. These values are essential for advancing the frontiers of knowledge and are consistent with the democratic principles of the United States. The science and engineering enterprise, however, is put at risk when other governments endeavor to benefit from it without upholding these values. Indeed, some governments sponsor activities that pose risks to this system, such as foreign-government-sponsored talent recruitment programs that incentivize behavior that is inconsistent with the values cited above.

NSF, together with its colleagues across the government, is working to address these risks, which include conflicts of interest and commitment; breaches in confidentiality of the merit review process; and leakage of pre-publication data before researchers are ready to release that information. The agency is taking steps both internally and externally to ensure that NSF staff and researchers are aware of these threats and is putting in place policies and procedures to protect NSF-funded research. On July 11, NSF issued a Dear Colleague Letter to its entire research

[1] NFAP Policy Brief, "Immigrants and Nobel Prizes: 1901 – 2019" https://nfap.com/wp-content/uploads/2019/10/Immigrants-and-Nobel-Prizes.NFAP-Policy-Brief.October-2019.pdf (October 2019)
[2] National Security Commission on Artificial Intelligence, Interim Report Congress, https://www.nscai.gov/about/reports-to-congress (November 2019).

community reiterating these values and the requirements for NSF staff and NSF-funded institutions detailed below.

NSF requires that everyone who works at NSF, where they have access to sensitive merit review and other information be U.S. citizens or in the process of applying for citizenship. This includes those on assignment to NSF from outside the federal government. NSF has also issued a policy making it clear that NSF personnel cannot participate in foreign government talent recruitment programs. Such participation poses significant risks of inappropriate foreign influence on NSF policies, programs, and priorities, including the integrity of NSF's merit review process—risks we simply do not accept. We have reminded all NSF staff that government ethics regulations require accurate and timely financial disclosure reports and that Federal ethics rules cover gifts and other remuneration from foreign governments. To assist our staff, we have just created and released a training module that will convey the importance of their own disclosures and that of those seeking funding from us.

We are also working to ensure that the institutions funded by NSF are aware of, and complying with, these requirements. Each NSF grantee has full responsibility for the conduct of the project or activity supported under an NSF grant and for the results achieved. An organization must have a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to those who will be supported by NSF to conduct research. NSF has the authority to address concerns that awardees are not meeting their obligations, or the terms and conditions of their awards, including the ability to suspend or terminate an award.

NSF has reaffirmed its long-standing policy, in place since 1978, requiring full disclosure of current and pending support for researchers submitting proposals so that NSF and external reviewers can adequately assess potential research duplication and a researcher's capacity to conduct the proposed work. As sources of research support diversify, NSF has continued to remind the community of the requirement to disclose all current and pending support—domestic, international, government, corporate, nonprofit, crowd-sourced, etc. As noted above, we are providing training to our staff to help them identify researcher capacity and duplication of research projects, and we have solicited advice and comments from the research community to ensure that fully complying with these necessary disclosures is as efficient as possible. In May, we published in the Federal Register a proposed clarification of our proposal disclosure requirements, which includes clarifications regarding reporting requirements for both current and pending support and professional appointments. We have received comments from the public, including the research community, and are currently working to address those comments.

In addition, earlier this year, NSF commissioned the JASON advisory group - outside experts with top security clearances - to conduct a study and recommend ways for NSF to better protect its merit review system and for grantee institutions to maintain balance between openness and security of scientific research. The JASON report is nearly complete, and we expect it to be made public in the next few weeks. We plan to share its findings and recommendations widely, and NSF will act expeditiously to address its recommendations.

NSF works very closely with its Office of the Inspector General (OIG), an independent oversight office that reports directly to the National Science Board and Congress. The OIG is responsible for conducting audits, reviews, and investigations of NSF programs, and of organizations and individuals that apply for or receive NSF funding. This responsibility includes auditing awardees to ensure that they maintain an appropriate conflict of interest policy for employees consistent with

NSF requirements. The OIG also conducts financial audits and investigations to determine whether awardees are misusing taxpayer funds, failing to report financial support, duplicating research and violations of rules, regulations, or policy including allegations of research misconduct (falsification, fabrication, and plagiarism). NSF has taken, and will continue to take, swift action such as terminating grants and debarring researchers when the OIG reports incidents to NSF and such action is appropriate.

Finally, NSF coordinates its activities with many Departments and Agencies, including the Department of Justice and members of the Intelligence Community. NSF enjoys a deep and enduring relationship with the Department of State, regularly consulting with it on agreements with foreign partners and, on this topic of science and security, coordinating with State on engaging the international scientific community. We also work closely with the National Institutes of Health and the Department of Energy to support groundbreaking science that is of incredible value to the American taxpayer. In addition, we are also working closely with the White House Office of Science and Technology Policy (OSTP), which has formed the Joint Committee on the Research Environment (JCORE) through the National Science and Technology Council. Through JCORE, we are examining the most pressing challenges facing the research and scientific community in the United States, including research security. On September 30th, in a joint letter to the research community, the Director of OSTP, the NSF Director, the Director of the National Institutes of Health, the Undersecretary for Science at the Department of Energy, and the Undersecretary for Research and Engineering at the Department of Defense affirmed to the wider research community their commitment to the American research enterprise and to striking the appropriate balance between our open, collaborative environment while taking the necessary steps to mitigate threats to its integrity.

Conclusion

NSF is dedicated to maintaining a vibrant and diverse research community that thrives on the values of openness, transparency, and merit-based competition. NSF-funded research is a major contributor to U.S. economic growth, national security, and global leadership. To maintain our robust research ecosystem, it is important that we understand and vigilantly address emerging risks to the nation's science and engineering enterprise. Simultaneously, it is important that we acknowledge that a great strength of the U.S. research and engineering enterprise is the diversity of talent—both domestic and international—and we must commit to maintaining that strength. Therefore, NSF will continue to take steps to protect the integrity of the federal investment in basic research from those who do not share our values, while also fostering an environment of collaboration, innovation, and discovery that has allowed for unrivaled economic growth and global leadership in research and development. With communication and coordination across the federal government, including with our law enforcement and intelligence agencies, and collaboration with our colleagues in academia, we are confident we can maintain this careful balance of security and openness that allows our science and engineering ecosystem to thrive.

Thank you for the opportunity to testify before you today. I will be pleased to answer any questions you may have.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

Testimony before the Senate Homeland Security and Governmental Affairs

Permanent Subcommittee on Investigations

Hearing on

Securing the U.S. Research Enterprise from China's Talent Recruitment Plans

Michael S. Lauer, M.D.

Deputy Director for Extramural Research

National Institutes of Health

November 19, 2019

Good morning Chairman Portman, Ranking Minority Member Carper, and distinguished members of the Subcommittee. It is an honor to appear before you today to discuss how NIH works to protect the integrity of the U.S. biomedical enterprise and neutralize foreign threats to the integrity of taxpayer-funded research.

The United States is the world leader in biomedical research. As the largest public funder of that research, NIH sets the standard for innovation and scientific discovery that aims to advance the health of all Americans. We exemplify and promote the highest levels of scientific integrity, public accountability, and social responsibility in the conduct of science. We promote open collaboration by leveraging formal and informal collaborations with scientists at research institutions around the world, which is imperative to solving the most pressing and perplexing health challenges that are facing the American public. This exchange of knowledge is an essential part of innovation, and it is critical to our global competitiveness. Foreign-born scientists contribute to improving health, fostering innovation, and advancing science.

Many recent scientific advances, such as sequencing the human genome, or the development of the gene-editing tool kit known as CRISPR-Cas were predicated upon international collaborations. Since 2000, 38 percent of U.S. Nobel prizes in physics, chemistry, and medicine have been awarded to foreign-born scientists[1]. Foreign-born scientists, trainees, and employees at American universities are hard at work assisting in the advancement of knowledge. U.S. scientists routinely collaborate productively with investigators in foreign countries, resulting in many scientific successes.

[1] https://nfap.com/wp-content/uploads/2019/10/Immigrants-and-Nobel-Prizes.NFAP-Policy-Brief.October-2019.pdf

Partnerships with numerous foreign entities are also essential for predicting, and rapidly identifying and responding to threats from emerging infectious diseases and pathogens. For example, a joint working group made up of NIH and National Natural Science Foundation of China (NSFC) representatives developed a strategic research program that identifies, reviews, and jointly funds bilateral projects that address high priority infectious disease concerns, including antimicrobial resistant bacteria and evolving strains of influenza that could cause global epidemics[2]. Furthermore, because diseases can and do occur in many parts of the world, we must rely on productive research collaborations and partnership programs with foreign entities to share information on seasonal and pre-pandemic influenza viruses, and to access strains of emerging infectious diseases such as SARS and MERS, Zika, Ebola, and many others.

Unfortunately, we are aware that a few foreign governments have initiated systematic programs to capitalize on the collaborative nature of biomedical research and unduly influence U.S.-based researchers. It is essential for us to continue vigilance and take additional actions to protect the integrity of the U.S. biomedical research enterprise, while also protecting important relationships with foreign scientists worldwide.

NIH's three areas of concern are:

1) failure by some researchers at NIH-funded institutions to disclose substantial contributions of resources from other organizations, including foreign governments, which threatens to distort decisions about the appropriate use of NIH funds;

2) diversion of proprietary information included in grant applications or produced by NIH-supported biomedical research to other entities, including other countries; and

3) failure by some peer reviewers to keep information in grant applications confidential; including, in some instances, disclosure to foreign entities or other attempts to influence funding decisions.

[2] https://www.niaid.nih.gov/research/us-china-collaborative-biomedical-research-program

NIH has taken, and continues to take, a proactive approach to identifying, resolving, and preventing issues of concern.

NIH identifies and monitors concerns through several channels. We regularly partner with colleagues at the Department of Health and Human Services (HHS), and other federal agencies, such the Federal Bureau of Investigation (FBI), to exchange information on emerging threats. A new dashboard is being developed to assist NIH in responding to data requests needed for its reviews in this context. In addition, NIH maintains an open channel of communication with our funded research institutions and their investigators, several of which have proactively contacted us with concerns.

We have also actively taken steps to increase awareness about peer review integrity with our employees who lead scientific programs and review meetings. For example, NIH staff were specifically trained to identify and report suspicious activity on the part of key scientists designated in grant applications and peer reviewers to the Research Integrity Officer in their NIH Institute or Center, or directly to our central research integrity official within the Office of the Director.

When concerns are identified, we work with leadership within the awardee institution to quickly address the issue as appropriate. As of October 2019, we have contacted more than 70 awardee institutions related to this issue, and this process is ongoing. Our efforts have directly or indirectly led to actions by awardee institutions (who have the authority to take certain actions as employers). Such actions include:

- Terminations or suspensions of scientists who have engaged in egregious violations of NIH grant terms and conditions and institutional policies.
- Interventions to address previously un-reported affiliations with foreign institutions.
- Relinquishment or refund of NIH funds.
- Prohibition of certain individuals from serving as investigators on NIH grants.
- Outreach to FBI for assistance.
- Discovery (through acquisition of certain foreign grants and contracts) of overlapping or duplicative work, or conflicts in stating committed effort to research projects. This discovery has led to NIH suspensions of active grants as appropriate.

- Efforts to raise awareness among institutional faculty about government and institutional policies dealing with foreign affiliations and relationships (see, for example, the Penn State web site).[3]

There have also been situations in which honest mistakes were made by research investigators who were unaware of the requirement to disclose other funding sources (both domestic and international) or affiliations with foreign entities. In these cases, we worked with the institutions, which took steps to help their employees understand disclosure policies; both why they are important, and how to comply with relevant rules.

We will continue to address issues of concern. To mitigate security breaches, we have improved the electronic systems that are used by researchers to submit applications to NIH, and that are also used by peer reviewers to access applications for evaluations. Our security updates include: two-factor authentication for electronic research system logins; using an all-electronic conflict-of-interest certification; and, development of a dashboard.

A major focus of our preventive efforts is proactive communication to engage the research community as partners. For example, on August 23, 2018, the NIH Director issued a statement on protecting the integrity of U.S. Biomedical Research[4], and sent a letter to officials at approximately 10,000 organizations applying for NIH funding. The letter reinforced that NIH and the U.S. biomedical research community at large have a vested interest in mitigating these unacceptable breaches of trust and confidentiality that undermine the integrity of U.S. biomedical research.

We are working closely with the Office of Science and Technology Policy (OSTP) and other federal agencies to develop resources to help awardee institutions understand our expectations regarding

[3] https://www.research.psu.edu/international_affiliations.
[4] https://www.nih.gov/about-nih/who-we-are/nih-director/statements/statement-protecting-integrity-us-biomedical-research

research investigators who - in addition to NIH funding - receive additional research funding from domestic or foreign sources. The OSTP has convened a Subcommittee on Research Security under the National Science and Technology Council Joint Committee on the Research Environment to coordinate Federal efforts to effectively communicate and provide outreach to research institutions, develop guidance and best practices for research institutions, and standardize conflict of interest and disclosure policies and procedures of research funding agencies across the federal government. I am privileged to serve as a co-chair of the Subcommittee.

As I mentioned, the U.S. biomedical research community at-large has a vested interest in mitigating these unacceptable breaches of trust and confidentiality. Community engagement is such an important part of our activities. Last year, we convened a working group of the Advisory Committee to the NIH Director (ACD) to develop recommendations related to foreign Influences on research integrity[5]. We charged them to identify robust methods to: 1) improve accurate reporting of all sources of research support, financial interests, and affiliations; 2) mitigate the risk to security of proprietary information while continuing NIH's long tradition of collaborations, including foreign scientists and institutions; and, 3) explore additional steps to protect the integrity of peer review. Many of their recommendations, which were considered and adopted by the ACD, and conveyed to NIH through the ACD, have already been acted upon by NIH, as described above. As recommended by the ACD, following input from the working group, we are working with key stakeholders to figure out how best to collate and disseminate best practices, with the Association of American Universities and the Association of Public and Land-Grant Universities taking a lead role in these efforts. An update on these activities was presented and discussed publicly at the June 2019 meeting of the Advisory Committee to the NIH Director.

[5] https://acd.od.nih.gov/working-groups/foreign-influences.html

While we have taken bold and concrete steps to bolster research integrity and neutralize foreign threats against U.S. biomedical research, we remain conscious of how these actions could affect the morale of honest and dedicated foreign researchers. In March 2019, we responded to a joint letter[6] from three Chinese American biomedical professional societies, in which they expressed concerns that policies designed to protect biomedical proprietary information may be singling out Chinese students and scholars working in the United States. In our response, published in the journal Science[7], we acknowledge these concerns, and that the vast majority of Chinese scientists working in America are committed to the cause of expanding knowledge for the betterment of humankind, and to do so in a fair and honest way. Importantly, NIH reviews have also identified concerns involving individuals who are not of Chinese ethnicity.

The individuals violating laws and policies represent a small proportion of scientists working in and with U.S. institutions. We must ensure that our responses to this issue do not create a hostile environment for colleagues who are deeply dedicated to advancing human health through scientific inquiry. We cannot afford to reject brilliant minds working honestly and collaboratively to provide hope and healing to millions around the world.

In closing, I can assure the Committee that the senior leadership at NIH will continue to diligently protect the integrity of U.S.-taxpayer funded research.

Thank you, Mr. Chairman.

[6] https://science.sciencemag.org/content/363/6433/1290
[7] https://science.sciencemag.org/content/363/6433/1292.full

TESTIMONY OF HON. CHRIS FALL
DIRECTOR, OFFICE OF SCIENCE
U.S. DEPARTMENT OF ENERGY
BEFORE THE
COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS
PERMANENT SUBCOMMITTEE ON INVESTIGATIONS
U.S. SENATE

NOVEMBER 19, 2019

Chairman Portman, Ranking Member Carper, and Members of the Subcommittee, thank you for the invitation to testify before you today on the threat that foreign government talent recruitment programs in science and technology pose to the United States. I appreciate this opportunity to discuss the Department of Energy's policies and procedures concerning this issue.

Introduction

The intersection of science and security is one of the most important issues of our time.

At the U.S. Department of Energy (DOE) we are tackling this problem carefully, thoughtfully, and deliberately to ensure that any new policies that we introduce in this space are considered, effective, and do not harm the world-leading science enterprise of the United States.

While I am here to represent DOE, I should note that this administration is taking a government-wide approach to these issues, and that DOE is involved in the full policy-decision process.

The DOE is committed to preserving the foundational principles of the science and technology (S&T) enterprise like open data access, transparency, and meritocracy that are the bedrock of global scientific and technological progress.

Great scientific discoveries come from collaborations and reciprocal exchanges that cross national borders, that leverage the best minds from around the world, and that adhere to these traditions of science. American participation in overseas projects like the Large Hadron Collider (LHC) in Europe and foreign participation in U.S.-based projects like the Long Baseline Neutrino Facility / Deep Underground Neutrino Experiment (LBNF/DUNE) are outstanding current examples of international cooperation.

The DOE plans to accelerate the identification and execution of opportunities for results-oriented cooperation and knowledge sharing with counterparts and investigators from around the world who share the foundational scientific principles listed above.

While international cooperation is essential to accelerate research and development, some governments are aggressively pursuing access to U.S. science and technology advancements and intellectual property to the detriment of our economic prosperity and security.

The DOE is aware of situations in which individuals have been offered hundreds of thousands to millions of dollars to conduct research on behalf of a foreign talent recruitment program.

We also have seen DOE laboratory personnel recruited by talent programs that are now affiliated with foreign military programs.

As you are aware, the Department provided for inclusion in the Subcommittee's report specific examples of foreign talent recruitment programs successfully targeting national laboratory employees.

DOE Response

The DOE is taking actions to tighten compliance, and implement new policies, with respect to its international S&T cooperation involving the DOE National Laboratories.

For example, we announced in February a new policy related to foreign government talent recruitment programs sponsored by countries of risk. These recruitment programs are often part of broader whole-of-government strategies to reduce costs associated with basic research while focusing investment on military development or dominance in emerging technology sectors.

At this time, countries of risk are limited to China, Russia, Iran, and North Korea.

We began implementation of this new policy with the release of DOE Order 486.1 on June 10, 2019.

Under this order, to limit further exploitation of the National Lab system and to prevent taxpayer dollars from benefiting countries of risk, DOE federal and contractor personnel, including laboratory employees, are prohibited from participating in talent recruitment programs sponsored by countries of risk while employed by DOE or performing within the scope a DOE Lab contract. DOE federal employees have longstanding broader restrictions on their outside employment activities. At this time, this policy does not currently extend to our non-contractor grantees.

The DOE considers such programs to include any foreign-state-sponsored attempt to acquire U.S. scientific-funded research or technology through foreign government-run or funded recruitment programs that target scientists, engineers, academics, researchers, and entrepreneurs of all nationalities working or educated in the United States.

History suggests that these programs, their names, and their characteristics, can change over time as we scrutinize them.

The DOE is further assessing all of these issues related to S&T security, and is looking to implement additional measures intended to protect U.S. competitive and national security interests. These efforts include, for example, a science and technology risk matrix, which would assess both countries of risk and certain emerging technologies and determine if additional

protections need to be put into place for access. DOE is working with the laboratory, scientific, and academic communities to develop these ideas.

Any further policy actions affecting our activities outside our own laboratories, such as extramural support, is being coordinated fully across the interagency landscape.

This coordination, through the National Science and Technology Council's Joint Committee on the Research Environment (JCORE) will ensure that the U.S. government takes a risk-based approach to research security and does not provide conflicting requirements.

Conclusion

In conclusion, DOE takes the threat posed by foreign government talent programs seriously.

The Department has taken steps to limit its impact to our own laboratory system while preserving and enhancing international scientific collaboration.

We are working to develop further actions, policies, and procedures to protect our nation from this threat in collaboration with the other science and technology mission agencies.

Thank you for the opportunity to come before you today to describe DOE's efforts in this area.

I look forward to discussing this topic with you and to answering any questions.

DEPARTMENT OF STATE

WRITTEN TESTIMONY

OF

EDWARD J. RAMOTOWSKI

DEPUTY ASSISTANT SECRETARY OF STATE

BUREAU OF CONSULAR AFFAIRS

DEPARTMENT OF STATE

BEFORE THE

UNITED STATES SENATE

COMMITTEE ON HOMELAND SECURITY & GOVERNMENTAL AFFAIRS

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS

NOVEMBER 19, 2019

Chairman Portman, Ranking Member Carper, thank you for the opportunity to testify today about the Department of State's role in safeguarding our national security and the visa screening process, particularly as it pertains to Chinese nationals. We share the concerns expressed by the Subcommittee and our interagency partners regarding the threat certain Chinese talent programs pose to our national security, and the risks associated with certain Chinese students and researchers engaging in the nontraditional collection of sensitive technology and information. We have no higher priority than the safety of our fellow citizens at home and overseas and we are fully dedicated to the protection of our borders from threats such as the ones you have detailed here today. The Department of State continues to refine its visa security screening procedures to stay ahead of these threats.

In his recent testimony to the Senate Foreign Relations Committee, Assistant Secretary for East Asian and Pacific Affairs David Stilwell spoke about Beijing's strategy of military-civil fusion. This policy prioritizes the development or acquisition of advanced technology that is useful militarily, either for the modernization of the People's Liberation Army or for other domestic security purposes, such as general surveillance or the particularly egregious repression occurring in Xinjiang. Chinese acquisition of this technology occurs via both legitimate means, such as advanced study at U.S. universities or joint research and development with foreign firms or collaboration with foreign universities, but also via illicit means, such as theft and espionage. The Department of State is committed to countering illicit behavior.

We continue to welcome Chinese students who come here lawfully to study in the United States. We also recognize the inherent value of interpersonal exchange between our two countries. China consistently sends more students to the United States than any other country. In fact, the number of Chinese students studying in the United States is roughly equivalent to the number of students from the next six countries combined. The overall number of Chinese students in the United States continues to rise, with more than 360,000 students during the most recent school year. While we welcome these students, national security must be our number one priority. President Trump reiterated this point from the Oval Office in October. The strength of our global leadership in science and research rests on our openness. The U.S. greatly values international scientists as members of our research enterprise. For decades, foreign scientists, including from China, have contributed substantially to scientific progress and innovations at research institutions across the United States. But we must also be cautious as we pursue certain kinds of

international study and exchange programs. Through its policy of military-civil fusion, Chinese authorities are actively engaged in large-scale collection of sensitive and proprietary technological and expertise from the United States. Unfortunately, the Chinese government is actively encouraging, and in many cases coercing, its citizens to abuse the goodwill and openness of our country for its own benefit. Such actions undermine fundamental values and principles that underpin the scientific enterprise – those of openness, transparency, meritocracy and reciprocity – as well as the integrity of the enterprise itself.

The State Department is working across the U.S. government and the domestic scientific community to protect the integrity of the U.S. scientific enterprise through the National Science and Technology Council's Joint Committee on the Research Environment. We are also working with our allies and partners to build a shared awareness of risks and to identify approaches that could mitigate those risks.

A Layered Approach to Visa Security

In coordination with interagency partners, the Department has developed, implemented, and refined an intensive visa application and screening process. We require personal interviews for most applicants, employ analytic interviewing techniques, and incorporate multiple biographic and biometric checks in the visa process. Underpinning the process is a sophisticated global information technology network that shares data within the Department and with other federal law enforcement and intelligence agencies. Every visa decision is a national security and public safety decision. Our rigorous security screening regimen applies to all visa applications.

Visa applicants submit online applications which enable consular and fraud prevention officers, as well as our intelligence and law enforcement partners, to analyze data in advance of the visa interview, including the detection of potential non-biographic links to derogatory information.

Consular officers use a multitude of tools to screen visa applications. No visa can be issued unless all relevant concerns are fully resolved. The vast majority of visa applicants – including all applicants triggering potential concerns – are interviewed by a consular officer. During the interview, consular officers analyze case-relevant issues pertaining to the applicant's identity, qualifications for the requested visa category, and any information pertaining to possible ineligibilities

including those related to criminal history, prior visa applications or travel to the United States, and/or links to terrorism and other security threats.

All visa applicant data is screened against the Department's Consular Lookout and Support System (CLASS), an online database containing approximately 36 million records of persons, including those found ineligible for visas and persons who are the subjects of potentially derogatory information, drawn from records and sources throughout the U.S. government. CLASS is populated, in part, through an export of the Terrorist Screening Database (TSDB) and the federal terrorism watchlist. CLASS employs sophisticated name-searching algorithms to identify matches between visa applicants and derogatory information contained in CLASS. We also run all visa applicants' names against the Consular Consolidated Database (CCD, our internal automated visa application record system) as a secondary check for derogatory information regarding visa applicants and visa holders, and to flag prior visa applications, refusals, and issuances. The CCD contains more than 181 million immigrant and nonimmigrant visa records dating back to 1998. This robust searching capability, which takes into account variations in spelling and naming conventions, is central to maintaining visa security. In addition, all visa applicants are subjected to a robust interagency counterterrorism review before their visas can be issued. Finally, we employ a suite of biometric reviews, which check each applicant against U.S. government counterterrorism holdings and which vet applicants against other partner data.

Assessing Visa Eligibility According to the INA

Consular officers also employ a variety of statutory tools to adjudicate visa applications. Under the law that applies to most nonimmigrant visa classifications, if the consular officer believes a nonimmigrant visa applicant may fail to abide by the requirements of the visa category in question, including by engaging in non-permitted activities or by remaining in the United States beyond their authorized stay, the application will be refused under section 214(b) of the Immigration and Nationality Act (INA). A consular officer may also initially refuse a case under INA section 221(g) to confirm information presented in the application, request additional information from the applicant, request a security or legal review from Washington, or pursue local leads or other information to determine whether the applicant is subject to a security or non-security-related ineligibility.

Consular officers also assess all visa applicants' eligibility under the security-related grounds of the INA. For example, the consular officer considers whether there are reasonable grounds to believe that a visa applicant seeks to enter

the United States to engage solely, principally, or incidentally in activity that violates or evades U.S. law prohibiting the export from the United States of goods or technology. This includes commodities and technology that are subject to export controls under the Export Administration Regulations, International Traffic in Arms Regulations, or other U.S. regulations such as those imposing economic sanctions. As export controls are broadened or refined by the multilateral export control regimes or through unilateral foreign policy decisions to cover new and innovative fields, and as changes are adopted into U.S. control lists, consular officers can be empowered to deny visas to applicants seeking to study or work in those areas, as warranted. The broader these export controls are, the more often we can use them to deter and disrupt activities of concern.

Export controls are targeted at items of proliferation concern, weapons of mass destruction, their delivery systems, and advanced conventional weapons, among other areas. They do not necessarily control items that are sensitive from an intellectual property or "trade secrets" perspective, although such technology may be protected under other legal frameworks. Under the INA, consular officers cannot currently deny a visa application on national security grounds if they have reason to believe that the visa applicant seeks to enter the United States to lawfully gain knowledge through work or study in a sensitive area of technology that is not export controlled – for example, certain technology related to robotics or artificial intelligence.

Continuous Vetting and Visa Revocation

The Department of State has broad authority to revoke visas, and we use that authority widely to protect our borders. Cases for revocation consideration are forwarded to the Department of State's Visa Office by embassies and consulates overseas, National Targeting Center (NTC), National Counterterrorism Center (NCTC), and other entities. As soon as information is established to support a revocation (i.e., information that surfaced after visa issuance that could lead to an ineligibility determination, or otherwise indicates the visa holder poses a potential threat), a code showing the visa revocation, and lookout codes indicating specific potential visa ineligibilities, are added to the CLASS system, as well as to biometric identity systems, and then shared in near-real time (within approximately 15 minutes) with the DHS lookout systems used for border screening. Every day, we receive requests to review and, if warranted, revoke visas for aliens for whom new derogatory information has been discovered since the visa was issued. We continue to work with our interagency partners to refine the visa revocation and associated notification processes. As we are able to identify those seeking to gain

access to sensitive and controlled technologies, and perhaps strengthen our export control regime to better protect U.S. innovation and technology, visa revocation is another tool we can use to prevent the theft of sensitive knowledge and technologies.

Revocations are typically based on new information that has come to light after visa issuance. Since individuals' circumstances change over time, and people who once posed no threat to the United States can become threats, continuous vetting and revocation are important tools. In addition to the millions of visa applications we refuse each year, since 2005, the Department has prudentially revoked more than approximately 100,000 visas, based on information that surfaced following visa issuance, for a variety of reasons.

Going Forward

State and our partner agencies have taken initial steps to mitigate the risks posed by the Chinese Communist Party's Military-Civil Fusion strategy by increasing scrutiny of certain Chinese visa applicants. This effort will augment already existing criteria for enhanced vetting of certain Chinese nationals as well as specialized training for consular officers serving in China.

The Department of State is also often the first U.S. government agency to have contact with foreign nationals wishing to travel to the United States. Like you, we are committed to preventing individuals from exploiting the visa process as a means of entering our country with the intent to do harm or to improperly acquire and exploit sensitive and proprietary U.S. goods and technology. Our visa operation in China is one of the largest in the world. In FY 2019 alone, the Department of State issued almost 1,500,000 nonimmigrant visas to Chinese citizens around the world.

However, the Immigration and Nationality Act currently allows consular officers to make visa ineligibility findings for only a narrow set of applicants whose expected activities involve violation of a current export control law. While we work in close partnership with other State bureaus, DHS, and other relevant US government agencies to protect our borders, ultimately the law as it is currently written restricts the discretion of consular officers to find visa applicants ineligible, even when there is reason to believe the applicant may intend to export technology many consider to be sensitive but which is not currently controlled.

The Department of State recognizes that this threat cannot be countered through the visa applicant screening process alone. An effective strategy to

counter Beijing's intentions requires a comprehensive approach that engages all relevant stakeholders, including the academic and business communities about the nature of the threats and the actions we are taking to counter them.

For example, more public engagement is needed in order to counter the false narrative pushed by the Chinese government that the United States is "weaponizing visas" against ordinary Chinese citizens. In truth, the Chinese government has repeatedly chosen to pursue the acquisition of sensitive technologies in such a way that we have been forced to respond to protect our vital interests. And by involving Chinese students and researchers in its pursuit of these technologies, the Chinese government has put at risk the visas of some of its own citizens. We must not allow the Chinese government to control this narrative. We are taking appropriate and reasonable measures to safeguard our national security. Far from "weaponizing visas," our response is measured and targeted.

We therefore welcome your continued engagement on this topic with your constituents and contacts to raise their awareness of our shared concerns and reassure them that the U.S. government still believes in the value of academic exchange when conducted with integrity. Meanwhile, the Department of State will continue a comprehensive review of its visa security screening process to adapt to these challenges. The Department of State will continue to apply rigorous screening to all applicants to protect our people, the integrity of our academic institutions, and the intellectual property of our nation.

United States Senate
PERMANENT SUBCOMMITTEE ON INVESTIGATIONS
Committee on Homeland Security and Governmental Affairs

Rob Portman, Chairman
Tom Carper, Ranking Member

Threats to the U.S. Research Enterprise: China's Talent Recruitment Plans

STAFF REPORT

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS

UNITED STATES SENATE

Threats to the U.S. Research Enterprise: China's Talent Recruitment Plans

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

American taxpayers contribute over $150 billion each year to scientific research in the United States. Through entities like the National Science Foundation, the National Institutes of Health and the Department of Energy's National Labs, taxpayers fund innovations that contribute to our national security and profoundly change the way we live. America built this successful research enterprise on certain values: reciprocity, integrity, merit-based competition, and transparency. These values foster a free exchange of ideas, encourage the most rigorous research results to flourish, and ensure that researchers receive the benefit of their intellectual capital. The open nature of research in America is manifest; we encourage our researchers and scientists to "stand on the shoulders of giants." In turn, America attracts the best and brightest. Foreign researchers and scholars travel to the United States just to participate in the advancement of science and technology.

Some countries, however, seek to exploit America's openness to advance their own national interests. The most aggressive of them has been China. China primarily does this through its more than 200 talent recruitment plans—the most prominent of which is the Thousand Talents Plan. Launched in 2008, the Thousand Talents Plan incentivizes individuals engaged in research and development in the United States to transmit the knowledge and research they gain here to China in exchange for salaries, research funding, lab space, and other incentives. China unfairly uses the American research and expertise it obtains for its own economic and military gain. In recent years, federal agencies have discovered talent recruitment plan members who downloaded sensitive electronic research files before leaving to return to China, submitted false information when applying for grant funds, and willfully failed to disclose receiving money from the Chinese government on U.S. grant applications.

This report exposes how American taxpayer funded research has contributed to China's global rise over the last 20 years. During that time, China openly recruited U.S.-based researchers, scientists, and experts in the public and private sector to provide China with knowledge and intellectual capital in exchange for monetary gain and other benefits. At the same time, the federal government's grant-making agencies did little to prevent this from happening, nor did the FBI and other federal agencies develop a coordinated response to mitigate the threat. These failures continue to undermine the integrity of the American research enterprise and endanger our national security.

* * * *

China aims to be the world's leader in science and technology ("S&T") by 2050. To achieve its S&T goals, China has implemented a whole-of-government campaign to recruit talent and foreign experts from around the world. China's campaign is well financed. According to an analysis by the FBI, China has pledged

to spend 15 percent of its gross domestic product on improving human resources from 2008 to 2020. That amounts to an investment of more than $2 trillion. For the Chinese government, international scientific collaboration is not about advancing science, it is to advance China's national security interests.

China's Talent Recruitment Plans. Foreign trained scientists and experts provide China access to know-how, expertise, and foreign technology—all necessary for China's economic development and military modernization. While China has created and manages more than 200 talent recruitment plans, this report focuses on the Thousand Talents Plan. China designed the Thousand Talents Plan to recruit 2,000 high-quality overseas talents, including scientists, engineers, entrepreneurs, and finance experts. The plan provides salaries, research funding, lab space, and other incentives to lure experts into researching for China. According to one report, by 2017, China dramatically exceeded its recruitment goal, having recruited more than 7,000 "high-end professionals," including several Nobel laureates.

The Chinese Communist Party (the "Party") plays a lead role in administering the Thousand Talents Plan. The Party recognized the need to control overseas talent recruitment efforts to ensure the program served its priorities. The Party created a "complex system of administration and oversight to coordinate its recruitment efforts." The Party is able to "exert exceptional" levels of control over the Thousand Talents Plan and other talent recruitment plans. To ensure control, Thousand Talents Plan members sign legally binding contracts.

Contracting with the Chinese Government. Thousand Talent Plan members sign legally binding contracts with Chinese institutions, like universities and research institutions. The contracts can incentivize members to lie on grant applications to U.S. grant-making agencies, set up "shadow labs" in China working on research identical to their U.S. research, and, in some cases, transfer U.S. scientists' hard-earned intellectual capital. Some of the contracts also contain nondisclosure provisions and require the Chinese government's permission to terminate the agreement, giving the Chinese government significant leverage over talent recruitment plan members. These provisions are in stark contrast to the U.S. research community's basic norms, values, and principles. Annexed to this report are Chinese talent recruitment plan contracts that illustrate exactly what talent recruitment plan members agree to when they become members.

Case Examples. This report includes selected examples from U.S. grant-making agencies involving Chinese talent recruitment plan members. For example, talent recruitment plan members removed 30,000 electronic files before leaving for China, submitted false information when applying for grant funds, filed a patent based on U.S. government-funded research, and hired other Chinese talent recruitment plan members to work on U.S. national security topics. One Chinese talent recruitment plan member stole proprietary defense information related to U.S. military jet engines, and others have contractually agreed to give Chinese institutions intellectual property rights that overlapped with research conducted at

U.S. institutions. Annexed to this report are case examples provided by several federal agencies.

Talent Plans Go Underground. Following public testimony and U.S. government scrutiny, the Chinese government started deleting online references to the Thousand Talents Plan in October 2018. For example, China deleted news articles featuring Thousand Talents Plan members, Chinese universities stopped promoting the program on their websites, and the official Thousand Talent Plan site deleted the names of scientists participating in the program. The Chinese government has also instructed talent recruitment organizations that "the phrase 'Thousand Talents Plan' should not appear in written circulars/notices." Despite this censorship, China's talent recruitment plans continue.

* * * *

The Subcommittee reviewed seven federal agencies' efforts to mitigate the threat that Chinese talent recruitment plans pose to the U.S. research enterprise, including U.S.-funded research. While China has a strategic plan to acquire knowledge and intellectual property from researchers, scientists, and the U.S. private sector, the U.S. government does not have a comprehensive strategy to combat this threat.

The National Science Foundation ("NSF") funds approximately 27 percent of all federally funded basic research at U.S. colleges and universities, leading to 12,000 annual awards to more than 40,000 recipients. In light of Chinese talent recruitment plan members' misappropriation of NSF funding, NSF has taken several steps—albeit insufficient ones—to mitigate this risk. As of July 2019, NSF policy prohibits federal employees from participating in foreign talent recruitment plans, but the policy does not apply to NSF-funded researchers. These NSF-funded researchers are the individuals mostly likely to be members of foreign talent recruitment plans. The NSF also does not vet grantees before awarding them funding. Instead, NSF relies on sponsoring institutions to vet and conduct due diligence on potential grantees. NSF has no dedicated staff to ensure compliance with NSF grant terms.

The National Institutes of Health ("NIH") invests over $31 billion annually in medical research through 50,000 competitive grants to more than 300,000 researchers. NIH has recently found instances of talent recruitment plan members committing grant fraud and transferring intellectual capital and property. It also found possible malign foreign influence in its peer review process. NIH has attempted to address these issues, but significant gaps in NIH's grant integrity process remain. Much like the NSF, NIH relies on institutions to solicit and review disclosures of financial conflicts by its employees participating in NIH-funded research. Unlike the NSF, the NIH has a Division of Grants Compliance and Oversight that conducts site visits at institutions to advance compliance and provide oversight. The number of oversight visits to institutions has fallen from 28

in 2012 to only three last year. NIH officials remain concerned that China's talent recruitment plans are more pervasive than what they have uncovered to date.

The Department of Energy ("Energy") is the largest federal sponsor of basic research in the physical sciences. Energy awards $6.6 billion in grants and contracts annually that support over 25,000 researchers at over 300 institutions and National Labs. Energy's research funding and prominent role in advanced research and development make it particularly attractive to the Chinese government. Energy has recently identified Thousand Talent Plan members working on sensitive research at National Labs and Thousand Talent Plan members with security clearances. Energy has been slow to address vulnerabilities surrounding the openness of its National Labs and its scientific collaboration with the 35,000 foreign nationals who conduct research at the National Labs each year. For example, in December 2018, Energy began requiring all foreign nationals' curricula vitae be included in Foreign Visits and Assignments requests to Energy facilities as well as in the Foreign Access Central Tracking System database. Despite 30-year old federal regulations prohibiting U.S. government employees from receiving foreign compensation, Energy clarified only this year that employees and contractors are prohibited from participating in foreign talent recruitment plans.

The State Department ("State") issues nonimmigrant visas ("NIV") to foreign nationals seeking to visit the United States to study, work, or conduct research. It is on the front line in the U.S. government efforts to protect against intellectual property theft and illicit technology transfers. While State has a process to review NIV applicants attempting to violate export control laws, State's authority to deny visas is limited. State's review process leads to less than five percent of reviewed applicants being denied a visa. Nor does State systematically track visa applicants linked to China's talent recruitment plans, even though some applicants linked to Chinese talent recruitment plans have engaged in intellectual property theft.

The Department of Commerce's ("Commerce") Bureau of Industry and Security conducts assessments of defense-related technologies and "administers export controls of dual-use items which have both military and commercial applications." Commerce is also responsible for issuing deemed export licenses to firms that employ or host foreign nationals seeking to work on controlled technology projects. The Subcommittee found that Commerce rarely denies an application for a deemed export license. Commerce's denial rate in 2018 for deemed export licenses was only 1.1 percent. Commerce officials told the Subcommittee that it has not revoked a deemed export license in the past five years, despite the recent listing of new entities on Commerce's Entity List that require additional scrutiny. Commerce issued deemed export licenses to Chinese nationals who participated in talent recruitment plans, had ties to Huawei, and were affiliated with other concerning entities.

The Federal Bureau of Investigation ("FBI") protects the United States from foreign intelligence operations and espionage. The FBI, however, has recognized that it was "was slow to recognize the threat of the Chinese Talent Plans." It was not until mid-2018, however, that FBI headquarters in Washington, D.C. took control of the FBI's response to the threat. Moreover, after collecting information on suspected talent plan participants, the FBI waited nearly two years to coordinate and provide those details to federal grant-making agencies. This delay likely prevented the federal government from identifying talent recruitment plan members who engaged in illegal or unethical grant practices or the unauthorized transfer of technology. The FBI has yet to develop an effective, nationwide strategy to warn universities, government laboratories, and the broader public of the risks of foreign talent recruitment plans.

The White House Office of Science and Technology Policy ("OSTP") has formal authority to convene all research funding agencies on matters of policy through the National Science and Technology Council. OSTP formally established a joint committee in May 2019 to begin a policy review to coordinate efforts to adopt best practices across the federal government to mitigate foreign exploitation of the U.S. open innovation system. This review is intended to develop a longer-term strategy for balancing engagement and risk without stifling innovation. The U.S. government's vast and varied array of grant-making agencies complicates this policy review.

* * * *

As American policy makers navigate an increasingly complicated relationship with China, it is not in our national security interest to fund China's economic and military development with taxpayer dollars. China's talent recruitment plans, including the Thousand Talents Plan, undermine the integrity of our research enterprise and harm our economic and national security interests.

U.S. universities and U.S.-based researchers must take responsibility in addressing this threat. If U.S. universities can vet employees for scientific rigor or allegations of plagiarism, they also can vet for financial conflicts of interests and foreign sources of funding. If U.S. researchers can assess potential collaborators' research aptitude and their past publications, they should know their collaborators' affiliations and their research intentions.

The U.S. academic community is in the crosshairs of not only foreign competitors contending for the best and brightest, but also of foreign nation states that seek to transfer valuable intellectual capital and steal intellectual property. As the academic community looks to the federal government for guidance and direction on mitigating threats, the U.S. government must provide effective, useful, timely, and specific threat information and tools to counter the threats.

Based on this investigation, the Subcommittee finds that the federal government has failed to stop China from acquiring knowledge and intellectual

property from U.S. taxpayer funded researchers and scientists. Nor do federal agencies have a comprehensive strategy to combat this threat.

The Subcommittee's Investigations

This investigation continues the Subcommittee's examination of national security issues involving China. During the 115th Congress, the Subcommittee highlighted China's leading role in the opioid crisis by investigating how illicit opioids like fentanyl are shipped from China to the United States through international mail. The Subcommittee held an initial oversight hearing on May 25, 2017, titled *Stopping the Shipment of Synthetic Opioids: Oversight of U.S. Strategy to Combat Illicit Drugs*. On January 25, 2018, the Subcommittee held a second hearing and issued a bipartisan report titled *Combatting the Opioid Crisis: Exploiting Vulnerabilities in International Mail*. On October 24, 2018, the President signed into law the Synthetic Trafficking & Overdose Prevention Act ("STOP Act"), legislation designed to assist law enforcement in identifying and stopping fentanyl being shipped into the United States.

In the current 116th Congress, on February 28, 2019, the Subcommittee held a hearing and issued a bipartisan report titled *China's Impact on the U.S. Education System*. The Subcommittee examined China's propaganda efforts at U.S. colleges and universities through Confucius Institutes. The Chinese government funds Confucius Institutes and hires Chinese teachers to teach language and culture classes to students and non-student community members. Confucius Institute funding comes with strings that can compromise academic freedom. The Chinese government approves all teachers, events, and speakers. Some U.S. schools contractually agree that both Chinese and U.S. laws will apply. The Chinese teachers sign contracts with the Chinese government pledging they will not damage Chinese national interests. The Subcommittee found that these limitations export China's censorship of political debate to the United States and prevent the academic community from discussing topics that the Chinese government believes are politically sensitive.

Next, the Subcommittee turned to China's talent recruitment plans. The Subcommittee focused specifically on China's most prominent plan, the Thousand Talents Plan. The Subcommittee reviewed documents, received briefings, or interviewed individuals from the following agencies: Office of Director of National Intelligence; Central Intelligence Agency; Department of State; Department of Commerce; Department of Energy; Federal Bureau of Investigation; Department of Health and Human Services; National Science Foundation; and the White House Office of Science and Technology Policy. The Subcommittee also met with members of the academic community, including the American Public and Land Grant Universities, Association of American Universities, the American Council on Education, a Chinese American advocacy group, and the JASON independent scientific advisory group.

II. FINDINGS OF FACT AND RECOMMENDATIONS

Findings of Fact

1) **China seeks to become a science and technology ("S&T") world leader by 2050.** The Chinese government elevated the importance of S&T as a key national strategic goal in 2006. China seeks to become an "innovative country" by 2020 and an S&T world leader by 2050. To accomplish its goals, China systematically targets critical technologies and advanced S&T capabilities as a way to enhance national strength and achieve Chairman Xi Jinping's goal of "national rejuvenation."

2) **China prioritizes military-civilian fusion as a national goal.** In 2016, Chairman Xi designated a policy known as Military-Civilian Fusion ("MCF") as a national strategy. MCF seeks to pool talent and financial resources to jointly develop technologies, conduct research, and attract talent that mutually reinforces both the military and civilian sectors. MCF blurs the lines between China's defense and civilian sectors, enabling China to continue international scientific collaboration while obfuscating that this collaboration also assists in modernizing China's military.

3) **China aggressively recruits overseas researchers and scientists.** China has a coordinated global campaign to recruit overseas S&T experts as part of its S&T strategy. These experts provide access to know-how, expertise, and foreign technology—all necessary for China's economic development and military modernization. Chinese recruitment efforts also have begun to reverse China's brain drain, as more Chinese students than before are returning to China after studying abroad.

4) **The *Thousand Talents Plan* ("TTP") is China's most prominent talent recruitment plan.** Launched in 2008 and controlled by the Chinese Communist Party, the TTP recruits thousands of high-quality overseas talents. As of 2017, China reportedly has recruited 7,000 researchers and scientists. The TTP targets U.S.-based researchers and scientists, regardless of ethnicity or citizenship, who focus on or have access to cutting-edge research and technology. The TTP is just one of over 200 Chinese talent recruitment plans over which the Chinese Communist Party is able to "exert exceptional" levels of control. In response to U.S. government scrutiny, China has attempted to delete online references to its talent recruitment plans and reportedly instructed Chinese institutions on how to avoid additional U.S. scrutiny.

5) **TTP employment contracts violate U.S. research values.** TTP members sign legally binding contracts with Chinese institutions that contain provisions that violate U.S. research values, including non-disclosure provisions related to their research and employment with Chinese institutions. The contracts require TTP members to undermine fundamental U.S. scientific norms of transparency, reciprocity, merit-based competition, and integrity. Fundamentally, these contracts incentivize TTP members to put China's interests ahead of U.S. institutions.

6) **Chinese talent plans target unrestricted, basic research.** China seeks access to non-public fundamental research to accelerate its technological capabilities at the U.S. taxpayer's expense. The U.S. government may restrict some research for proprietary or national security reasons but as fundamental research is generally designed to be openly shared, federal law enforcement agencies have limited means to thwart China's extralegal activities.

7) **TTP members have willfully failed to disclose their TTP membership.** Some TTP members willfully failed to disclose their affiliation with China's talent recruitment plans to U.S. institutions and U.S. grant-making agencies. In some cases, TTP members received both U.S. grants and Chinese grants for similar research, established "shadow labs" in China to conduct parallel research, and stole intellectual capital and property. U.S. government agencies also discovered that some TTP members used their access to research information to provide their Chinese employer with important information on early stage research.

8) **Federal agencies are not prepared to prevent China from transferring taxpayer funded research and stealing intellectual property.** The U.S. government was slow to address the threat of China's talent recruitment plans, leading to U.S. government grant dollars and private sector technologies being repurposed to support China's economic and military goals. Though some federal agencies have begun to take action, the federal government lacks an effective interagency strategy and continues to have shortfalls in its processes to mitigate the threat that Chinese talent recruitment plans pose.

9) **Federal grant-making agencies lack standards and coordination.** U.S. grant-making agencies, such as the National Science Foundation ("NSF") and the National Institutes of Health ("NIH"), each require grant applicants to use different forms and processes to apply for federally funded research grants. This increases administrative burdens on researchers applying for grants from multiple federal agencies. It also complicates

effective grant oversight of the more than $150 billion in U.S. funding awarded annually for research and development.

10) **U.S. grant-making agencies' policies on foreign talent recruitment plans differ.** For example, the Department of Energy's new policy effectively bans both employee and contractor participation in foreign talent recruitment plans. The NSF's new policy, however, only applies to NSF employees, but not researchers. These differences can complicate the research community's understanding of the scope and scale of the problem.

11) **The NSF does not have a compliance office to perform grant oversight functions.** Instead, the NSF relies on the institutions submitting grant applications and the NSF Inspector General to conduct due diligence, vetting, and oversight. The NSF's policy on participation in foreign talent recruitment plans does not extend to the more than 40,000 researchers and scientists that receive U.S. funding for research and development.

12) **The NIH awards over $31 billion annually in medical research in 50,000 competitive grants to more than 300,000 researchers.** The NIH has not issued new policies addressing talent recruitment programs. Instead, it relies on existing policies regarding conflict of interest, conflict of commitment, and disclosure of outside support. The NIH is conducting additional oversight of potential links between federal funding and foreign talent recruitment plans. As part of that process, it identified at least 75 individuals potentially linked to foreign talent recruitment plans that also served as peer reviewers.

13) **The Department of Energy ("Energy") is the largest federal sponsor of basic research in the physical sciences, funding $6.6 billion in grants and contracts that support over 25,000 researchers at over 300 institutions and National Labs.** Energy's research funding and prominent role in advanced research and development make it particularly attractive to the Chinese government. Despite 30-year old federal regulations prohibiting U.S. government employees from receiving foreign compensation that conflicts with their official duties, Energy clarified only this year that employees and contractors are prohibited from participating in foreign talent plans.

14) **The Commerce Department ("Commerce") granted deemed export licenses to Chinese nationals associated with talent recruitment plans, Chinese military affiliated universities, and other entities on Commerce's entity list.** The entity list includes individuals and entities "who have engaged in activities that could result in an increased risk of the diversion of exported, re-exported, and transferred items to weapons of mass

destruction programs." The list also includes "activities contrary to U.S. national security and/or foreign policy interests." Commerce is responsible for issuing deemed export licenses to U.S. firms that employ or host foreign nationals seeking to work on controlled technology projects. Commerce rarely denies deemed export license applications, denying only 1.3 percent in 2018.

15) **The FBI recognized that it and other federal agencies were "slow to recognize the threat of the Chinese talent [recruitment] plans" until recently.** Despite the Chinese government publicly announcing in 2008 its intent to recruit overseas researchers with access to advanced research and technology, FBI's headquarters in Washington D.C. did take control of the response to the threat until mid-2018. The FBI took nearly two years to coordinate the dissemination of information identifying potential talent recruitment plan participants to federal grant-making agencies. The FBI has yet to develop an effective, nationwide strategy to warn universities, government laboratories, and the broader public of the risks of foreign talent recruitment plans.

16) **The State Department is on the frontline in the U.S. government effort to protect against intellectual property theft and illicit technology transfers.** While State has a process to screen for non-immigrant visa applicants attempting to steal sensitive technologies or intellectual property, State's authority to deny visas is limited. This results in a denial rate of less than five percent of all visa applicants reviewed. State also does not make available visa applicant files and supporting documentation to U.S. law enforcement in easily accessible formats to assist national security investigations.

17) **The White House's OSTP launched an effort in May 2019 to coordinate interagency work related to improving the safety, integrity, and productivity of research settings.** Currently, federal grant-making agencies' policies and processes are not standardized or uniform. These differences complicate the grant process for applicants, stifle U.S. law enforcement's ability to investigate grant-related crimes, and frustrate the federal government's ability to comprehensively understand grant spending.

Recommendations

1) **Federal agencies must develop a comprehensive strategy to combat both illegal and extralegal transfers of U.S. intellectual capital.** China uses illegal and extralegal mechanisms to acquire U.S. intellectual property, research, and sensitive technologies. Federal agencies should work with the U.S. research community to balance the need for international collaboration while securing U.S.-government funded research.

2) **Federal agencies should declassify and disseminate more information on foreign talent recruitment plans.** Additional information from the U.S. intelligence community, federal law enforcement, and federal grant-making agencies will help define the scope and scale of the problem so that U.S. research institutions can effectively mitigate risks associated with foreign talent recruitment plans.

3) **While taking steps to better protect research and intellectual property, Congress and the Executive Branch should reaffirm the critical importance of foreign students and researchers in the United States and the importance of international research collaboration.** Congress should provide stable and sustained funding for scientific research sponsored by federal agencies and support programs aimed at keeping scientists and their work in the United States.

4) **Federal law enforcement agencies and members of the intelligence community must better tailor engagement with the U.S. research community to ensure that threat information is accessible and actionable.** The FBI should develop a cohesive strategy to ensure outreach by its headquarters and 56 field offices is effective, consistent, and timely.

5) **U.S. grant-making agencies should harmonize the grant proposal process and standardize reporting requirements for disclosing <u>all</u> foreign conflicts of interest, conflicts of commitment, and all outside and foreign support.** Standardization and harmonization will reduce the administrative burden on research institutions applying for federal research funding and promote data sharing across the U.S. research enterprise. A government-wide standard should require documents be machine readable to encourage automation to assist with identifying grant fraud.

6) **The U.S. research community should establish a "Know Your Collaborator" culture.** U.S. research institutions should establish best practices in monitoring scientific and research collaboration with foreign nationals and determining whether such collaboration adheres to U.S. scientific research values, especially in the area of research integrity. U.S.

research institutions also should investigate and adjudicate allegations of failures to disclose conflicts of interest, commitment, or other outside support.

7) **U.S. grant-making agencies should implement a compliance and auditing program to ensure grantees accurately report conflicts of interest and conflicts of commitment.** Congress should provide adequate resources to support agency compliance programs and inspectors general.

8) **U.S. grant-making agencies conducting or funding U.S. government research should share information regarding grant recipients with access to U.S. government funding and research facilities.** This information should be made available as appropriate to foster scientific collaboration and used by funding agencies to assess the qualifications of researchers.

9) **The Commerce Department should ensure its interagency process for identifying emerging and foundational technologies that are essential to the national security of the United States includes a review of fundamental research.** As appropriate and necessary, the Commerce Department should add foundational technologies and areas of fundamental research to its export control lists.

10) **The State Department should identify any additional authorities needed to deny non-immigrant visas for individuals suspected of engaging in illegal or extralegal transfers of technology, intellectual property, and fundamental research.** State also should include additional security related questions designed to detect foreign government sponsorship of research conducted in the United States and whether the visa applicant intends to legally or illegally transfer research and technology back to their home country on visa applications. State should automate security reviews of visa applicants for illicit transfers of technology, intellectual property, and fundamental research.

11) **The administration should consider updating NSDD-189 and implement additional, limited restrictions on U.S. government funded fundamental research.** NSDD-189 was issued in 1985 and established the national policy that products of fundamental research are to remain unrestricted to the maximum extent possible. Federal agencies must not only combat illegal transfers of controlled or classified research, but assess whether openly sharing some types of fundamental research is in the nation's interest.

12) **Federal law enforcement and other relevant agencies should identify U.S.-based entities that serve as recruitment networks, platforms, or foreign government proxies that facilitate or broker in state-sponsored talent recruitment.** Additional investigations and publications are needed to fully understand the impact of foreign talent recruitment efforts in the United States. Federal law enforcement and other relevant agencies should examine the extent of foreign talent recruitment activity in the private sector for foreign talent recruitment-related programs, including venture capital contests and entrepreneurial programs.

13) **U.S. grant-making agencies should work with research institutions to ensure they have the necessary cybersecurity practices in place to reduce the risk of research data misappropriation.** Universities, research institutions, and other recipients of federal research funding should periodically demonstrate that they are adhering to cybersecurity best practices.

14) **Grant-making agencies should not award U.S. funding to participants of foreign talent recruitment programs absent full disclosure of the terms and conditions of membership in any talent recruitment program.**

III. BACKGROUND

This section discusses China's goal to be the leader in science and technology ("S&T") by 2050. To achieve that goal, China is executing a coordinated global campaign to recruit S&T experts and foreign talent. These experts provide access to know-how, expertise, and foreign technology—all necessary for China's economic development and military modernization. While the Chinese government manages more than 200 talent recruitment plans, this section discusses the most prominent plan—the Thousand Talents Plan—and details the plan's centrally managed structure and contracts. Finally, this section highlights recent congressional testimony by U.S. intelligence and law enforcement officials concerning the threats posed by foreign talent recruitment plans.

A. China's Goal to be the Science and Technology Leader by 2050

In 2006, the Chinese government's State Council released the National Medium and Long-Term Program for Science and Technology Development ("MLP"), elevating the importance of S&T development as a key Chinese strategic goal.[1] First commissioned by the 16th National Congress of the Communist Party of China ("CPC") in 2002, Chinese leadership fully endorsed the MLP during the 17th Party Congress in October 2007.[2] Former Chinese Chairman Hu Jintao remarked in his 17th Party Congress address that China would implement the MLP to make China an innovative country and enhance national strength.[3] China aimed to become an "innovation-oriented country" by 2020 and an S&T world leader by 2050.[4]

At that time, China's goals under the MLP were ambitious. China was known more as the workshop of the world than as a source of innovative research and technology. In 2007, for example, China filed only a little over 245,000 patents—roughly half the number of patents filed in the United States.[5] China also had a weak domestic base for conducting innovative research and developing cutting-edge technologies. Only 14 Chinese universities were among the top 500

---

[1] *China's Program for Sci. and Tech. Modernization: Implications for American Competitiveness*, U.S.–CHINA ECON. AND SECURITY REV. COMMISSION, 17 (Jan. 2011), https://www.uscc.gov/sites/default/files/Research/USCC_REPORT_China%27s_Program_forScience_and_Technology_Modernization.pdf [*hereinafter* SECURITY COMMISSION REPORT (Jan. 2011)].

[2] *Promoting Sound and Rapid Development of the National Economy*, CHINA DAILY (Oct. 24, 2007), http://www.chinadaily.com.cn/china/2007-10/24/content_6204564_6.htm.

[3] *Id.*

[4] JAMES MCGREGOR, U.S. CHAMBER OF COMMERCE, CHINA'S DRIVE FOR 'INDIGENOUS INNOVATION': A WEB OF INDUS. POLICIES, 6 (2010), https://www.uschamber.com/sites/default/files/documents/files/100728chinareport_0_0.pdf.

[5] *WIPO IP Statistics Data Center*, WORLD INTELLECTUAL PROPERTY ORG., https://www3.wipo.int/ipstats.

universities in the world.[6] And China's highest ranked university, Tsinghua University, failed to crack the top 150.[7] Compounding these problems, some of China's best talent and experts were overseas. More than 1.2 million Chinese nationals left the country to study and conduct research between 1978 and 2007, but only a quarter had ever returned to China.[8]

1. From Brain Drain to Brain Gain

Though the Chinese government had initiated several plans designed to recruit and retain S&T talent in the 1990s, it mainly issued awards to individuals in China with limited foreign experience.[9] As such, those plans failed to attract the caliber of talent the Chinese government sought in fields deemed critical to strengthening China.[10] For a short period, the Chinese government also attempted to retain talent by imposing a "service period" on students pursuing overseas studies.[11] Deng Xiaoping, the former paramount leader of China, however, ended this policy after 1992, recognizing that China would be better served even if it succeeded in convincing only half of overseas Chinese students to return.[12]

By the early 2000s, China's strategy to recruit S&T talent underwent a paradigm shift. As former CPC General Secretary Zhao Ziyang suggested years earlier, China was not losing brainpower, but rather it was storing its talent overseas to tap later.[13] Chinese leaders, therefore, determined that it could be more

---

[6] *Academic Ranking of World Universities 2007*, ACADEMIC RANKING OF WORLD U., http://www.shanghairanking.com/World-University-Rankings-2007/China.html.
[7] *Id.*
[8] In 2007, for example, 80,000 Chinese nationals were studying in the United States. Approximately 66 percent of them were pursuing graduate studies, and approximately another 10 percent were putting their U.S. acquired skills and knowledge to use under the Optional Practical Training. *See Academic Level and Place of Origin: Previous Years*, INSTITUTE OF INT'L EDUC., https://www.iie.org/Research-and-Insights/Open-Doors/Data/International-Students/Places-of-Origin/Academic-Level-and-Place-of-Origin/2007-08; Cong Cao, *China's Brain Drain at the High End: Why Government Policies Have Failed to Attract First-Rate Academics to Return*, 4 ASIAN POPULATION STUD. 331 (2008) (https://www.researchgate.net/publication/240534512).
[9] Cong Cao, U. OF NOTTINGHAM, NINGBO. CHINA, *China's Approaches to Attract and Nurture Young Biomedical Researchers*, 6 (2018), http://sites.nationalacademies.org/cs/groups/pgasite/documents/webpage/pga_184821.pdf.
[10] *Id.* at 8.
[11] *See* Cong Cao, *China's Brain Drain at the High End: Why Government Policies Have Failed to Attract First-Rate Academics to Return*, 4 ASIAN POPULATION STUD. 331, 333 (2008), https://www.researchgate.net/publication/240534512. (Undergraduate students and graduate students were required to work in China for 5 years and 2 years respectively before pursuing overseas studies).
[12] *Id.*
[13] *Id.*; David Zweig & Stanley Rosen, *How China Trained a New Generation Abroad*, SCIDEVNET (May 22, 2003), https://www.scidev.net/global/migration/feature/how-china-trained-a-new-generation-abroad.html.

efficient to allow its nationals to learn how to conduct research and develop cutting-edge technologies overseas and later find ways for these nationals to assist China.[14]

The CPC soon changed its approach towards overseas Chinese nationals, emphasizing their role in China's development.[15] Chinese officials even reportedly changed a political slogan referring to overseas Chinese nationals from "returning and serving the country" (回国服务) to simply "serve the country" (为国服务).[16] Chinese officials began actively encouraging overseas Chinese nationals to "serve the country overseas" (海外人才为国服务) through investment, giving lectures, starting businesses, and transferring technology back to China.[17]

The MLP reflected this dramatic shift, noting the Chinese government must "attract high caliber talents from overseas" with a priority on areas where China is particularly weak.[18] The MLP called for the government to formulate plans to attract overseas talents to return to China to "serve the country," establish talent recruitment organizations taking into account the "characteristics" of overseas talents, increase financial incentives for overseas talents to return to China, and "establish policy mechanisms for overseas talents to serve the country."[19] According to the MLP, such "policy mechanisms" would focus on getting overseas talents and their teams to return to China to work.[20]

---

[14] *Id.*
[15] THE STATE COUNCIL THE PEOPLE'S REPUBLIC OF CHINA, *CPC Central Committee and the State Council Decision on Further Strengthening Talent Work* (Dec. 26, 20103), http://www.gov.cn/test/2005-07/01/content_11547.htm.
[16] Cong Cao, *China's Brain Drain at the High End: Why Government Policies Have Failed to Attract First-Rate Academics to Return*, 4 ASIAN POPULATION STUD. 331 (2008), https://www.researchgate.net/publication/240534512.
[17] *Overseas Talents for the Country's Service Plan*, CHINAQW, http://www.chinaqw.com/node2/node2796/node2880/node2920/node2989/userobject6ai241511.html. *See also* David Zweig & Stanley Rosen, *How China Trained a New Generation Abroad*, SCIDEVNET (May 22, 2003), https://www.scidev.net/global/migration/feature/how-china-trained-a-new-generation-abroad.html; He Finland, *"Overseas Talents for the Country's Service Plan" Will Start Next Year*, MOFCOM (Sept. 8, 2019), http://www.mofcom.gov.cn/article/bi/200409/20040900276042.shtml.
[18] THE STATE COUNCIL THE PEOPLE'S REPUBLIC OF CHINA, *The National Medium-and Long-Term Program for Science and Technology Development (2006-2020): An Outline*, https://www.itu.int/en/ITUD/Cybersecurity/Documents/National_Strategies_Repository/China_2006.pdf [*hereinafter* MLP S&T STRATEGY]. *See also* James McGregor, *China's Drive for 'Indigenous Innovation': A Web of Industrial Policies* U.S. CHAMBER OF COMMERCE (2010), https://www.uschamber.com/sites/default/files/documents/files/100728chinareport_0_0.pdf. *See also* CONG CAO, U. OF NOTTINGHAM, NINGBO. CHINA, *China's Approaches to Attract and Nurture Young Biomedical Researchers* (2018), http://sites.nationalacademies.org/cs/groups/pgasite/documents/webpage/pga_184821.pdf.
[19] Xinhua News Agency, *Ten, The Construction of Talent Team,* CHINESE GOVERNMENT PORTAL (Feb. 9, 2006), http://www.gov.cn/jrzg/2006-02/09/content_183787_10.htm. *See* MLP S&T STRATEGY.
[20] *See* MLP S&T STRATEGY.

2. China's Systematic Targeting of Critical Technologies

For the Chinese government, the main purpose of international scientific collaboration is to advance China's national security interests, not solely to advance science. According to China's Ministry of Science and Technology[21] ("MOST"), China's participation in international S&T cooperation projects strives for a "win-win and mutually beneficial outcome," but prioritizes Chinese interests under the premise of safeguarding national security.[22] MOST formulates and facilitates the "implementation of strategies and policies for innovation-driven development, and plans and policies for S&T development and the attraction of foreign talent."[23] MOST also "coordinates the development of the national innovation system and the reform of the national S&T management system, and works with relevant government departments to improve incentive mechanisms for technological innovation."[24]

MOST is responsible for identifying and supporting international S&T cooperation projects in selected target areas.[25] These target areas are publicly well documented. MOST outlined more than a dozen major S&T projects in the MLP.[26] These "National Major S&T Projects" identify China's top priorities and focus on strategic technologies and engineering projects with the goal of achieving significant technological advances.[27]

1. Core Electronic Devices, High-End Chips, and Basic Software Parts
2. Large-Scale Integrated Circuit Manufacturing
3. Next Generation Broadband Wireless Mobile Communications
4. High-End Machine Tools and Manufacturing Equipment
5. Large-Scale Oil and Gas Fields Development
6. Large-Scale Advanced Pressurized Water Reactor
7. Water Pollution and Control
8. Genetically Modified Organisms
9. Major New Drug Development
10. Major Infectious Disease Prevention and Cure

---

[21] SECURITY COMMISSION REPORT, 22 (Jan. 2011) (MOST "plays a leading role in developing national science policy and in designing and implementing many of the national funding programs.").
[22] *Key International S&T Cooperation Projects,* MINISTRY OF SCI. AND TECH., http://www.most.gov.cn/eng/cooperation/200610/t20061008_36195.htm.
[23] *Missions of the Ministry of Science and Technology*, MINISTRY OF SCI. AND TECH., http://www.most.gov.cn/eng/organization.
[24] *Id.*
[25] *Key International S&T Cooperation Projects,* MINISTRY OF SCI. AND TECH., http://www.most.gov.cn/eng/cooperation/200610/t20061008_36195.htm.
[26] *Id.*
[27] JAMES MCGREGOR, U.S. CHAMBER OF COMMERCE, CHINA'S DRIVE FOR 'INDIGENOUS INNOVATION': A WEB OF INDUS. POLICIES, 40–42 (2010), https://www.uschamber.com/sites/default/files/documents/files/100728chinareport_0_0.pdf.

11. Large-Scale Airplanes
12. High Resolution Earth Observation Technology
13. Manned Spaceflight

China has additional blueprints aimed at transforming the country into a global S&T leader, including the "Made in China 2025 ("MIC 2025") plan.[28] According to a U.S. Chamber of Commerce report on MIC 2025's goals, the program targets ten strategic industries—including next-generation information technology, aviation, rail, new energy vehicles, and agricultural machinery—that are critical to China's economic competitiveness and high-tech growth.[29] MIC 2025 "appears to provide preferential access to capital to domestic companies in order to promote their indigenous research and development capabilities, support their ability to acquire technology from abroad, and enhance their overall competitiveness."[30] The U.S. Chamber also found that in concert with China's state-led development plans, including the MLP, MIC 2025 constitutes a "broader strategy to use state resources to alter and create comparative advantage[s] in these sectors on a global scale."[31]

3. China's Military-Civilian Fusion Strategy

China's efforts to improve its S&T base and leapfrog ahead of the United States have significant implications for U.S. national security beyond economic and scientific competition. Since 2013, Chairman Xi Jinping has emphasized Military-Civilian Fusion" ("MCF") (军民融合) as critical to the nation's economic development and national security.[32] In 2016, he elevated the importance of MCF as one of the pillars of China's military modernization and made it a national strategy.[33]

Unlike prior Chinese military-industrial policies such as Civilian-Military Integration (军民结合), MCF seeks to move beyond integrating civilian technologies and management expertise into China's military industrial complex.[34] Now, MCF

---

[28] *See* U.S. CHAMBER OF COMMERCE, MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS (2017), https://www.uschamber.com/sites/default/files/final_made_in_china_2025_report_full.pdf.
[29] *Id.*
[30] *Id.* at 6.
[31] *Id.*
[32] Brian Lafferty, *Civil-Military Integration and PLA Reforms*, *in* CHAIRMAN XI REMAKES THE PLA: ASSESSING CHINESE MILITARY REFORMS (Phillip C. Saunders et al eds., 2019), https://ndupress.ndu.edu/Portals/68/Documents/Books/Chairman-Xi/Chairman-Xi_Chapter-16.pdf?ver=2019-02-08-112005-803.
[33] *Xi Jinping Talks about the Integration of Military and Civilian: About National Security and Development*, QIUSHI JOURNAL (October 16, 2018), http://www.qstheory.cn/zhuanqu/rdjj/2018-10/16/c_1123565364.htm.
[34] Elsa B. Kania, *In Military-Civil Fusion, China is Learning Lessons from the United States and Starting to Innovate*, REAL CLEAR DEFENSE (August 27, 2019), https://www.realcleardefense.com/articles/2019/08/27/in_military-civil_fusion_china_is_learning_lessons_from_the_united_states_and_starting_to_innovate_114699.html.

calls for the seamless "fusing" of the military and civilian sectors with resources, technologies, information, and people.[35] This allows China to pool its talent and resources from the two sectors to jointly develop technologies, conduct research, and attract talent that mutually reinforces both the military and civilian sector. MCF significantly blurs the lines between China's defense and civilian sectors, enabling China to continue international collaboration with scientists while not disclosing that such collaboration may be for modernizing China's military.[36]

In 2017, the State Council published a MCF policy document detailing how China planned to promote defense-related science and technology fusion.[37] In its document, the State Council calls for the Chinese military to declassify National Defense Patents for the civilian sector's use, the sharing of military and civilian research centers, including facilities at the China Academy of Sciences and universities, and the coordination of research efforts.[38] The document also calls for China's military and its defense industry to rely on higher education institutions to establish defense research and civilian research institutions as well as a talent recruitment plan to recruit personnel to work in the defense sector.[39] Another key provision calls for establishing an information sharing platform between civilian and military research institutions to collect information on frontier and advanced technologies.[40]

Chairman Xi's elevation of MCF as a national strategy encourages China's military industrial complex to implement its own "going out" strategy (走出去) to acquire overseas companies, establish research and development centers, and attract overseas talent.[41] For example, in 2013 China's Aviation Industry Corporation ("AVIC"), a Chinese aerospace and defense conglomerate, purchased the German aircraft engine manufacturer Thielert Aircraft—which makes engines

---

[35] *Id.*
[36] *Id.*
[37] *See* OFFICE OF THE STATE COUNCIL, GUO BAN FA NO. 91, THE GENERAL OFFICE OF THE STATE COUNCIL PROMOTES THE NAT'L DEFENSE SCI. AND TECH. INDUS. (Dec. 4, 2017), http://www.gov.cn/zhengce/content/2017-12/04/content_5244373.htm.
[38] *Id.*
[39] *Id.*
[40] *Id.*
[41] *Chinese Military Innovation in Artificial Intelligence: Hearing On Tech., Trade, And Military-Civil Fusion—China's Pursuit Of Artificial Intelligence, New Materials, And New Energy Before the U.S.-China Econ. and Security Review Commission*, 116th Cong. (2019) (statement of Elsa B. Kania, Adjunct Senior Fellow, Tech. and Nat'l Security Program, Center for a New American Security Research Fellow, Center for Security and Emerging Tech., Georgetown U.); GREG LEVESQUE & MARK STOKES, POINTE BELLO, BLURRED LINES: MILITARY-CIVIL FUSION AND THE "GOING OUT" OF CHINA'S DEFENSE STRATEGY, 6–7 (December 2016), https://static1.squarespace.com/static/569925bfe0327c837e2e9a94/t/593dad0320099e64e1ca92a5/1497214574912/062017_Pointe+Bello_Military+Civil+Fusion+Report.pdf.

for large unmanned aerial vehicles.[42] AVIC also established the AVIC Centre for Structural Design and Manufacture at the Imperial College of London to research aircraft design and manufacturing technologies.[43] Through such research collaborations, China's military industrial complex is able to "exploit the openness of the scientific community" and western academic norms that encourage research collaborations.[44]

4. China's Strategic Plan for Talent Recruitment

Over the past decade, the Chinese government has refined its centrally organized foreign talent recruitment plans into a strategy to "use talent to strengthen the country" by targeting the specific technology sectors previously discussed.[45] These plans help facilitate technology transfer and typically include people-to-people exchanges, international S&T cooperation projects, and the recruitment and repatriation of S&T experts on a temporary or permanent basis.[46] China's most prominent national talent recruitment plan is the "Recruitment Program of Global Experts," more commonly known as the Thousand Talents Plan ("TTP").[47]

Launched in 2008, a year after the adoption of the MLP, China designed the TTP to recruit 2,000 high-quality overseas talents within five to ten years.[48] By 2017, according to one report, China recruited more than 7,000 "high-end professionals" under the TTP.[49]

---

[42] GREG LEVESQUE & MARK STOKES, POINTE BELLO, BLURRED LINES: MILITARY-CIVIL FUSION AND THE "GOING OUT" OF CHINA'S DEFENSE STRATEGY, 36 (December 2016) (https://static1.squarespace.com/static/569925bfe0327c837e2e9a94/t/593dad0320099e64e1ca92a5/1497214574912/062017_Pointe+Bello_Military+Civil+Fusion+Report.pdf).

[43] *AVIC Centre for Structural Design and Manufacture*, IMPERIAL LONDON COLLEGE, http://www.imperial.ac.uk/avic-design/.

[44] Elsa B. Kania, *In Military-Civil Fusion, China is Learning Lessons from the United States and Starting to Innovate*, REAL CLEAR DEFENSE (August 27, 2019), https://www.realcleardefense.com/articles/2019/08/27/in_military-civil_fusion_china_is_learning_lessons_from_the_united_states_and_starting_to_innovate_114699.html.

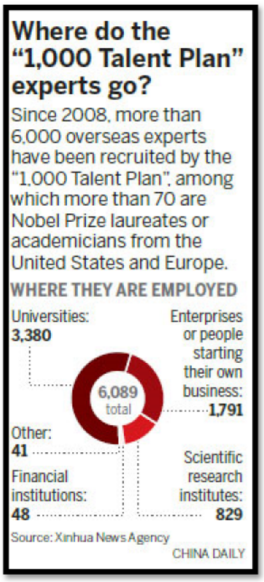
[45] *Implementing the Talent Strategy to Strengthen the Country*, THE CENTRAL PEOPLE'S GOVERNMENT OF THE PEOPLE'S REPUBLIC OF CHINA (Mar. 20, 2007), http://www.gov.cn/ztzl/2007zfgzbgjd/content_555796.htm.

[46] WHITE HOUSE, *How China's Economic Aggression Threatens the Technologies and Intellectual Property of the United States and the World*, 14, (June 18, 2018), https://www.whitehouse.gov/wp-content/uploads/2018/06/FINAL-China-Technology-Report-6.18.18-PDF.pdf.

[47] U.S. FED. BUREAU OF INVESTIGATION, Counter Intelligence, Strategic Partnership Intelligence Note (SPIN), *Chinese Talent Programs,* SPIN: 15-007 (Sept. 2015), https://info.publicintelligence.net/FBI-ChineseTalentPrograms.pdf.

[48] *The Recruitment Program of Global Experts*, THOUSAND PEOPLE PLAN, http://www.1000plan.org/qrjh/section/2?m=rcrd.

[49] Su Zhou, *Returnees finding big opportunities*, CHINA DAILY (Feb. 26, 2017), http://www.chinadaily.com.cn/china/2017-02/25/content_28345785.htm.



The TTP is just one of China's more than 200 talent recruitment plans.[50] For example, another popular Chinese talent recruitment plan is the Changjiang Scholars program. Started in 1998, the Changjiang Scholars program is run by the Ministry of Education and recruits individuals both in China and abroad to work in Chinese universities and research institutions.[51] According to one public report, as of June 2014, a total of 2,251 Changjiang Scholars had been appointed, including 1,546 distinguished professors and 705 visiting professors.[52] China's talent recruitment plans do not only target U.S. universities or researchers; there are

---

[50] Timothy Puko and Kate O'Keefe, *Energy Department to Ban Foreign Talent- Recruitment Programs*, WALL STREET J. (Feb. 1, 2019), https://www.wsj.com/articles/energy-department-to-ban-foreign-talent-recruitment-programs-11549052674.

[51] The People's Daily, *The Ministry of Education Implemented the Yangtze River Scholars Program for 16 Years*, NATIONAL DEGREE AND GRADUATE EDUCATION DATA CENTER (June 9, 2014), http://web.archive.org/web/20140613205523/http://www.chinadegrees.cn/xwyyjsjyxx/sy/syzhxw/278915.shtml (Internet Archive Wayback Machine reproduction).

[52] Hepeng Jia, *How to find a job in China*, NATURE (Jan. 17, 2018), https://www.nature.com/articles/d41586-018-00537-0.

venture capital recruitment plans and talent recruitment competitions that engage entrepreneurs and the private sector directly.[53]

The Chinese government is investing significant resources in its talent recruitment plans. According to one 2015 FBI analysis, China pledged to spend 15 percent of the country's gross domestic product on human resources during the period covered by the plan, potentially more than $2 trillion.[54]

i. Administration

In contrast to other previous talent recruitment plans, the Party, specifically through the Central Committee's Organization Department, plays a lead role in implementing the TTP.[55] The Organization Department is one of the most powerful CPC departments, controlling more than 90 million Party officials' assignments at all levels of the Chinese government.[56] The CPC recognized the need to control overseas talent recruitment efforts "to ensure they were in line with Party priorities, so it created a complex system of administration and oversight to coordinate its recruitment efforts."[57] This coordination allows the CPC to "exert exceptional" levels of control over the TTP and other talent recruitment plans.[58]

---

[53] *North American leg of the 7th 1000 Talents Plan Startup Contest Concludes*, Venture Capital Community, Association of Thousand Talents Program (Aug. 15, 2018), http://1000.sandlake.com/English/News/2018-08-15/314.html. Rolfe Winkler, *Chinese Cash That Powered Silicon Valley Is Suddenly Toxic,* Wall Street J. (June, 11, 2019), https://www.wsj.com/articles/chinese-cash-is-suddenly-toxic-in-silicon-valley-following-u-s-pressure-campaign-11560263302. Press Release, U.S. DEP'T OF JUSTICE, *One American and One Chinese National Indicted in Tennessee for Conspiracy to Commit Theft of Trade Secrets and Wire Fraud* (Feb. 14, 2019), https://www.justice.gov/opa/pr/one-american-and-one-chinese-national-indicted-tennessee-conspiracy-commit-theft-trade.

[54] U.S. FED. BUREAU OF INVESTIGATION, Counter Intelligence, Strategic Partnership Intelligence Note (SPIN), *Chinese Talent Programs,* SPIN: 15-007 (Sept. 2015), https://info.publicintelligence.net/FBI-ChineseTalentPrograms.pdf.

[55] Fed. Bureau of Investigation production, 10 (Oct. 12, 2018).

[56] Eleanor Albert and Beina Xu, *The Chinese Communist Party*, COUNCIL ON FOREIGN REL. (Sept. 27, 2019), https://www.cfr.org/backgrounder/chinese-communist-party.

[57] Fed. Bureau of Investigation production, 10 (Oct. 12, 2018).

[58] *Id.*

The Organization Department oversees the Talent Work Coordination Small Group ("TWCSG"), the Overseas High-Level Talent Recruitment Working Small Group, and the Overseas High-Level Talent Recruitment Work Special Office ("Special Office").[59] The Organization Department's director and deputy director chair the TWCSG, which is comprised of 18 government agencies, CPC affiliated entities including the Organization Department, and academic entities.[60]

In 2008, the Chinese government issued two policy documents detailing the administration and implementation of the TTP. On December 23, 2008 the "General Office of the CPC Central Committee" published the "Central Committee Talent Work Coordination Small Group's Advice for Implementing the [TTP]."[61] This document provides initial guidance and organizing infrastructure, including by creating leadership positions, defining roles and responsibilities, and creating smaller working groups charged with more discrete tasks.[62]

The policy document also created the "Overseas High-Level Talent Introduction Small Group." This group published an "Interim Measures" guidance

---

[59] *Interim Measures for the Introduction of High-Level Overseas Talent, Organization Department Document No. 28*, MINISTRY OF NAT. RESOURCES (2008), http://www.mnr.gov.cn/zt/kj/kjfz/kjrc/gjkjrcjh/201811/t20181129_2370185.html.

[60] *Id.*

[61] Li Fang Quanjuan, *Notice of the General Office of the Central Committee of the Communist Party of China on Forwarding the Opinions of the Central Talent Work Coordination Group on Implementing the Overseas High-Level Talents Introduction Program*, CHINA COMMUNIST PARTY NEWS NETWORK (June 20, 2012), http://cpc.people.com.cn/GB/244800/244856/18246001.html.

[62] *Id.* (The "General Office of the CPC Central Committee" published the "Central Committee Talent Work Coordination Small Group's Advice for Implementing the [TTP]").

document designed to implement the overseas high-level talent recruitment plans, including the TTP.[63] The Interim Measures stated TTP's goals were as follows:

> [The TTP] focuses on the national development strategy. Starting from 2008, it will take 5-10 years to focus on national key innovation projects, key disciplines and key laboratories, central enterprises and state-owned commercial financial institutions, and high-tech industries. Various types of parks, mainly in the development zone, have introduced and focused on supporting 2,000 overseas high-level talents to return to China for innovation and entrepreneurship.[64]

The TWCSG also develops strategic plans, conducts policy research, and coordinates 18 participating government agencies, CPC affiliated entities, and academic entities. These 18 entities and agencies include:[65]

- CPC Central Committee Organization Department
- Chinese Academy of Sciences ("CAS")
- Chinese Academy of Engineering ("CAE")
- National Natural Science Foundation ("NSFC")
- China Association for Science and Technology ("CAST")
- Ministry of Education ("MOE")
- Ministry of Science and Technology ("MOST")
- Foreign Experts Bureau[66]
- Ministry of Industry and Information Technology ("MIIT")
- National Development and Reform Commission
- Ministry of Human Resources and Social Security ("MHRSS")
- State-owned Assets Supervision and Administration Commission ("SASAC")
- People's Bank of China
- Ministry of Finance
- United Work Front Department
- Communist Youth League of China ("CYLC")
- Ministry of Foreign Affairs

---

[63] *Central Organization Department: Interim Measures for Introducing Overseas High-level Talents*, SCHOOL OF OPTICAL AND ELECTRONIC INFO. HUST (Mar. 14, 2014), https://web.archive.org/web/20140323045245/http://oei.hust.edu.cn/Discipline/1/2012-11-09/183257640.html (Internet Archive Wayback Machine reproduction).

[64] *Id.*

[65] *Interim Measures for the Introduction of High-Level Overseas Talent, Organization Department Document No. 28*, MINISTRY OF NAT. RESOURCES (2008), http://www.mnr.gov.cn/zt/kj/kjfz/kjrc/gjkjrcjh/201811/t20181129_2370185.html.

[66] The Foreign Experts Bureau is now part of MOST. *See* Kristin Huang & Alice Yan, *New Immigration Bureau Set Up to Handle Growing Number of Foreigners in China,* SOUTH CHINA MORNING POST (Mar. 13, 2018), https://www.scmp.com/news/china/policiespolitics/article/2137058/new-immigration-bureau-set-handle-growing-number.

- Ministry of Public Security

The participating agencies and entities each fulfill an important role in the process for targeting, recruiting, financing, and absorption of TTP members' scientific research and technology as well as identifying China's scientific, technological, and industrial needs.[67] The Special Office collects information from these agencies, decides China's priority technical areas, and approves the TTP finalists.[68]

ii. Application Process

Applicants work through a three-phase application process to be admitted into the TTP.[69] First, the applicant's future Chinese employer submits an application to one of the platforms discussed below.[70] At this stage, the applicant must provide documents detailing his or her credentials and scientific achievements.[71] In some cases, U.S.-based applicants have submitted significant amounts of sensitive information from their institutions to bolster their credentials.[72] Second, the lead organization for the platform evaluates the application and makes a recommendation.[73] Third, the Thousand Talent's Special Office, in conjunction with the Overseas High-Level Talent Introduction Small Group, makes an application decision.[74] All TTP applications for the national-level plans, however, "are ultimately reviewed by the Communist Party's Organization Department, which decides whether or not to officially recruit the foreign expert."[75]

---

[67] *Interim Measures for the introduction of high-level overseas talent, Organization Department Document No. 28,* MINISTRY OF NAT. RESOURCES (2008), http://www.mnr.gov.cn/zt/kj/kjfz/kjrc/gjkjrcjh/201811/t20181129_2370185.html.
[68] *Id.*
[69] *The Recruitment Program of Global Experts*, THOUSAND PEOPLE PLAN, (Jan. 19, 2012), https://web.archive.org/web/20141208104715/http://www.1000plan.org/qrjh/article/18582 (Internet Archive Wayback Machine reproduction).
[70] *General Procedure for Reporting Thousands of People*, THOUSAND PEOPLE PLAN, http://www.1000plan.org.cn/qrjh/section/2?m=rcrd.
[71] *Id.*
[72] *See* Transcript of Detention Hearing at 18, United States of America v. You, et al (E.D. Tenn. April 24, 2019) (No. 2:19-CR-00014); Fed. Bureau of Investigation production, 10 (Oct. 12, 2018) (Dr. Long Yu, a Chinese citizen stole "materials included design information for the F-22 and JSF-35 military jet engines. Dr. Long later admitted he had taken this information to China in support of his Chinese Talent Plan position at a Chinese government laboratory.").
[73] *General Procedure for Reporting Thousands of People*, THOUSAND PEOPLE PLAN, http://www.1000plan.org.cn/qrjh/section/2?m=rcrd.
[74] *Id.*
[75] Fed. Bureau of Investigation production, 10 (Oct. 12, 2018).

iii. Implementation

The Chinese government relies on four major platforms for implementing the TTP.[76] These four platforms provide the systematic guidance and structure to recruit overseas experts for Chinese universities, research labs, business development parks, and other state-owned enterprises, all with the aim of modernizing China's indigenous innovation capabilities.[77]

1) ***National Key Innovation Projects Platform.*** The National Key Innovation Projects Platform recruits overseas high-level S&T talent as defined and required under the MLP.[78]

2) ***Key Disciplines and Key Laboratories Platform.*** The Key Disciplines and Key Laboratories Platform recruits overseas high-level talent for China's domestic education system, including universities.[79] The Chinese government intended this platform to increase its research capabilities, serve as an "important base for training innovative talents and developing scientific research," and occupy the "backbone and leading position within the higher education disciplines system."[80]

3) ***Central Enterprises and State-Owned Commercial and Financial Organizations Platform.*** The Central Enterprises and State-Owned Commercial and Financial Organizations Platform aims to attract overseas high-level talent for state-owned financial institutions.[81]

4) ***Parks or Zones Based at High-Tech Industrial Development Zones Platform.*** The Parks or Zones Based at High-Tech Industrial Development Zones platform aims to attract overseas high-level talents to return and create or operate businesses in China's business development parks.[82]

---

[76] *The Recruitment Program of Global Experts*, THOUSAND PEOPLE PLAN, (Jan. 19, 2012), https://web.archive.org/web/20141208104715/http://www.1000plan.org/qrjh/article/18582 (Internet Archive Wayback Machine reproduction).
[77] *Id.*
[78] *Four Platforms and Specific Requirements*, THOUSAND PEOPLE PLAN, http://www.1000plan.org.cn/qrjh/section/2?m=rcrd.
[79] *The Recruitment Program of Global Experts,* THOUSAND PEOPLE PLAN, http://www.1000plan.org/qrjh/section/2?m=rcrd.
[80] *Four Platforms and Specific Requirements*, THOUSAND PEOPLE PLAN, http://www.1000plan.org.cn/qrjh/section/2?m=rcrd; China Academic Degrees and Graduate Information, *Introduction to National Key Disciplines Project*, THOUSAND PEOPLE PLAN (2008), http://www.chinadegrees.cn/xwyyjsjyxx/zlpj/zdxkps/257697.shtml.
[81] *Four Platforms and Specific Requirements*, THOUSAND PEOPLE PLAN, http://www.1000plan.org.cn/qrjh/section/2?m=rcrd.
[82] *Id.*

These four programs assist China in accomplishing its national S&T goals by strengthening research in fundamental and cutting-edge technologies and drastically improving the quality of Chinese universities and research laboratories.

iv. Chinese Talent Recruitment Contracts Violate U.S. Standards on Research Integrity

After selection, TTP members sign contracts or "letter of intent to work" agreements with Chinese institutions.[83] The Subcommittee obtained several of these contracts and one of the Chinese government's template contracts. The contracts include provisions that violate U.S. standards of research integrity, place TTP members in compromising legal and ethical positions, and undermine fundamental U.S. scientific norms of transparency, reciprocity, and integrity. The FBI has concluded that TTP members are "usually contractually obligated to essentially use the knowledge they have obtained from their foreign employers to successfully fulfill the terms of their contract."[84] U.S. institutions and U.S. grant-making agencies must be fully aware of such contractual obligations as they could limit the ability to protect and retain intellectual capital here in the United States.

China's State Administration of Foreign Experts Affairs ("SAFEA") created a template contract on which TTP contracts reviewed by the Subcommittee are based.[85] In addition to basic information such as salary and benefits, the template includes intellectual property ownership provisions and non-disclosure clauses related to research and intellectual property developed in China, underscoring the Chinese government's focus on technology acquisition.[86] The template also encourages entities in China that employ TTP members to incorporate additional non-disclosure requirements and intellectual property agreements.[87]

Provisions in some TTP contracts control ownership of intellectual property created during the performance of the contract, including intellectual property created in the United States, at U.S. institutions, and with U.S. funds. Though provisions among the reviewed contracts varied, every contract contained clauses that gave Chinese institutions at least some rights in any intellectual property created by the TTP member in the United States. For example, one contract states, "The intellectual property rights obtained by [the TTP member] during the work of [the Chinese institution], including copyright, patent rights, trademark rights, etc., are owned by the [Chinese institution]."[88] The contract permits some sharing of the intellectual property, but only with the TTP member: "According to the definition of

---

[83] Fed. Bureau of Investigation production, 11 (Oct. 12, 2018).
[84] *Id.*
[85] *Contract of Employment/Letter of Intent*, STATE ADMIN. OF FOREIGN EXPERTS AFF., https://wenku.baidu.com/view/b6ed88102a160b4e767f5acfa1c7aa00b42a9d5e.html?rec_flag=default.
[86] *Id.*
[87] *Id.*
[88] Documents on file with the Subcommittee (Sept. 10, 2019).

intellectual property rights between the two parties, [the talent recruitment plan member] has certain sharing rights within the defined scope."[89] The contract did not mention the rights of the U.S. institution. This contract also requires that the TTP member will "apply for more than 2 invention patents" during the course of the grant and also included non-disclosure and confidentiality provisions.[90]

Another contract references the possibility that the U.S. institution where the TTP member works could retain some ownership of any intellectual property created during the grant, yet that ownership would be "joint" with the Chinese institution. The U.S. institutions, however, are not parties to the TTP contracts. This particular contract provides:

> Should Chinese scientists contribute to your discoveries in China, as we anticipate, [the U.S. institution] and our institutions will jointly own, protect, and manage the commercialization of these jointly-made discoveries.[91]

That same contract also states that, "In any publication describing research that was primarily conducted in China, you will list our institution as your primary, and [the U.S. institution] as your secondary, site of academic appointment."[92]

The scope of work described in TTP contracts also raises concerns. In many cases, the contracts detail specific expectations regarding research the TTP member will perform or the business he or she will develop in China.[93] This research could resemble or replicate the work the TTP applicant performs or has performed for his or her U.S.-based employer. For example, one contract stated, "We recognize that your research in China will relate closely to your ongoing work at the [U.S. institution], and that it may be difficult to avoid comingling the results of your work."[94] In other cases, the Chinese institution has asked the TTP member to continue operating labs in China characterized as "shadow labs."[95] Another letter agreement between a TTP member and Chinese institution stated, "We anticipate that you will make several trips to China each year during the term of your engagement, but will perform much of your work remotely. [ ] When you are not in China, your laboratory here will be overseen by [REDACTED]."[96]

Some contracts explicitly require TTP members to train or recruit additional students to work for them in the United States. This recruitment model enables

---

[89] *Id.*
[90] *Id.*
[91] PorCTP-0000652.
[92] *Id.*
[93] Fed. Bureau of Investigation production, 11 (Oct. 12, 2018).
[94] PorCTP-0000627; PorCTP-0000651.
[95] PorCTP-0000627; PorCTP-0001128. *See also* Kelvin K. Droegemeier, Director, *Letter to the United States Research Community*, OFF. SCIENCE AND TECH. POLICY (Sept. 16, 2019).
[96] PorCTP-0000627; PorCTP-0000615.

Chinese officials to place additional talent recruitment plan members under the supervision of current members already in the United States. As the recruits develop expertise and access, they are more desirable as TTP members and this encourages rapid program growth. For example, one contract's recruitment clause required the talent recruitment plan member to build and train a team of 8 to 10 post-doctoral students.[97] Another contract provides more detail, stating the Chinese institution will provide the TTP member with a list of doctoral and graduate students from which the TTP member should recruit 1 to 2 post-doctoral students each year.[98]

One federal agency provided the Subcommittee with a case study detailing how TTP recruitment can also serve as a way to circumvent export controls.[99] A professor at a U.S. university specialized in a critical, dual-use science, technology, engineering, and mathematics ("STEM") field.[100] He received numerous U.S. government research grants and was also a member of several Chinese talent recruitment plans.[101] The professor also directed a China-based laboratory performing applied military research and development.[102] Instead of traveling to China for this work, the professor sponsored visiting students from the Chinese laboratory to study under him in the United States.[103] "This technique, commonly seen throughout the United States with talent recruitment plan selectees, allowed the professor to pass dual-use research, and potentially export-controlled research, to China via the visiting students and scholars without having to physically leave the United States."[104] In this case, many of the visiting students were "directly affiliated with research and development organizations involved in China's military modernization efforts."[105]

The contracts also place TTP members in compromising legal and ethical positions. Some contract provisions reflect an intent to keep the TTP members' work in China secret. For example, one contract said "Party A and B shall keep the contents of the contract confidential. Neither party may disclose it to unrelated parties without consent from the other party."[106] Several contracts noted that the TTP member could not cancel their contracts unless their Chinese employer consented, providing Chinese officials with significant leverage over the TTP

---

[97] Documents on file with the Subcommittee (Sept. 10, 2019).
[98] PorCTP-0000247.
[99] Documents on file with the Subcommittee (Oct. 25, 2019).
[100] *Id.*
[101] *Id.*
[102] *Id.*
[103] *Id.*
[104] *Id.*
[105] *Id.*
[106] Documents on file with the Subcommittee (Sept. 10, 2019).

member.[107] Given these obligations, U.S. institutions should be aware that TTP members may not voluntarily disclose their other affiliations or external funding during routine requests for disclosures.

Though TTP members were known to be working for U.S. institutions, some contracts state that the member cannot "take on any substantive part-time work in other organizations or institutions" or "conduct any part-time job assigned by any other party."[108] Yet another contract explicitly recognizes the TTP member's employment outside China, but requires he or she to work nine months of the year for their Chinese employer, raising potential conflicts of commitment.[109] The same contract also requires the member to resign from his or her U.S. position within four years of the start of the TTP contract.[110]

B. Congressional Testimony on Chinese Talent Recruitment Plans

Recent hearings in the Senate and the House have highlighted Chinese efforts to use the TTP and other talent recruitment plans to leverage U.S. research spending for their own goals. In July 2019, FBI Director Christopher Wray expressed concern over the "abuse" of Chinese talent recruitment plans such as the TTP at a Senate Judiciary Committee hearing.[111] Director Wray stated:

> The Chinese government and the Chinese Communist Party have a number of so-called talent plans so you hear about the thousand talent plans and there is nothing inherently unlawful about the talent plans themselves. However we have seen through lots of investigations of abuse of those talent plans and essentially we have situations where it has created a pipeline in some cases at major universities especially at the graduate level more so than at the undergraduate level of key intellectual properties sometimes that has dual use potential flowing back to China for the advancement of its various strategic plans and the irony is that the U.S. is essentially funding that economic resurgence through various money that it provides through grants, etc.[112]

He also warned of the potential implications that may arise through the TTP:

---

[107] PorCTP-00001114; PorCTP-00001140. Other TTP contracts permitted TTP members to terminate the agreement with 30 days written notice. This shows that "mutual consent" to terminate a contract is not necessarily a requirement under Chinese labor law. *See* PorCTP-00001127.
[108] PorCTP-00001108. PorCTP-00001140.
[109] HHS PorCTP-00001138.
[110] HHS PorCTP-00001140.
[111] *Oversight of the Fed. Bureau of Investigation: Hearing Before the S. Comm. on Judiciary*, 116th Cong. (July 23, 2019) (testimony of Christopher Wray, Dir., Fed. Bureau of Investigation).
[112] *Id.*

> So I think we do have to be a little bit careful that we don't find ourselves in a situation where essentially U.S. taxpayer money has been misappropriated for the advancement of China's achievements of economic dominance over us. There are a lot of cases where those plans become violations of U.S. law or at the very least violate non-competes and things like that that might exist and I think universities need to be more and more aware of who it is they are inviting over and what safeguards they can put in place.[113]

At a December 2018 Senate Judiciary Committee hearing, Bill Priestap, the former Assistant Director of the FBI's Counterintelligence Division, stated that China's talent recruitment plans are effectively "brain gain programs" that "encourage theft of intellectual property from U.S. institutions."[114] Priestap continued, "For example, China's talent recruitment plans, such as the Thousand Talents Program, offer competitive salaries, state-of-the-art research facilities, and honorific titles, luring both Chinese overseas talent and foreign experts alike to bring their knowledge and experience to China, even if that means stealing proprietary information or violating export controls to do so."[115]

In April 2018, the House Science, Space, and Technology Committee's Subcommittee on Research and Technology and Subcommittee on Oversight held a joint hearing titled "Foreign Plots Targeting Research and Development." Michael Wessel, Commissioner of the U.S.-China Economic and Security Review Commission, emphasized key threats posed by talent recruitment plans such as the TTP. Commissioner Wessel referenced a 2011 FBI report that stated:

> Chinese talent programs pose a serious threat to U.S. businesses and universities through economic espionage and theft of intellectual property. The different programs focus on specific fields deemed critical to China, to boost China's national capability in [science and technology] fields. These subject matter experts often are not required to sign non-disclosure agreements with U.S. entities, which could result in loss of unprotected information. … One of the greatest threats toward these experts is transferring or transporting proprietary, classified, or export

---

[113] *Id.*
[114] *China's Non-Traditional Espionage Against the United States: Hearing on The Threat and Potential Policy Responses Before the S. Comm. on the Judiciary*, 115th Cong. (Dec. 12, 2018) (testimony of E.W. "Bill" Priestap, Assistant Director, Counterintelligence Division, Fed. Bureau of Investigation).
[115] *Id.*

> controlled information, or intellectual property, which can lead to criminal charges.[116]

In a July 2018 House Permanent Select Committee on Intelligence hearing titled, "China's Threat to U.S. Research/Innovation Leadership," Michael Brown, a Presidential Innovation Fellow who focuses on Chinese S&T policy issues, explained how the Chinese government engages in technology transfers through talent recruitment plans. According to Brown, China has been able to conduct technology transfers by "sponsoring professional organizations to target talent and using Chinese students by placing them in sensitive areas of U.S. research."[117]

C. China Deletes References to the Thousand Talents Plan

Following public testimony and other U.S. government scrutiny, some Chinese government websites deleted online references to the Thousand Talents Plan, according to several U.S. and foreign media reports even though the talent recruitment plans continue. Some Chinese universities also stopped promoting the program, and the official TTP site removed a post containing a list of the names of participating scientists.[118] According to one U.S.-based news outlet, China's self-censorship followed the August 2018 high-profile arrest of a TTP member who worked for General Electric and was alleged to have stolen technology secrets from the company.[119]

One Chinese language news outlet reported that Chinese authorities had ordered media outlets to suspend reporting on the TTP.[120] That report continued:

> An official document, with signatures of the Thousand Talents Plan's Youth Program Review Team and the seal of the Representative of the National Natural Science Foundation of China, has been circulated online recently. The document shows the team has listed precautionary measures, asking that for the sake of ensuring the safety of overseas

---

[116] *Foreign Plots Targeting Research and Development*: *Hearing Before the H. Subcomm. on Research and Technology and H. Subcomm. on Oversight of the H. Comm. on Science, Space and Technology*, 115th Cong. (Apr. 11, 2018) (testimony of Michael Wessel, Comm'r of the U.S. China Econ and Sec Review Commission).

[117] *China's Threat to U.S. Research/Innovation Leadership: Hearing Before the H. Perm. Select Comm on Intelligence*, 115th Cong. (July 19, 2018) (testimony of Michael A. Brown, Presidential Innovation Fellow).

[118] Meng Jeng, *China Mutes Volume on Thousand Talents Plan as US Spy Concerns Rise But Scientists Still Covet Funding*, SOUTH CHINA MORNING POST (Dec. 8, 2018), https://www.scmp.com/tech/science-research/article/2176897/china-mutes-volume-thousand-talents-plan-us-spy-concerns-rise.

[119] *Spy Fears Prompt China to Censor Its Own Recruitment Drive*, BLOOMBERG (Sept. 19, 2018), https://www.bloomberg.com/news/articles/2018-09-19/china-censors-mentions-of-thousand-talents-as-spy-fears-grow.

[120] *Id.*

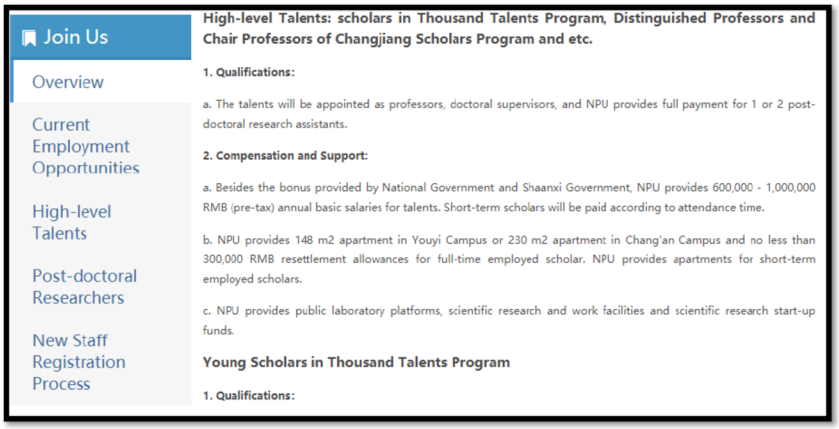
> talents, all work units should use phones or fax instead of emails when sending interview notifications, and that notices should be sent as invitations to attend academic conferences or forums in China.[121]

In the most specific decree from the Chinese government on limiting references to the TTP, "[t]he official document clearly requests that the phrase 'Thousand Talents Plan' should not appear in written circulars/notices."[122] And, finally, according to one news outlet, one TTP member "was asked to delete anything related to the Thousand Talents Plan from [his or her] homepage."[123]

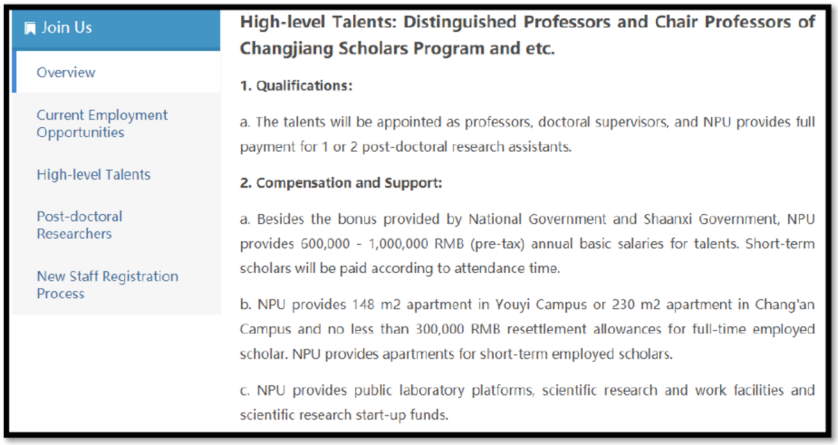
The Subcommittee examined Chinese websites that previously provided information on talent recruitment plans that were no longer available. For example, Northwestern Polytechnical University, a prominent Chinese university focusing on STEM, scrubbed references to talent recruitment plans from its English-version online job application.[124] In mid-2018, the website highlighted two different talent recruitment plans, as shown below.[125]

---

[121] *Id.*
[122] *Id.*
[123] Kristin Huang & Kinling Ho, *Why Chinese Scientists Would Rather Not Talk about Their Talent Awards*, ASIAONE (Jan. 7, 2019), https://www.asiaone.com/china/why-chinese-scientists-would-rather-not-talk-about-their-talent-awards.
[124] As of this report, Northwestern Polytechnical is now on Commerce's Entity List. *Lists of Parties of Concern,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY (2019), https://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern.
[125] *Overview*, NORTHWESTERN POLYTECHNICAL UNIVERSITY (Sept. 28, 2018), https://web.archive.org/web/20180828021039/https://en.nwpu.edu.cn/EnglishNew/Jobs/Overview.htm (Internet Archive Wayback Machine reproduction of the Northwestern Polytechnical University "Overview" page which mentioned "scholars in Thousand Talents Program" through Sept. 2018).



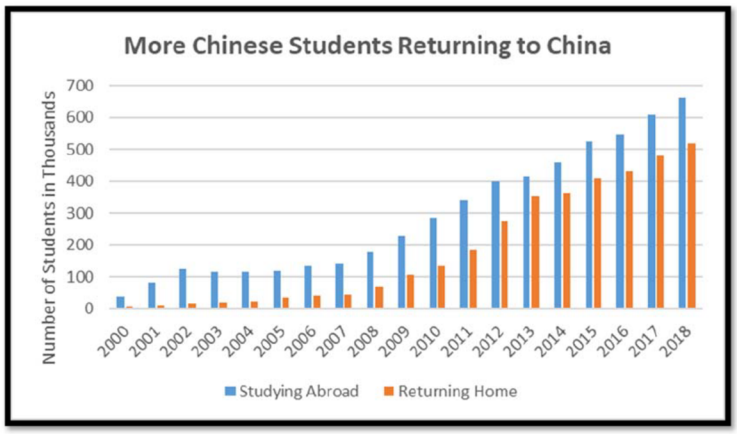
In 2019, the university then changed the website and deleted both references to its talent recruitment plans, as shown here.[126]



[126] *Overview*, NORTHWESTERN POLYTECHNICAL UNIVERSITY, https://en.nwpu.edu.cn/EnglishNew/Jobs/Overview.htm.

D. After Implementation of Talent Recruitment Plans, More Chinese Students, Researchers, and Scientists are Returning to China

China's talent recruitment plans designed to repatriate Chinese students and professionals abroad are succeeding as more Chinese students are returning to China. Chinese government reports and data show the number of Chinese students returning from working or studying abroad has increased significantly over the past decade.[127] In 2018, 662,100 students went abroad and 480,900 returned—a 78 percent return rate that China boasted on its government website.[128] This was a marked increase from the 30.6 percent return rate recorded in 2007 and the approximate 5 percent return rate in 1987.[129] China's Ministry of Education ("MOE") data, as shown below, highlights the growth of Chinese students studying abroad and the increase in these students returning.[130]



[127] Xinhua, *More Chinese Study Abroad in 2018*, MINISTRY OF EDUC. (Mar. 28, 2019), http://en.moe.gov.cn/news/media_highlights/201904/t20190401_376249.html.
[128] *Id.*
[129] David Zweig & Zoe Ge, *How Chinese Students Who Return Home after Studying abroad Succeed – and Why they Don't*, SOUTH CHINA MORNING POST (July 27, 2018), https://www.scmp.com/comment/insight-opinion/asia/article/2157081/how-chinese-students-who-return-home-after-studying.
[130] Xinhua, *More Chinese Study Abroad in 2018*, MINISTRY OF EDUC. (Mar. 28, 2019), http://en.moe.gov.cn/news/media_highlights/201904/t20190401_376249.html; MINISTRY OF EDUCATION, BRIEF REPORT ON CHINESE OVERSEAS STUDENTS AND INT'L STUDENTS IN CHINA (Mar. 31, 2018), http://en.moe.gov.cn/documents/reports/201901/t20190115_367019.html; Youyou Zhou, *Chinese Students Increasingly Return Home after Study Abroad*, QUARTZ (July 29, 2018), https://qz.com/1342525/chinese-students-increasingly-return-home-after-studying-abroad/.

The MOE has publicly touted China's success in increasing the return rate of Chinese students. On April 4, 2018, the MOE issued an English language press release stating, "The momentum in the number of Chinese students studying abroad and returning from overseas studies continued last year."[131] It continued, "An overview of statistics on Chinese students studying abroad between 1978 and 2017 reveals that the number of students returning from overseas studies, especially high-caliber graduates, has been growing steadily."[132] A year later, the MOE relayed on March 28, 2019 to Chinese media that:

> Nearly 5.86 million Chinese studied overseas from 1978 to the end of 2018. … Among them, over 1.53 million are still in the process of studying and conducting research overseas, over 4.32 million have already completed their studies, and more than 3.65 million chose to pursue a job in China after completing their studies overseas.[133]

---

[131] *2017 Sees Increase in Number of Chinese Students Studying Abroad and Returning after Overseas Studies*, MINISTRY OF EDUC. (Apr. 3, 2018), http://en.moe.gov.cn/News/Top_News/201804/t20180404_332354.html.

[132] *Id.*

[133] Xinhua, *More Chinese study abroad in 2018*, MINISTRY OF EDUC. (Mar. 28, 2019), http://en.moe.gov.cn/news/media_highlights/201904/t20190401_376249.html.

IV. EFFORTS TO SECURE U.S. RESEARCH

Openness, transparency, reciprocity, integrity, and merit-based competition define U.S. success in S&T development.[134] The collaborative openness of the U.S. research enterprise attracts investment, researchers, and students, promotes a free exchange of ideas, and ensures the distribution of timely and relevant research.[135] International collaboration is also a hallmark of the U.S. research enterprise.[136] Foreign researchers collaborate with U.S.-based researchers, conduct research at U.S. universities and government facilities, and receive U.S. government funding.[137] The U.S. S&T base has benefited greatly from such international collaboration.

Scientific research and development falls into two categories: "fundamental," or "basic" research, and applied research. Fundamental research is "systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind."[138] Fundamental research lends itself to international collaboration and relies on the broad sharing of research results with the scientific community so as to confirm research findings and create intellectual capital.[139] Applied research, on the other hand, uses this intellectual capital to

---

[134] *See* NAT'L ACAD. OF SCI. ET AL, RISING ABOVE THE GATHERING STORM: ENERGIZING AND EMPLOYING AMERICA FOR A BRIGHTER ECON. FUTURE, 70 (2007); NAT'L RES. COUNCIL, SCI. AND SECURITY IN A POST 9/11 WORLD: A REP. BASED ON REGIONAL DISCUSSIONS BETWEEN THE SCI. AND SECURITY COMMUNITIES, 2 (2007).

[135] *See* NAT'L RES. COUNCIL, SCIENCE AND SECURITY IN A POST 9/11 WORLD: A REP. BASED ON REGIONAL DISCUSSIONS BETWEEN THE SCI. AND SECURITY COMMUNITIES, 27 (2007). *See also* L. Rafael Reif, *How to Maintain America's Edge*, FOREIGN POLICY (May/June 2017), https://www.foreignaffairs.com/articles/united-states/2017-03-23/how-maintain-america-s-edge ("U.S. universities have long been a magnet for the world's most brilliant people, as both students and faculty.")

[136] *See* NAT'L RES. COUNCIL, SCI. AND SECURITY IN A POST 9/11 WORLD: A REP. BASED ON REGIONAL DISCUSSIONS BETWEEN THE SCI. AND SECURITY COMMUNITIES (2007). *See also About the Office of International Science & Engineering (OISE)*, NAT'L SCI. FOUND., https://www.nsf.gov/od/oise/about.jsp (the US "collaborates internationally to advance the U.S. economy, enhance our nation's security; give the U.S. the competitive edge to remain a global leader; and advance knowledge and global understanding").

[137] *See* NAT'L RES. COUNCIL, SCI. AND SECURITY IN A POST 9/11 WORLD: A REP. BASED ON REGIONAL DISCUSSIONS BETWEEN THE SCI. AND SECURITY COMMUNITIES (2007). *See also* Désirée Schauz, *What is Basic Research? Insights from Historical Semantics*, 52 MINERVA 273, 318-19 (2014) (detailing the development of "basic research" as a concept so federal funding could be secured for research that does not produce immediate commercial benefit).

[138] NAT'L RES. COUNCIL, ASSESSMENT OF DEP'T OF DEFENSE BASIC RES. APP. D, at 49 (2005), https://www.nap.edu/read/11177/chapter/8#49.

[139] *See* VANNEVAR BUSH, SCI.: THE ENDLESS FRONTIER, 21 (1945) (explaining that the "international exchange of scientific information is of growing importance … *the Government should take an active role in promoting the international flow if scientific information*") (emphasis in original).

solve specific problems or to develop a particular scientific application.[140] As its purpose is clear, it is easier to judge the commercial value or national security implications of technology that comes out of applied research than from basic research.[141] The federal government's regulatory framework reflects a compromise of balancing national security and the openness of research. This compromise has allowed basic science to flourish, largely uninhibited, while placing additional scrutiny on applied research for national security reasons.[142]

This section provides an overview of the NSF, NIH, and DOE and the roles these agencies play with respect to oversight of scientific research and development. The Subcommittee found that Chinese talent recruitment plan members misappropriated U.S. government funding, provided early basic research ideas to their Chinese employers, stole intellectual capital from U.S. basic research before it was published, and engaged in intellectual property theft. Next, this section details the FBI's failure to effectively warn the U.S. academic community of the threat of Chinese talent recruitment plans, Commerce's issuance of export licenses of sensitive technologies to Chinese talent recruitment plan members and other concerning Chinese entities, and the State Department's limitations on denying visas to applicants who may be part of China's efforts to acquire intellectual capital and property.

---

[140] NAT'L RES. COUNCIL, ASSESSMENT OF DEP'T OF DEFENSE BASIC RES. APP. D, at 49 (2005), https://www.nap.edu/read/11177/chapter/8#49.

[141] *See generally id.*

[142] NAT'L RES. COUNCIL, SCI. AND SECURITY IN A POST 9/11 WORLD: A REP. BASED ON REGIONAL DISCUSSIONS BETWEEN THE SCI. AND SECURITY COMMUNITIES, 80 (2007) ("the cost of one potential leak … must be balanced against the national competitiveness and economic benefits gained from encouraging foreign students and scholars to come to American universities and perform fundamental research with minimal restrictions").

A. THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation ("NSF") is an independent federal agency established by Congress in 1950.[143] The NSF's mission is "to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense."[144] The NSF funds basic research that forms a foundational knowledge base that helps drive the U.S. economy, advances national security, and sustains global leadership.[145] While the NSF's funding of fundamental research is nearly always unclassified, the research can have unforeseen future applications in sensitive areas such as artificial intelligence or chemical and nuclear weapons development.

The NSF annually provides about 27 percent of all federal funds devoted to basic scientific research at U.S. research institutions.[146] This money funds about 12,000 new awards each year, mostly in the form of limited-term grants with an average duration of three years.[147] A small portion of funding goes to equipment and facilities that would be too expensive for any one researcher or organization to fund, such as U.S. Antarctic research sites.[148] Most awards, however, go to individuals and small groups of principal investigators through institutions for specific research proposals judged using "a rigorous and objective merit review system."[149]

Though the NSF requires disclosures from grant applicants, the agency does not have effective policies and procedures in place to prevent foreign talent recruitment plan members from misappropriating U.S.-funded research. Recently, the NSF implemented a new policy in July 2019 prohibiting employees from participating in foreign talent recruitment plans. The policy, however, does not apply to NSF-funded researchers despite the fact that they are most likely to be members of foreign talent recruitment plans. The NSF also does not vet grantees before awarding them funding. The NSF has no dedicated staff to ensure compliance with NSF grant terms. Instead, the NSF relies on sponsoring institutions to vet and conduct due diligence on potential grantees. It relies on the NSF inspector general to also conduct grant oversight.

---

[143] *At a Glance*, NAT'L SCI. FOUND., https://www.nsf.gov/about/glance.jsp.
[144] *NSF Statutory Mission*, NAT'L SCI. FOUND., https://www.nsf.gov/pubs/2014/nsf14002/pdf/02_mission_vision.pdf. *See generally* National Science Foundation Act of 1950, Pub. L. No. 81-507, 64 Stat. 154 (codified as amended at 42 U.S.C. § 1861, et seq).
[145] *At a Glance*, NAT'L SCI. FOUND., https://www.nsf.gov/about/glance.jsp.
[146] *Id.*
[147] *Id.*
[148] *Id.*
[149] *Id.*

1. Fundamental Research

Fundamental research is comprised of basic science and engineering results that are "published and shared broadly within the scientific community."[150] Fundamental research is often considered the bedrock of scientific success and innovation and requires a research environment that is conducive to creativity and the free exchange of ideas.[151] Though the participation of international researchers in this type of research is crucial, America's "leadership position in science and technology is an essential element in our economic and physical security."[152] Accordingly, the U.S. government may restrict some research for "proprietary or national security reasons."[153]

Concerns about the balance of national security risks and collaborative university environments began in the early 1980s.[154] In 1981, five presidents from prominent American research universities sent a letter to the Secretaries of State, Defense, and Commerce raising concerns about a Defense Department policy that sought to restrict participation by foreign students in, and dissemination of information on, a sensitive research program.[155] In response, the National Academy of Sciences ("NAS")—a private, nonprofit, self-governing membership corporation for the furtherance of science and technology for the general welfare[156]—convened a panel to "examine the various aspects of the application of controls to scientific communication and to suggest how to balance competing national objectives so as to best serve the general welfare."[157] The resulting study sought to preclude—as a matter of policy—the imposition of special restrictions on the bulk of university research.[158]

---

[150] EXEC. OFFICE OF THE PRESIDENT, NSDD-189, NATIONAL POLICY ON THE TRANSFER OF SCI., TECH. AND ENGINEERING INFO, 1 (1985).
[151] *Id.*
[152] *Id.*
[153] *Id.*
[154] *See* Neal Lane, *Tighter Controls to Prevent Espionage at U.S. Research Laboratories Are Harmful*, in ESPIONAGE AND INTELLIGENCE GATHERING, 106-07 (Louise I. Gerdes ed., 2004).
[155] David A. Wilson, *National Security Control of Technological Information*, 25 JURIMETRICS J. 109, 119–20 (1985).
[156] NAT'L ACAD. OF SCI., SCI. COMM. AND NAT'L SECURITY, *ii* (1982). Additionally, the NAS "shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art..." An Act to Incorporate the National Academy of Sciences, Ch. 111, 12 Stat. 806 § 3 (1863).
[157] NAT'L ACAD. OF SCI., SCI. COMM. AND NAT'L SECURITY, 24-25 (1982) (describing the usual means and importance of scientific communication). The study, prepared with support from the Defense Department, was the first major study of the conflict between national security goals and open academic and research communication. *See also* NAT'L SCI. BOARD, REP. OF THE COMMITTEE ON OPENNESS OF SCI. COMM. (1988) (describing the need and requirements for open communications in science).
[158] *See* NAT'L ACAD. OF SCI., SCI. COMM. AND NAT'L SECURITY, 1–8 (1982).

As a result of the NAS study, President Reagan issued National Security Decision Directive 189 ("NSDD-189") in 1985, which to this day ensures the openness of fundamental research by exempting unclassified information from control or access limitations.[159] NSDD-189 defines fundamental research and the desire to keep fundamental research unrestricted.[160] In reaffirming NSDD-189's foundations, the NSF emphasized that "the United States' commitment to freedom of inquiry, innovation, and the marketplace of ideas has helped the U.S. grow, attract, and retain our world-class science and engineering workforce."[161]

NSDD-189 includes some limitations on the use and transfer of even unclassified foundational research. For example, NSDD-189 specified "where the national security requires control, the mechanism for control of information generated during federally funded fundamental research in science, technology and engineering at colleges, universities and laboratories is classification."[162] Finally, NSDD-189 suggests that the U.S. government should periodically review "all research grants, contracts, or cooperative agreements for potential classification."[163]

2. The NSF Grant Process

The Proposal and Award Policies and Procedures Guide ("PAPPG") outlines the merit review system and provides guidance on the preparation and submission of grant proposals to the NSF.[164] The merit review system contains three phases: (1) proposal preparations and submission; (2) proposal review and processing; and (3) award processing—each containing additional discrete tasks.[165]

Phase I: Proposal Preparation and Submission. The NSF publishes information about funding opportunities through various sources including: *Find Funding*, a tool on the NSF website; *National Science Foundation Update*, an email newsletter; and *grants.gov*.[166] Next, the individual or organization seeking funding

---

[159] *See* EXEC. OFFICE OF THE PRESIDENT, NSDD-189, NATIONAL POLICY ON THE TRANSFER OF SCIENTIFIC, TECHNICAL AND ENGINEERING INFORMATION (1985).
[160] *Id.* at 1.
[161] *Statement of the National Science Board on Security and Science*, NAT'L SCI. FOUND. (Oct. 24, 2018), https://www.nsf.gov/news/news_summ.jsp?cntn_id=297039.
[162] EXEC. OFFICE OF THE PRESIDENT, NSDD-189, NATIONAL POLICY ON THE TRANSFER OF SCI., TECH. AND ENGINEERING INFO., 2 (1985).
[163] *Id.*
[164] *See generally* THE NAT'L SCI. FOUND., NSF 19-1, PROPOSAL AND AWARD POLICIES AND PROC. GUIDE (2019), https://www.nsf.gov/pubs/policydocs/pappg19_1/nsf19_1.pdf.
[165] *Merit Review*, NAT'L SCI. FOUND., https://www.nsf.gov/bfa/dias/policy/merit_review.
[166] *Phase I: Proposal Preparation and Submission,* NAT'L SCI. FOUND., https://www.nsf.gov/bfa/dias/policy/merit_review/phase1.jsp#funding.

must develop and submit a grant proposal.[167] Once the proposal is submitted to the NSF, it is routed to the appropriate NSF Program Officer for review.[168]

Phase II: Proposal Review and Processing. NSF program officers then conduct a preliminary review of the proposal to ensure conformance with the PAPPG guidelines.[169] If the proposal conforms to PAPPG guidelines, the NSF program officer will "identify at least three external experts to review the proposal."[170] The external peer reviewers evaluate the proposal on two criteria: Intellectual Merit and Broader Impacts.[171] NSF program officers are responsible for ensuring that no disqualifying conflicts of interest exist among the reviewers.[172] The NSF program officer considers several additional factors "in developing a portfolio of funded projects."[173] After the review is completed, the NSF program officer makes a funding recommendation decision to the division director.[174] Final approval for the proposal occurs at the division level.[175]

Phase III: Award Processing. An NSF grants and agreements officer reviews the recommendation made by the program officer and division director for business, financial, and policy implications, and then processes and issues a grant agreement.[176] The grants and agreements officer then transmits the acceptance notification and grant agreement to the applicant.[177]

3. Foreign Support and Affiliation Disclosure

Since 1978, the PAPPG requires applicants to make two disclosures that relate to foreign support and affiliations.[178] First, PAPPG guidelines require the disclosure of "all current and pending support for ongoing projects and proposals," including the proposed project.[179] Current project support that must be disclosed includes that from "[f]ederal, state, local, foreign, public or private foundations,

---

[167] *Id.*
[168] *Id.*
[169] *Phase II: Proposal Review and Processing,* NAT'L SCI. FOUND., https://www.nsf.gov/bfa/dias/policy/merit_review/phase2.jsp.
[170] *Id.* NSF may elect to have review conducted by *ad hoc* reviewers, a panel of experts, or a combination of both.
[171] *Id.*
[172] *Id. See infra* §2.
[173] *Phase II: Proposal Review and Processing,* NAT'L SCI. FOUND., https://www.nsf.gov/bfa/dias/policy/merit_review/phase2.jsp.
[174] *Id.*
[175] *Id.*
[176] *Phase III: Award Processing,* NAT'L SCI. FOUND., https://www.nsf.gov/bfa/dias/policy/merit_review/phase3.jsp.
[177] *Id.*
[178] THE NAT'L SCI. FOUND., NSF 19-1, PROPOSAL AND AWARD POLICIES AND PROC. GUIDE, II-6, II-24 (2019).
[179] *Id.* at II-24.

industrial or other commercial organizations, or internal funds allocated toward specific projects."[180]

Second, all senior personnel involved in the project must disclose Collaborators and Other Affiliations ("COA").[181] Senior personnel includes any principal investigator or project director who is "designated by the proposer, and approved by NSF, who will be responsible for the scientific or technical direction of the project."[182] Senior personnel also includes any individual participating in the project considered to be a faculty member by the performing institution or who holds an appointment as a faculty member at another institution.[183] The NSF's definition of senior personnel does not include postdoctoral positions, graduate or undergraduate students working on the project.[184] As such, NSF's COA process does not cover a large number of individuals who may be involved with foreign talent recruitment plans.

The COA submission template contains five tables that each cover a particular area of disclosure.[185] Table One requires the applicant to disclose all organizational affiliations within the last 12 months.[186] The NSF makes clear that "foreign" individuals, "regardless of whether an individual is located outside the [United States]," must complete the COA template to declare their affiliations.[187] The NSF, however, does not define organizational affiliations.[188]

The four remaining tables request information meant to assist NSF program officers in screening peer reviewers for conflicts.[189] Applicants must disclose personal, family, and business relationships; names and organizational affiliations for the applicant's Ph.D. advisor and any Ph.D. advisees; names and affiliations of any co-authors or co-collaborators in the last 48 months; and any editorial boards, editors-in-chief, or co-editors the individual interacted with over the last 24 months.[190]

---

[180] *Id.*
[181] *Id.* at II-6.
[182] *Id.*
[183] *Id.*
[184] *Id.*
[185] *COA Template,* NAT'L SCI. FOUND., https://www.nsf.gov/bfa/dias/policy/coa/coa_template.xlsx.
[186] *Id.*
[187] *Frequently Asked Questions (FAQs) On Collaborators and Other Affiliations (COA) Info. Template,* NAT'L SCI. FOUND. (2018), https://www.nsf.gov/bfa/dias/policy/coa/faqs_coatemplatemay18.pdf.
[188] *COA Template,* NAT'L SCI. FOUND., https://www.nsf.gov/bfa/dias/policy/coa/coa_template.xlsx; NSF 19-1, THE NAT'L SCI. FOUND., NSF 19-1, PROPOSAL AND AWARD POLICIES AND PROC. GUIDE (2019).
[189] *Frequently Asked Questions (FAQs) On Collaborators and Other Affiliations (COA) Info. Template,* NAT'L SCI. FOUND. (2018), https://www.nsf.gov/bfa/dias/policy/coa/faqs_coatemplatemay18.pdf.
[190] *Id.*

4. The NSF is Unprepared to Stop Foreign Talent Recruitment Plan Members From Misappropriating U.S.-Funded Research

Though the NSF requires a wide array of disclosures from grant applicants, the agency does not have effective policies and procedures in place to prevent foreign talent recruitment plan members from misappropriating U.S. funds and U.S.-funded research. While the NSF recently implemented a new policy prohibiting NSF employees from participating in foreign talent recruitment plans, that policy does not extend to the principal investigators or researchers actually performing NSF-funded grant work.

Furthermore, an overall lack of vetting, internal controls, compliance infrastructure, and fraud detection abilities puts NSF's grant programs and funding at risk of being exploited or misappropriated by foreign talent recruitment plan members. The NSF relies on institutions and sponsors to conduct their own vetting and due diligence as it does not have a compliance office. NSF also lacks a uniform grant application despite receiving more than 50,000 grant applications annually in an unsearchable PDF format.[191] This effectively precludes a systematic review of potential foreign conflicts of interest and commitment, complicating NSF's ability to provide oversight and ensure compliance with grant terms and federal regulations. Though NSF plans to standardize the form and make future grant applications searchable in 2021, NSF officials admitted that they would still primarily rely on institutions to conduct vetting and due diligence.[192]

i. The NSF's Policy on Foreign Talent Recruitment Plans Does Not Apply to Researchers or Principal Investigators

The NSF released a policy in July 2019 regarding "Foreign Government Talent Recruitment Programs," which applies only to NSF employees. The policy does not apply to the more than 40,000 principal or co-principal investigators, senior researchers, scientists, mathematicians, engineers, and educators who work on NSF-funded projects.[193] The policy states that NSF personnel "are not permitted to participate in foreign government talent recruitment programs."[194] The policy further states that "[p]ublic service is a public trust, requiring NSF personnel and [Intergovernmental Personnel Act assignees] to place loyalty to the Constitution, the laws, and ethical principles above private gain. NSF personnel and IPAs shall

---

[191] Interview with Rebecca Keiser, Nat'l Sci. Found., Office of International Science and Engineering (Aug. 19, 2019) (On file with the Subcommittee). [hereinafter KEISER INTERVIEW (Aug. 19, 2019)].
[192] KEISER INTERVIEW (Aug. 19, 2019).
[193] NAT'L SCI. FOUND., FY 2020 NSF BUDGET REQUEST TO CONGRESS: NUMBER OF PEOPLE INVOLVED IN NSF ACTIVITIES, at Summary Tables 5 (2019), https://www.nsf.gov/about/budget/fy2020/pdf/05_fy2020.pdf.
[194] *Personnel Pol'y on Foreign Gov't Talent Recruitment Programs,* NAT'L SCI. FOUND. (July 11, 2019), https://www.nsf.gov/bfa/dias/policy/researchprotection/PersonnelPolicyForeignGovTalentRecruitment%20Programs07_11_2019.pdf.

not hold financial interests that conflict with the conscientious performance of duty."[195]

The policy does not apply to a large part of the scientific community, including researchers or principal investigators conducting working at universities and other research institutions around the country.[196] Rebecca Keiser, NSF's Director of the Office of International Science and Engineering, told the Subcommittee that the NSF did not believe it had the capacity to apply the policy to individuals who are not NSF employees.[197] Additionally, she stated that she believed there would be "significant backlash from the community" if the policy was applied more broadly as, at this time, "it's hard to be clear enough about what the threat actually is."[198] Keiser stated that the NSF planned to revisit the policy after more communication with law enforcement and after the NSF's outside study of this threat was completed by the end of 2019.[199]

The NSF also issued a "Dear Colleague Letter" on "Research Protection" in conjunction with the new policy. NSF Director France Córdova provided additional commentary on the policy change:

> [W]e are issuing a policy making it clear that NSF personnel and IPAs detailed to NSF cannot participate in foreign government talent recruitment programs. There is a risk that participation in foreign government talent recruitment programs by NSF personnel and IPAs will compromise the ethical principles that bind us. Moreover, such participation poses significant risks of inappropriate foreign influence on NSF policies, programs, and priorities, including the integrity of NSF's merit review process—risks we simply cannot accept.[200]

Córdova's letter also detailed other NSF efforts meant to confront the challenge.[201] The NSF is proposing an electronic format for filing grant proposals, including the grant applicant's background materials and has hired an independent scientific advisory group to further study grant security.[202]

---

[195] *Id.*
[196] KEISER INTERVIEW (Aug. 19, 2019).
[197] *Id.*
[198] *Id.*
[199] *Id.*
[200] *Dear Colleague Letter, NSF 19-200, Research Protection,* NAT'L SCI. FOUND., (July 11, 2019), https://www.nsf.gov/pubs/2019/nsf19200/research_protection.jsp.
[201] *Id.*
[202] *Id.*

ii. Existing Conflict of Interest and Commitment Reporting to the NSF Does Not Adequately Capture All Researcher Activities

Existing conflict of interest and conflict of commitment reporting requirements do not adequately capture all principal investigator or researcher activities.[203] As a result, the NSF has proposed clarifying disclosure provisions concerning "Current and Pending Support" to include in-kind support and activities outside a principal investigator's institutional appointment, such as consulting work during the summer months.[204] One research advocacy group asserts that the research community's common understanding, however, of existing "Current and Pending Support" reporting requirements is limited to reporting details that relate to principal investigators' involvement in projects within the scope of their institutional appointment in the United States.[205]

Many researchers and principal investigators working at U.S. universities are on nine-month contracts, with three months free in the summer months. Prior to the new PAPPG proposal, it was unlikely that U.S. institutions disclosed information on what its principal investigators did during the summer months. The disclosure requirement, therefore, may not have been effectively capturing potential conflicts related to activities outside a principal investigator's institutional appointment.[206]

---

[203] A conflict of interest may exist: (i) if "significant financial interests of the investigator (including those of the investigator's spouse and dependent children) [would] reasonably appear to be affected by the research or educational activities funded or proposed for funding by NSF; or (ii) if [the investigator has significant financial interest in] entities whose financial interests would reasonably appear to be affected by such activities." THE NAT'L SCI. FOUND., NSF 19-1, PROPOSAL AND AWARD POLICIES AND PROC. GUIDE, Ch. IX: Grantee Standards (A)(2) IX-1 (2019), https://www.nsf.gov/pubs/policydocs/pappg19_1/nsf19_1.pdf. While there is no standard federally recognized definition of a conflict of commitment, the University of Illinois indicates a conflict of commitment arises "when the external activities of a [staff member] are so demanding of time or attention that they interfere with the individual's responsibilities to the [institution]" *Id.*. The term "significant financial interest" means anything of monetary value, including, but not limited to, salary or other payments for services (e.g., consulting fees or honoraria); equity interest (e.g., stocks, stock options or other ownership interests); and intellectual property rights (e.g., patents, copyrights and royalties from such rights). *Policy on Conflicts of Commitment and Interest*, U. OF ILLINOIS, https://www.vpaa.uillinois.edu/UserFiles/Servers/Server_420372/File/RNUA/COCI_Policy_2018.pdf.

[204] NAT'L SCI. FOUND., NSF-20-1, PROPOSED CHANGES TO THE PROPOSAL AND AWARD POLICIES AND PROC. GUIDE, II-23 (May 29, 2019), https://www.nsf.gov/bfa/dias/policy/papp/pappg20_1/FedReg/draftpappg_may2019.pdf. Letter from Wendy D. Streitz, President, Council on Governmental Relations, to Suzanne Plimpton, Reports Clearance Officer, NAT'L SCI. FOUND. (July 29, 2019), https://www.cogr.edu/sites/default/files/NSF%20PAPPG%20final.pdf.

[205] Letter from Wendy D. Streitz, President, Council on Governmental Relations, to Suzanne Plimpton, Reports Clearance Officer, NAT'L SCI. FOUND. (July 29, 2019), https://www.cogr.edu/sites/default/files/NSF%20PAPPG%20final.pdf.

[206] KEISER INTERVIEW (Aug. 19, 2019).

Keiser told the Subcommittee that the NSF views these PAPPG proposals as a clarification to help the community understand the disclosure obligations.[207] The research community, however, views these as significant changes to current reporting requirements that will add to institutional and investigator burdens.[208] The Council of Government Relations, responding to the NSF's proposed changes, wrote, "[W]e urge NSF to consider the consequential impact to institutions this change in practice will create and work with the community to minimize the additional burden."[209]

iii. The NSF Does Not have a Compliance Staff and Relies on Applicants or Sponsoring Institutions to Conduct Due Diligence

According to interviews with NSF staff, the NSF relies on applicants and sponsoring institutions to conduct the vetting and due diligence for potential grant recipients.[210] The NSF does not have employees dedicated to vetting grant applicants or to ensure compliance with the terms of the grant.[211] Instead, Keiser told the Subcommittee that the NSF relies on the sponsoring entity, typically a university or hospital, to conduct the due diligence of the principal investigator as that investigator is nearly always an employee of that institution.[212] The institutions themselves also have an interest in ensuring that the principal investigator is complying with the terms of the grant as the NSF could potentially disbar an institution from receiving NSF funding because of violations.[213]

iv. The NSF Relies on its Inspector General to Identify Grant Fraud

Since the NSF does not have a compliance staff, the agency relies on its Inspector General ("NSF IG") to identify instances of potential grant fraud, conflicts of commitment, and conflicts of interest. The NSF IG told the Subcommittee that investigating foreign talent recruitment plans, including the TTP, resulted in a 20 percent increase in the office's per-agent caseload.[214] TTP investigations alone now amount to approximately 25 percent of the NSF IG's Office of Investigations' overall workload.[215] The NSF IG indicated that as "universities become more familiar with

---

[207] *Id.*
[208] Letter from Wendy D. Streitz, President, Council on Governmental Relations, to Suzanne Plimpton, Reports Clearance Officer, NAT'L SCI. FOUND. (July 29, 2019), https://www.cogr.edu/sites/default/files/NSF%20PAPPG%20final.pdf.
[209] *Id.*
[210] KEISER INTERVIEW (Aug. 19, 2019).
[211] *Id.*
[212] *Id.*
[213] *Id.*
[214] Interview with the Office of Inspector Gen., Nat'l Sci. Found. (Sept. 19, 2019).
[215] *Id.*

the challenges posed by faculty affiliations with [the TTP], that percentage could increase."[216]

The NSF IG told the Subcommittee that that there are some unique challenges it faces when investigating cases involving talent recruitment plans. These investigations require significant expenditures in addition to those incurred with other civil, criminal, and administrative investigations.[217] As another department's inspector general's office noted to the Subcommittee, relying on the inspector general is not an adequate substitute for maintaining an effective internal compliance program.[218]

5. Talent Recruitment Plan Members Misappropriated NSF Research

According to public and non-public information obtained by the Subcommittee, TTP members have misappropriated NSF research grants. The Subcommittee identified public cases that resulted in prosecutions of talent recruitment plan members involved in NSF grants or with NSF grantees. These cases involved the TTP and other related talent recruitment plans.

Public Case Examples. First, Percival Zhang, a biological systems engineering professor at Virginia Polytechnical Institutes and State University ("Virginia Tech"), founded Cell-Free Bioinnovations, Inc. ("CFB"), a private research firm located in Blacksburg, Virginia.[219] CFB relied exclusively on federal grants, including funds from the NSF, "for funding its research activities."[220] Zhang had begun working as a paid researcher for the Tianjin Institute of Industrial Biotechnology, Chinese Academy of Sciences by, at least, 2014.[221] In 2015, Zhang submitted fraudulent grant proposals to the NSF.[222] "Evidence presented at trial indicated grant funds obtained would be used for research Zhang knew had already been done in China."[223] "Zhang intended to use the grant funds for other CFB projects rather than for the projects for which the funds were requested."[224] In an

---

[216] Email from the Office of Inspector Gen., Nat'l Sci. Found. to the Subcommittee (Sept. 19, 2019) (on file with Subcommittee).
[217] *Id.*
[218] Briefing with the Subcommittee (Oct. 2, 2019).
[219] Press Release, U.S. Dept. of Justice, Former Virginia Tech Professor Found Guilty of Grant Fraud, False Statements, Obstruction (Feb. 25, 2019) (https://www.justice.gov/usao-wdva/pr/former-virginia-tech-professor-found-guilty-grant-fraud-false-statements-obstruction). *See also U.S. v. Yiheng Percival Zhang.*, 2019 WL 2263835 (W.D.Va. May 3, 2019).
[220] *Id.*
[221] *Id.*
[222] *Id.*
[223] *Id.*
[224] *Id.*

effort to obstruct the investigation into his activities, Zhang submitted falsified timesheets to government investigators.[225]

In the second case, Feng "Franklin" Tao "signed a five-year contract with Fuzhou University in China that designated him as a Changjiang Scholar Distinguished Professor."[226] The contract required him to be a full time employee of the Chinese university.[227] "While Tao was under contract with Fuzhou University, he was conducting research at Kansas University funded through two Energy contracts and four NSF contracts."[228] Tao is alleged to have "defrauded the US government by unlawfully receiving federal grant money at the same time that he was employed and paid by a Chinese research university—a fact that he hid from his university and federal agencies."[229]

Third, "beginning in 2010, and while employed at NOAA, Chunzai Wang entered into contractual agreements to work under China's Changjiang Scholars Program, the TTP, and was also involved in China's 973 Program which mobilizes scientific talents to strengthen basic research in line with national strategic targets of the People's Republic of China."[230] "Wang knowingly and willfully received a salary for his services as an employee of NOAA/AOML, from the People's Republic of China."[231] Wang was also listed as an investigator on at least one NSF-funded project.[232]

---

[225] *Id.*

[226] Press Release, U.S. Dept. of Justice, University of Kansas Researcher Indicted for Fraud for Failing to Disclose Conflict of Interest with Chinese University (Aug. 21, 2019), https://www.justice.gov/usao-ks/pr/university-kansas-researcher-indicted-fraud-failing-disclose-conflict-interest-chinese.

[227] *Id.*

[228] *Id.*

[229] *Id.*

[230] Press Release, U.S. Dept. of Justice, Former Research Oceanographer Sentenced for Accepting a Salary from the People's Republic of China (Feb. 22, 2018) (https://www.justice.gov/usao-sdfl/pr/former-research-oceanographer-sentenced-accepting-salary-people-s-republic-china). *See also U.S. v. Chunzai Wang*, 2018 WL 1391892 (S.D.Fla. Feb. 20, 2018).

[231] *Id.*

[232] *Award Abstract #1041145; Collaborative Research: The Southern Subtropical Anticyclones,* NAT'L SCI. FOUND., https://www.nsf.gov/awardsearch/showAward?AWD_ID=1041145&HistoricalAwards=false.

B. THE NATIONAL INSTITUTES OF HEALTH

The National Institutes of Health ("NIH"), part of the U.S. Department of Health and Human Services ("HHS"), is the world's largest biomedical research agency.[233] NIH's mission "is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability."[234] NIH invests over $39 billion annually in medical research and distributes 80 percent of this money through about 50,000 grants to more than 300,000 grantees or principal investigators at universities, medical schools, and research institutions in every U.S. state and around the world.[235]

NIH has attempted to address the threats presented by foreign talent recruitment plans like the TTP, but significant gaps in grant integrity efforts remain unaddressed. These gaps have made it difficult for NIH to engage in proactive efforts to prevent foreign exploitation of U.S.-funded research. Instead, NIH is now conducting investigations based on a review of behavior that has already occurred, identifying the loss of intellectual property and intellectual capital to China. NIH acknowledged that at least 75 individuals potentially linked to foreign talent recruitment plans also served as peer reviewers within the last two years.[236] NIH guidelines for vetting peer reviewers for potential participation in foreign talent recruitment plans do not require that potential researchers be vetted against any law enforcement database.[237] Instead, NIH officials rely on "reviewing the first page of results from a Google search."[238] NIH also recently acknowledged the difficulty in fully preventing foreign governments from coopting U.S.-funded research. NIH's Director of Extramural Research publicly stated that NIH does not

---

[233] *About NIH*, NAT'L INST. OF HEALTH, https://www.nih.gov/about-nih.
[234] *Mission and Goals*, NAT'L INST. OF HEALTH, https://www.nih.gov/about-nih/what-we-do/mission-goals.
[235] *Budget*, NAT'L INST. OF HEALTH, https://www.nih.gov/about-nih/what-we-do/budget. Principal Investigator "is defined as the individual(s) judged by the applicant organization to have the appropriate level of authority and responsibility to direct the project or program supported by the grant … Each principal investigator is responsible and accountable to the applicant organization, or, as appropriate, to a collaborating organization, for the proper conduct of the project or program including the submission of all required reports." *Frequently Asked Questions: Multiple Principal Investigators*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/. *Budget*, NAT'L INST. OF HEALTH, https://www.nih.gov/about-nih/what-we-do/budget/multi_pi/faq.htm.
[236] OFFICE OF THE INSPECTOR GEN., DEP'T OF HEALTH AND HUMAN SERV., OEI-01-19-00160, VETTING PEER REVIEWERS AT NIH'S CENTER FOR SCI. REV.: STRENGTHS AND LIMITATIONS, 12 (Sept. 2019) [hereinafter HHS IG REPORT: PEER REVIEW (Sept. 2019)]. OFFICE OF THE INSPECTOR GEN., DEP'T OF HEALTH AND HUMAN SERV., A-03-19-03003, THE NAT'L INST. OF HEALTH HAS LIMITED POLICIES, PROC., AND CONTROLS IN PLACE FOR HELPING TO ENSURE THAT INST. REPORT ALL SOURCES OF RES. SUPPORT, FIN. INT., AND AFFILIATIONS, 2 (Sept. 2019) [hereinafter HHS IG REPORT: REPORTING (Sept. 2019)].
[237] HHS IG REPORT: PEER REVIEW at 13 (Sept. 2019).
[238] *Id.*

"know the scale of the problem" and that it is "concerned that the scale is much worse than what [it is] seeing."[239]

1. NIH Grant Process

NIH's General Instructions outlines the grant application process.[240] NIH advertises opportunities for grant funding through funding opportunity announcements ("FOAs") on both the NIH Guide for Grants and Contracts and Grants.gov.[241] All grant applications must be submitted in response to a FOA.[242] The FOAs provide specific instructions that are used in conjunction with the general instructions.[243] NIH has seven different groups of grant funding and each include a variety of individual grant programs identified by a specific activity code.[244]

Generally, NIH's application process follows three steps: (1) application for grant funding; (2) application referral and review; and (3) pre-award and award process.[245] The application phase begins after a researcher has identified an appropriate FOA.[246] The FOA and the general instructions provide direction on the appropriate forms to complete for the chosen grant.[247] The forms that need to be completed are specific to each type of grant and will be communicated in the FOA.[248] They also contain links for unstructured responses to fields such as a cover page, a biographical sketch, current and pending support, and a project narrative.[249]

The Center for Scientific Review ("CSR") reviews the application for completeness before assigning the application to a specific NIH Institute or Center

---

[239] David Bonazzi & Salzman Art, *NIH Reveals Its Formula for Tracking Foreign Influences*, NEWSFLASH (Sept. 27, 2019), https://newsflash.one/2019/09/27/nih-reveals-its-formula-for-tracking-foreign-influences/.
[240] NAT'L INST. OF HEALTH, SF424 ("R&R") APPLICATION PACKAGES: GEN. INSTRUCTIONS FOR NIH AND OTHER PHS AGENCIES (2018) (https://grants.nih.gov/grants/how-to-apply-application-guide/forms-e/general-forms-e.pdf).
[241] *Understand Funding Opportunities*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/how-to-apply-application-guide/prepare-to-apply-and-register/understand-funding-opportunities.htm.
[242] *Plan Your Application*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/planning_application.htm.
[243] *Understanding Funding Opportunities*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/how-to-apply-application-guide/prepare-to-apply-and-register/understand-funding-opportunities.htm.
[244] *Types of Grant Programs*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/funding/funding_program.htm.
[245] *Grants Process Overview*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/grants-process-overview.pdf.
[246] *Plan Your Application*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/planning_application.htm.
[247] *How to Apply – Application Guide*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/how-to-apply-application-guide.html.
[248] *Id.*
[249] *Id.*

for possible funding.[250] The CSR also assigns the application to a review committee with the expertise to evaluate the scientific merit of the application.[251]

The grant application then undergoes two levels of peer review.[252] The first level of review is conducted primarily by "non-federal scientists who have expertise in relevant scientific disciplines and current research areas."[253] The peer review process is intended "to ensure that applications for funding submitted to NIH are evaluated on the basis of a process that is fair equitable, timely, and conducted in a manner that strives to eliminate bias."[254] The second level of review is performed by Institute and Center Advisory Councils or Boards composed of "both scientific and public representatives chosen for their expertise, interest, or activity in matters related to health and disease."[255] Only applications recommended for approval at both stages of review may be considered for funding.[256] Following the funding recommendation, NIH decides whether to grant an award and what level of funding to provide.[257] The Notice of Award is the legal document used to notify the applicant that an award has been made.[258] The notice includes all applicable terms of the grant and "contact information for the assigned program officer and grants management specialist."[259]

2. Disclosure of Foreign Support and Affiliations

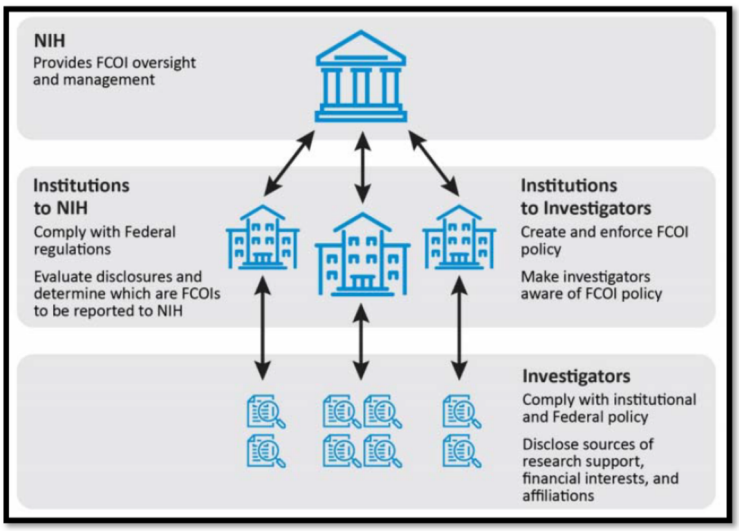
Current law does not require NIH to "proactively ensure that investigators disclose all sources of research support, financial interests, and affiliations."[260] The compliance relationship between NIH and its grant recipients is predicated on trust—institutions are therefore responsible for soliciting and reviewing disclosures of significant financial interests from each investigator who is planning to participate in or is participating in NIH-funded research.[261] Institutions are also responsible for reporting to NIH any significant financial interests that may constitute a financial conflict of interest ("FCOI").[262] An FCOI exists when an institution reasonably determines that an "investigator's significant financial

---

[250] *Receipt and Referral*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/receipt-referral.htm.
[251] *Id.*
[252] *Peer Review*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/peer-review.htm.
[253] *Id.*
[254] NAT'L INST. OF HEALTH, NIH GRANTS POLICY STATEMENT I-67–68 (Oct. 2018), https://grants.nih.gov/grants/policy/nihgps/nihgps.pdf.
[255] *Peer Review*, NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/peer-review.htm.
[256] *Id.*
[257] *Id.*
[258] *Id.*
[259] *Pre-Award and Award Process,* NAT'L INST. OF HEALTH, https://grants.nih.gov/grants/pre-award-process.htm.
[260] HHS IG REPORT: REPORTING at 4 (Sept. 2019).
[261] *See* 42 C.F.R. § 50.604(d).
[262] *See* 42 C.F.R. § 50.605(b).

interest … could directly and significantly affect the design, conduct, or reporting" of the research.[263]

Investigators are required to disclose any significant financial interests to the official at their institution who is responsible for such disclosures.[264] "The institution then determines whether the investigator's conflict is related to his or her institutional responsibilities and if so, whether the significant financial interest constitutes an FCOI."[265] Because an investigator's research support, financial interests, and affiliations may constitute a significant financial interest, they must be disclosed to both the institution and NIH.[266] The HHS IG produced the following graphic illustrating the responsibilities of the investigators, the institutions, and NIH for identifying and reporting FCOIs.[267]



3. NIH's Division of Grants Compliance and Oversight

NIH's Division of Grants Compliance and Oversight ("DGCO") serves as the "focal point to advance external compliance with policy and legislative mandates

---

[263] *See* 42 C.F.R. § 50.604(f).
[264] *See* 42 C.F.R. § 50.604(e)(1).
[265] HHS IG REPORT: REPORTING at 5 (Sept. 2019).
[266] *Id.*
[267] *Id.* at 6.

and enhance compliance oversight by recipient institutions."[268] By accepting NIH-funding, recipients indicate acceptance of the associated terms and conditions, including compliance with applicable federal statutes, regulations, and policies.[269] Though NIH expects grant recipients to properly administer sponsored activities and comply with relevant regulations and policies, DCGO conducts two types of routine site visits at recipient institutions to advance compliance and provide oversight:

- *Proactive Compliance Site Visits.* These site visits assess institutional understanding of federal policies and regulations, seek to minimize or eliminate areas of non-compliance, and nurture partnerships between NIH and its recipient institutions. These visits are not designed to address specific problems and are not considered audits or investigations.[270]

- *Targeted Site Review.* These site reviews are an NIH initiative focusing specifically on compliance with FCOI regulations.[271] The reviews are meant to determine if "(1) recipient institutions are fully and correctly implementing the FCOI regulation, and (2) reporting requirements are being met."[272]

4. The HHS IG Identified Weaknesses in Tracking and Reporting Foreign Financial Conflicts of Interest

In September 2019, the HHS IG released three reports focused on identifying and reporting financial conflicts of interest and foreign talent recruitment plans—including the TTP. The HHS IG identified vulnerabilities in all three reports. First, the HHS IG evaluated NIH's reliance on the peer review process for evaluating grant applications.[273] The HHS IG noted that because peer reviewers conduct "the initial review of research grants submitted to NIH, they have a unique opportunity to access confidential information in grant applications."[274] While NIH has taken some steps to address the threat from potential conflicts of interest with peer reviewers, significant problems remain with NIH's overall visibility into potential conflicts. For example, HHS IG found that "NIH focuses on preventing undue influence generally, but does not specifically focus on undue foreign influence" like foreign talent recruitment plans.[275]

---

[268] *Grants Compliance and Oversight*, NAT'L INST. OF HEALTH, https://grants.nih.gov/policy/compliance.htm#activities.
[269] *Id.*
[270] *Id.*
[271] *See* 42 C.F.R. pt. 50, Subpart F.
[272] *Grants Compliance and Oversight*, NAT'L INST. OF HEALTH, https://grants.nih.gov/policy/compliance.htm#activities.
[273] *See* HHS IG REPORT: PEER REVIEW (Sept. 2019).
[274] *Id.* at 2.
[275] *Id.* at 11.

NIH also has identified 250 scientists as "individuals of possible concern," of which roughly 30 percent served as a peer reviewer over the past two years.[276] Additionally, NIH's guidelines for the vetting of peer reviewers "do not advise vetting nominees against any type of law enforcement database. Instead, [the guidelines] suggest generally reviewing the first page of results from a Google search."[277] As a result, NIH "has efforts underway to address" identifying potential sources of undue foreign influence with its peer reviewers.[278]

In an attempt to raise awareness of the importance of confidentiality in the peer review process, NIH has launched ongoing communications with its staff, the research community, and grantee institutions—some of which have proactively raised concerns with NIH. Specifically, NIH issued a notice titled "Reminders of NIH Policies on Other Support and on Policies Related to Financial Conflicts of Interest and Foreign Components" on July 10, 2019.[279] This notice served as a reminder to the research "community about the need to report foreign activities through documentation of other support, foreign components, and financial conflict of interest to prevent scientific, budgetary, or commitment overlap."[280] NIH issued this notice more than three years after the FBI notified NIH of an extensive peer review violation in June 2016.[281] NIH also "convened a working group of the Advisory Committee to the NIH Director to explore additional steps to protect the integrity of [NIH]'s peer review."[282] In addition to the working group, on June 4, 2019, HHS's Office of National Security issued a policy proposal to create an Insider Threat program.[283] On October 2, 2019, HHS started the first program of this kind to focus on identifying possible risk, mitigation measures, and technical outreach assistance to U.S. institutions receiving NIH funding.[284]

According to NIH, it will be difficult to find a viable solution to address concerns about talent recruitment plan members and the peer review process.[285]

---

[276] *Id.* at 12.
[277] *Id.*
[278] *Id.* at 12.
[279] *Reminders of NIH Policies on Other Support and on Policies related to Financial Conflicts of Interest and Foreign Components*, NAT'L INST. OF HEALTH (July 10, 2019), https://grants.nih.gov/grants/guide/notice-files/NOT-OD-19-114.html.
[280] *Id.*
[281] Briefing with Nat'l Inst. of Health (Oct. 17, 2019). *See also,* Andrea Widener, *Amid Tensions with China, US Emphasizes Rules Around Research Security*, C&EN (Sept. 25, 2019), https://cen.acs.org/policy/research-funding/Amid-tensions-China-US-emphasizes/97/i38. ("The NIH first learned about concerns regarding China in June 2016, when the FBI approached the agency about 'significant breaches in peer review confidentiality,' says Michael Lauer, deputy director for extramural research at the NIH.").
[282] HHS IG REPORT: PEER REVIEW at 2 (Sept. 2019).
[283] *NIH CI/Insider Threat Proposal – Decision*, NAT'L INST. OF HEALTH (June 4, 2019) (document on file with the Subcommittee).
[284] *Id.*
[285] Briefing with Nat'l Inst. of Health (Oct. 17, 2019).

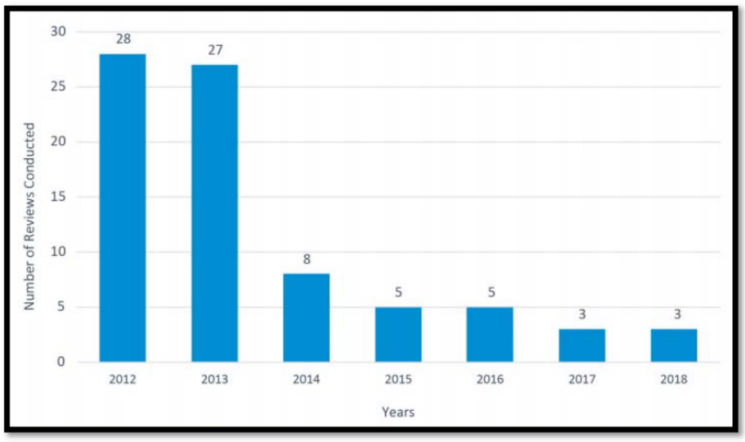
NIH officials said it would take "at least 6 months to a year" to come up with a "risk-based approach for identifying peer reviewer nominees who warrant extra security."[286] That effort would also require an additional 100 fulltime employees.[287]

Second, the HHS IG completed a broader review of NIH's efforts to uncover FCOIs with researchers and principal investigators.[288] Since a 2008 HHS IG report that identified "serious gaps in NIH's oversight of extramural investigators,"[289] the HHS IG found that NIH "has made progress in overseeing FCOIS that extramural grantee institutions report for their research investigators."[290] Nevertheless, the NIH could do more to protect taxpayer dollars and national security.[291] The HHS IG noted that NIH does not perform any quality assurance to "ensure the adequacy or consistency of program officials' reviews" of potential FCOIs.[292] Most alarming, however, is that NIH could not provide "the number of FCOIs reported in FY 2018 that involved a significant financial interest in a foreign entity (e.g., the investigator with the FCOI was conducting research in the United States but had a significant financial interest in a foreign entity)."[293] This is because NIH does not have a mechanism within the FCOI reporting software to identify foreign entities.[294]

Third, the HHS IG evaluated the policies, procedures, and controls NIH has in place to help institutions report all sources of outside research support, financial interests, and affiliations.[295] The HHS IG noted that, as shown below, "[t]he number of reviews conducted under the FCOI compliance program significantly decreased from 28 reviews in FY 2013 to only 3 reviews in FY 2018."[296] NIH officials told the Subcommittee that the decrease in compliance reviews was due to staffing shortages.[297]

---

[286] David Bonazzi & Salzman Art, *NIH Reveals Its Formula for Tracking Foreign Influences*, NEWSFLASH (Sept. 27, 2019), https://newsflash.one/2019/09/27/nih-reveals-its-formula-for-tracking-foreign-influences/.
[287] *Id.*
[288] OFFICE OF THE INSPECTOR GEN., DEP'T OF HEALTH AND HUMAN SERV., OEI-03-19-00150, NIH HAS MADE STRIDES IN REVIEWING FIN. CONFLICTS OF INTEREST IN EXTRAMURAL RES., BUT COULD DO MORE (Sept. 2019) [hereinafter HHS IG REPORT: FCOIs (Sept. 2019)].
[289] *Id.* at 2.
[290] *Id.* at Report in Brief.
[291] *Id.*
[292] *Id.* at 13.
[293] *Id.* at 15.
[294] *Id.*
[295] HHS IG REPORT: REPORTING (Sept. 2019).
[296] *Id.* at 7.
[297] Briefing with Nat'l Inst. of Health (Oct. 3, 2019).



[298]

Additionally, the report found "[n]ot all NIH-funded investigators may be aware that they are required to disclose significant financial interests with regard to research support, financial interests, and affiliations."[299] Moreover, "[o]f the 1,875 institutions that received NIH funding in FY 2018 and were required to have FCOI policies, 1,013 did not have FCOI policies posted on their websites."[300]

5. Weaknesses in NIH's Internal Controls for Monitoring and Permitting Foreign Access to Sensitive Data

The HHS IG also found weaknesses in NIH's ability to properly control foreign investigator access to sensitive information. In February 2019, the HHS IG released a report assessing whether NIH had adequate internal controls in place when permitting and monitoring foreign principal investigators access to NIH genomic data.[301] The IG found that "NIH did not consider the risk presented by foreign principal investigators when permitting access to United States genomic data."[302] NIH expects foreign principal investigators to "safeguard NIH data and use sound security practices in accordance with signed user agreements," but the IG's report notes that "NIH does not verify that foreign [principal investigators]

---

[298] HHS IG REPORT: REPORTING at 7 (Sept. 2019).
[299] *Id.* at 8.
[300] *Id.*
[301] OFFICE OF THE INSPECTOR GEN., DEP'T OF HEALTH AND HUMAN SERV., A-18-18-09350, OPPORTUNITIES EXIST FOR THE NAT'L INS. OF HEALTH TO STRENGTHEN CONTROLS IN PLACE TO PERMIT AND MONITOR ACCESS TO ITS SENSITIVE DATA (Feb. 2019).
[302] *Id.* at Report in Brief.

have completed security training, even though NIH's Security Best Practices for Controlled-Access Data emphasize security training as a key control."[303]

Additionally, the report found that NIH had not assessed the risks to national security when permitting access to foreign principal investigators, and did not ensure that NIH Policy reflected the current emerging threat to national security.[304] For example, NIH permitted access to genomic data to for-profit entities, including WuXi Nextcode Genomics and Shenzhen BGI Technology Company, which the FBI said have ties to the Chinese government.[305] In another example, "NIH did not consider any restrictions on which foreign principal investigators were permitted access to research data based on national security risks, such as weaponizing for biological warfare."[306] Finally, the HHS IG noted that "NIH officials did not consider risks related to the United States' national security by foreign [principal investigators] connected to state-sponsored activities, the presence of United States and international sanctions, or whether the [principal investigator] is in a foreign country that is on a United States Government watch list."[307]

6. TTP Members Misappropriated NIH Research

While NIH continues to investigate cases of undisclosed foreign support, it has already identified instances in which TTP members misappropriated NIH-funded research. As of September 13, 2019, NIH had contacted 70 institutions regarding more than 130 individuals who received or are receiving NIH funding.[308]

NIH sent confidential communications to institutions that received NIH funding: "It has come to our attention that there are issues of potential noncompliance with NIH policies regarding disclosures of outside research support and relevant affiliations or foreign components."[309] NIH then provided the NIH researcher or investigator's name and specific details about that individual's alleged participation in the TTP or other source of foreign funding.[310] NIH then instructed the institution to within 30 days to "review these issues" and "confirm that this investigator and the [U.S. institution that received NIH funding] complied with [NIH's] policies."[311]

---

[303] *Id.*
[304] *Id.* at 4.
[305] *Id.*
[306] *Id.* at 5.
[307] *Id.* at 4.
[308] Email from U.S. Health and Human Serv. to the Subcommittee (Sept. 13, 2019) (on file with Subcommittee); Nat'l Inst. of Health briefing with the Subcommittee (Oct. 3, 2019).
[309] Documents on file with the Subcommittee (PorCTP-0000144).
[310] *Id.*
[311] *Id.*

As of this report, NIH has only received complete responses concerning 51 individuals believed to have undisclosed foreign affiliations.[312] NIH was able to determine that taking administrative action, such as holding awards, changing the principal investigator, or other grants actions, was necessary for 66 individuals.[313] NIH indicated that this statistic does not include those grant recipients who were either terminated or resigned.[314] Additionally, as of late 2018, NIH told the Subcommittee that it identified roughly 45 individuals who could no longer work on NIH grants due to their participation in foreign talent recruitment plans.[315]

The Subcommittee worked with NIH to produce the below case examples of NIH research grants and connections to the TTP.[316] These examples detail specific instances of misappropriation, or in some instances theft, of U.S.-funded intellectual property.

Individual Z

In early 2019, NIH contacted a medical school concerning three principal investigators with potential affiliations with the TTP, Chinese universities, and other Chinese government funded grant programs.[317] The institution conducted an internal review and initially indicated that it did not identify any financial conflicts of interests.[318] The internal review involved phone interviews and written questions and answers with the principal investigators at issue.[319]

NIH, however, submitted additional questions concerning one of the principal investigators who told the institution that he or she never worked at Peking University and did not receive any funds from any talent recruitment plans.[320] NIH sent the institution a screenshot of Peking University's website that identified the principal investigator as a "Professor" since 2012.[321] NIH also sent the institution information indicating that the principal investigator was likely a TTP member.[322] The institution later provided NIH with an affidavit from the principal investigator stating he or she never held a position at Peking. The principal investigator also told the institution that Peking University's web site must be an oversight as he or

---

[312] Email from U.S. Health and Human Serv. to the Subcommittee (Oct. 19, 2018) (on file with Subcommittee).
[313] *Id.*
[314] *Id.*
[315] *Id.*
[316] NIH primarily wrote the case examples due to law enforcement equities. The Subcommittee edited for clarity and uniformity.
[317] PorCTP-0000506.
[318] PorCTP-0000504.
[319] PorCTP-0000501.
[320] PorCTP-0000504.
[321] PorCTP-0000503.
[322] PorCTP-0000503.

she never actually accepted the position.[323] NIH then informed the institution that the principal investigator likely had a potential conflict as he or she maintained an active, unreported Natural Science Foundation of China ("NSFC") grant.[324] The institution's representative wrote back to NIH: "Obviously concerning to us."[325]

Despite these violations of NIH grant policy, the institution allowed the individual to continue as a principal investigator on the NIH grant and NIH has yet to take any further action.[326]

Individual X

In early 2019, NIH contacted a medical research institution concerning a principal investigator, Individual X.[327] That individual also was publicly listed as serving in several positions at Huazhong University of Science and Technology.[328] Additionally, NIH alleged that the principal investigator also worked on two active NSFC grants that Individual X did not disclose.[329]

Subsequently, the institution conducted an internal investigation and stated that it

> may have failed to completely disclose [Individual X's] affiliation at Huazhong University of Science and Technology, funding from the National Natural Science Foundation of China, and the Chinese Thousand Talents Program, and foreign components of the awarded projects in applications and progress reports which designate [Individual X] as the [principal investigator] or Key Personnel.[330]

After the institution's inquiry into the individual's foreign associations, Huazhong University deleted the individual's online resume.[331] The institution, however, asserted that the work did not overlap with past or existing NIH grants.[332] Despite these violations of NIH grant policy, the institution allowed the individual to continue as a principal investigator on the NIH grant and NIH has yet to take any further action.[333]

Individual Y

---

[323] PorCTP-0000501.
[324] PorCTP-0000500.
[325] PorCTP-0000499.
[326] *Id.*
[327] PorCTP-0000145.
[328] *Id.*
[329] *Id.*
[330] PorCTP-0000155.
[331] Documents on file with the Subcommittee.
[332] PorCTP-0000172.
[333] *Id.*

In early 2019, NIH contacted a hospital institution regarding alleged foreign support for an NIH-sponsored medical researcher, Individual Y.[334] Individual Y worked at the institutions' Biomedical Informatics and Division of Biostatistics.[335] The institution conducted an internal investigation and located a TTP contract signed by Individual Y.[336] The TTP contract required Individual Y to "recruit three undergraduate students each year … focus on recruiting 1-2 post-doctoral students each year … [and] publish 12 papers in mainstream international journals."[337]

The institution's internal investigation also discovered that in addition to being a member of the TTP on contract through 2020, Individual Y had faculty appointments at two universities in China: Jianghun and Wuhan.[338] Individual Y also received a 2018 award from the National Natural Science Foundation of China.[339] Individual Y also proposed using a U.S. data set for the NSFC-funded project.[340] The institution did not disclose any of the sources of foreign support to NIH.[341] The institution subsequently counseled Individual Y on the "importance of full and accurate disclosure."[342]

NIH also identified potential conflicts of commitment. For example, NIH asked if the institution was aware that Individual Y "was spending 6 months a year in China working on this project?"[343] The institution reported that it was not aware.[344] As a corrective measure, the institution refunded to NIH Individual Y's salary draws for time periods where there was "most likely potential for effort overlap."[345] NIH continues to investigate the alleged violations.[346]

Individual 1[347]

Individual 1 was a professor and researcher working in cellular and molecular physiology. Individual 1 is also a principal investigator who worked on an NIH Exploratory/Developmental Research Grant Award. On April 11, 2014,

---

[334] PorCTP-0000245.
[335] *Id.*
[336] *Id.*
[337] PorCTP-0000247–248.
[338] PorCTP-0000236.
[339] *Id.*
[340] *See* PorCTP-0000238 (Upon further investigation, the Institution was unable to locate a "Data Use Certification" for use of the U.S. data relating to an NSFC funded project. Ultimately, the Institution was unable to definitively determine if Individual Y used the U.S. data in an unauthorized manner).
[341] PorCTP-0000237.
[342] *Id.* (emphasis in original).
[343] PorCTP-0000231.
[344] *Id.*
[345] PorCTP-0000240.
[346] *Id.*
[347] Health and Human Serv. production (Oct. 2, 2019) (documents on file with the Subcommittee).

Individual 1 requested and received a one-year unpaid leave of absence starting in July 2014 to work at Tsinghua University.

Individual 1 joined Tsinghua Medical School as a recipient of a TTP award in July 2014. While working at Tsinghua Medical School, Individual 1 worked on developing special antibodies. Tsinghua provided Individual 1 with other special opportunities, such as the ability to work with a distinguished Nobel Prize winner, the use of first-class technology and facilities, and access to the institution's renowned structural biology center. Individual 1 even received an award from the Chinese government that fully supported his or her research and salary at Tsinghua University from July 2014 to June 2017.

On April 6, 2015 Individual 1 requested and received extended leave permitting the individual to maintain a 50 percent appointment at the institution while working at Tsinghua University. The institution also granted permission for Individual 1 to continue to conduct research at the institution.

While Individual 1 was supposed to conduct all the work at the U.S. institution's facilities, Individual 1 directed some of the work to be done in China at Tsinghua University.[348] Individual 1 did not submit a financial disclosure form to the U.S. institution in 2014 as required by the U.S. institution. The individual also did not disclose to the U.S. institution the salaries received from Tsinghua University in subsequent disclosure forms.[349]

"The institution's internal investigation determined that it should have reported to NIH the possibility of collaboration with investigators at a foreign site that could result in co-authorship and should have provided a Foreign Justification attachment to Individual 1's award application."[350] In addition, the institution failed to include Individual 1's Tsinghua University's position on supplementary reports and failed to report the continuing arrangement with Tsinghua. In response to repeated violations of NIH policies and TTP membership, the institution's only actions was to develop a remediation plan that required Individual 1 to file annual conflict of interest disclosures.[351]

Individual 3[352]

A medical school reported that a pharmacology and dermatology professor, Individual 3, potentially failed to comply with NIH policies requiring disclosure of outside research support and foreign affiliations or research components. Individual 3 has an NIH grant from the National Cancer Institute. On several publications, Individual 3 listed foreign support, in addition to his or her NIH

[348] PorCTP-0001532.
[349] PorCTP-0001533.
[350] *Id.*
[351] PorCTP-0000240.
[352] *Id.*

support, and held affiliations with at least five Chinese institutions. None of the foreign support or foreign affiliations, however, were disclosed on Individual 3's NIH grant documents.

When questioned by the institution, Individual 3 said his or her publications included reference to support from the NSFC because he or she considered it an honor. Individual 3, however, also claimed that he or she received no financial support from the NSFC award for his or her NIH-funded, or any other, research. He or she also claimed that the aim of the project was different than the subject of his or her NIH award.

During its internal investigation, the institution found online reports suggesting Individual 3 was a Dean at Jiangsu University, participated in the Jinshan Scholars Program, and in the TTP. Individual 3 said he or she rejected the position and never participated in the alleged programs. Individual 3 also worked with three post-doctoral students on an NIH grant who held concurrent positions at Chinese institutions. Though these post-doctoral researchers did not list their foreign government support in co-authoring publications with Individual 3, these post-doctoral researchers' co-authors at their affiliated Chinese institutions listed Chinese government support.

As part of its response to this matter, the institution convened a Committee on Research Security and Conflicts of Commitment to make recommendations about how to secure research on its campuses and ensure that researchers' commitments supporting their research are not compromised by external relationships. The institution told NIH that it will also review all of Individual 3's grant applications for the next two years.

Individual 4[353]

NIH contacted a medical research institution after identifying issues of potential willful non-disclosure of outside research support and relevant affiliations or foreign components. NIH found that Individual 4, who serves as the Principal Investigator on an NIH grant from the National Cancer Institute, may have willfully failed to disclose the following affiliations:

1. A distinguished professorship Zhejiang University;
2. Selection for the Chinese Talents Program;
3. At least two NSFC grants;
4. One National Key R&D Program of China grant;
5. One Shanghai Education Development Foundation "Shuguang Program" grant;
6. One Chinese Minister of Science and Technology grant; and
7. Two Department of Education of Jiangxi grants.

[353] Health and Human Serv. production (Oct. 11, 2019) (documents on file with the Subcommittee).

The TTP contract required Individual 4 to work "at least 9 months" in China from January 2014 to December 2018 while the individual was a faculty member at the institution. Further, the Chinese Talents Program contract required awards, patents, and projects during the contract period would be under the Chinese Institutions name. The contract also required the individual to resign from the institution by January 2019 and work full-time for the Chinese institution.

As part of its response to this matter, the institution prepared several communications to raise awareness across the university research community on the importance of fully reporting foreign components and relationship with foreign collaborators as required by NIH policy and other sponsors. The institution also revised help guides and business processes and outside interest disclosure forms to better identify the need for faculty to disclose outside relationships with foreign entities.

The institution, after conducting a preliminary investigation, told NIH that the only failure to disclose concerned was the affiliation with Zhejiang University. The other awards did not overlap with the NIH award. The institution did express concern that the Thousand Talents contract required Individual 4 to work "at least 9 months" in China. NIH continues to investigate the matter.

Individual 5[354]

NIH contacted Individual 5's institution after identifying issues of potential noncompliance regarding disclosure of outside research support and relevant affiliations or foreign support. Individual 5 serves as a principal investigator on a current NIH award from the National Institute on Mental Health. While working on the NIH award, Individual 5 also has a position at Guangzhou Medical University in China and holds at least two NSFC grants. Several of Individual 5's NIH-supported publications were also supported by foreign awards, suggesting foreign collaborations. The grants and affiliations were not disclosed in applications to NIH. The institution, however, stated that research activities conducted in China as part of the consulting agreement did not overlap with the NIH application.

[354] Health and Human Serv. production (Oct. 2, 2019) (documents on file with the Subcommittee).

C. THE DEPARTMENT OF ENERGY

The Department of Energy ("Energy") is a cabinet-level agency whose mission is "to ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions."[355] Energy is also tasked with "reducing the threat of nuclear proliferation, overseeing energy supply, carrying out the environmental clean-up from the Cold War nuclear mission," and overseeing the 17 National Laboratories ("National Labs").[356] Energy's Office of Science is the country's largest federal sponsor of basic research in the physical sciences.[357]

Energy's prominent role in advanced research and development makes it particularly attractive to China's talent recruitment plan efforts. According to the FBI, Energy is the U.S. government agency subject to the "most penetration attempts" for technology transfers because of its "prominent role in advanced R&D, particularly in energy and nuclear weapons development."[358] It comes as no surprise then that Energy recently identified TTP members who worked on sensitive research at National Labs.[359] Examples include a post-doctoral researcher who stole 30,000 electronic files from a National Lab and a National Lab contract employee who filed for a U.S. patent overlapping with Energy-funded research.[360] In the most egregious cases, National Lab personnel recruited through foreign talent recruitment plans later worked on foreign military programs.[361]

Energy has been slow to address vulnerabilities surrounding the openness of the U.S. scientific community and its scientific collaboration with countries of risk. For more than 30 years, federal regulations have prohibited U.S. government employees from receiving compensation from foreign entities that conflict with their official duties; however, Energy did not issue guidance to its employees or contractors on participation in foreign talent recruitment plans until 2019.[362]

---

[355] *About Us,* U.S. DEP'T OF ENERGY (2019), https://www.energy.gov/about-us.
[356] *Id.*
[357] *Office of Science Funding,* U.S. Dep't of Energy (2019), https://www.energy.gov/science/office-science-funding.
[358] Dep't of Energy production (June 26, 2019).
[359] *See infra* § IV(C)(5).
[360] *Id.*
[361] Dep't of Energy production (June 26, 2019).
[362] Executive Order 12674 ordered individual agencies to consolidate conduct regulations, setting out comprehensive basic principles of ethical conduct for executive branch employees. *See* Exec. Order No. 12,674, 54 Fed.Reg. 15,159 (Apr. 14, 1989) (*as modified by* Exec. Order No. 12731, 55 Fed. Reg. 42547 (Oct. 17, 1990)). Accordingly, the Office of Gov't Ethics published the Standards of Ethical Conduct for Employees of the Executive Branch in 1992, codified as amended at 5 C.F.R. pt. 2635. *See* § 2635.802 (specifically noting that a federal government "employee shall not engage in outside employment or any other outside activity that conflicts with his official duties."); U.S. DEP'T OF

1. National Laboratories

Energy's National Labs began as an outgrowth of scientific investment by the U.S. government during World War II and now serve as leading institutions of science, with an emphasis on translating basic science research into innovation.[363] The National Labs provide access to large-scale, costly research and scientific facilities that universities typically cannot afford.[364] The 17 National Labs use cutting-edge research to address complex and critical scientific challenges.[365]

Sixteen of the 17 National Labs are Government Owned, Contractor Operated ("GOCO") Federally Funded Research and Development Centers. The federal government owns GOCO labs, but third-party contractors such as a universities, non-profits, or for-profit firms operate them.[366] These facilities are designed to address long-term research that cannot be completed effectively at other government research facilities or in the private sector.[367] The other category of National Lab is Government Owned, Government Operated ("GOGO").[368] A GOGO lab is operated by a federal agency where all management and staff are considered government employees and are subject to government employment regulations.[369]

Each National Lab is overseen by one of six Energy's program areas and supports at least one of Energy's missions, typically the mission of its sponsoring program area.[370] Many National Labs, however, support multiple missions and receive funding from multiple program areas.[371] Three National Labs fall under the NNSA: Lawrence Livermore National Laboratory, Los Alamos National Laboratory, and Sandia National Laboratories.[372] The NNSA is responsible for "enhancing national security through the military application of nuclear science."[373]

ENERGY, DOE O 486.1, FOREIGN GOV'T TALENT RECRUITMENT PROGRAMS (June. 7, 2019), https://www.directives.doe.gov/directives-documents/400-series/0486-1-border/@@images/file.

[363] *National Laboratories,* U.S. DEP'T OF ENERGY (2019), https://www.energy.gov/national-laboratories.

[364] *Office of Science User Facilities,* U.S. Dep't of Energy (2019), https://www.energy.gov/science/science-innovation/office-science-user-facilities.

[365] *Id.*

[366] *Id.* at 19.

[367] BELFER REPORT at 20.

[368] *Id.* at 20.

[369] *Id.* at 18.

[370] *Id.* at 25.

[371] *Id.* at 24.

[372] *National Laboratories,* U.S. DEP'T OF ENERGY, (2019), https://www.energy.gov/national-laboratories.

[373] *About NNSA,* NAT'L NUCLEAR SECURITY ADMIN. (2019), https://www.energy.gov/nnsa/about-nnsa.

2. Foreign Scientists and the Department of Energy

International competition to develop the most advanced scientific facilities is fierce and is an important component of economic competitiveness.[374] Foreign nationals play a significant research role at the National Labs. In 2018, for example, there were more than 35,000 foreign nationals conducting research in National Labs—about 10,000 from China.[375] According to one public report, while the number of Chinese scientists who previously conducted research at one of Energy's National Labs and then returned to China is unknown, "so many scientists from Los Alamos have returned to Chinese universities and research institutes that people have dubbed them the 'Los Alamos club.'"[376]

Energy's Office of Science has focused on the construction and operation of large federally sponsored scientific user facilities. These user facilities are accessible to foreign researchers.[377] These facilities are federally sponsored research facilities available to scientists and provide access to utilize the most advanced tools of science, including accelerators, colliders, supercomputers, and light- and neutron-sources.[378] The Office of Science currently operates 26 user facilities at the National Labs "as shared resources for the scientific community, with access determined on a competitive basis using peer review."[379] Open user facilities are federally sponsored research centers utilized by external users to advance scientific or technical knowledge.[380] Researchers, both foreign and domestic, from academia, industry, and other government institutions can conduct research at these facilities, but are required to publish their results.[381] Proprietary users can access user facilities, but are subject to full cost recovery.[382]

---

[374] *Id.*
[375] Dep't of Energy production (June 26, 2019). Will Thomas, *DOE Barring Researchers From Rival Nations' Talent Programs*, AMERICAN INS. OF PHYSICS (June 13, 2019), https://www.aip.org/fyi/2019/doe-barring-researchers-rival-nations%E2%80%99-talent-programs.
[376] Stephen Chen, *America's Hidden Role in Chinese Weapons Research*, SOUTH CHINA MORNING POST (Mar. 29, 2017), https://www.scmp.com/news/china/diplomacy-defence/article/2082738/americas-hidden-role-chinese-weapons-research.
[377] *Office of Science User Facilities,* U.S. DEP'T OF ENERGY (2019), https://www.energy.gov/science/science-innovation/office-science-user-facilities.
[378] *Id.*
[379] *Id.*
[380] *Id.* at 2.
[381] *Proposal Guidelines,* U.S. DEP'T OF ENERGY, CENTER FOR INTEGRATED NANOTECHNOLOGIES (2019), https://cint.lanl.gov/becoming-user/proposal-guidelines.php.
[382] *Id.*

3. Department of Energy Financial Assistance Programs

Energy is the largest federal sponsor of basic research in the physical sciences.[383] Energy's Office of Science FY 2019 budget of "$6.6B supports a portfolio of basic research, which includes grants and contracts supporting over 25,000 researchers, including students, located at over 300 institutions and all 17 DOE national laboratories."[384] The Office of Science solicits grant funding proposals from "universities, non-profit and for-profit research organizations, National Labs, small businesses, and other federal research organizations."[385] It provides grants through two types of funding announcements: (1) Funding Opportunity Announcements ("FOAs") which are available to universities, non-profit and for-profit research organizations, National Labs, and small businesses; and (2) Energy's National Laboratory Announcements which are open only to National Labs.[386]

Funding Opportunity Announcements. All grant proposals must be submitted in response to an FOA.[387] The FOA contains the required application forms and instructions for the grant application.[388] Each FOA issued by the Office of Science provides: a technical description of the type of work to be funded; information about the type, size, number, and duration of awards expected; eligibility criteria; instructions for any submission of letters of intent, pre-applications or preproposals, and applications or proposals; due dates and times; review and selection information, including merit review criteria; and agency points of contact.[389]

Energy's National Laboratory Announcements. Energy's National Laboratory Announcements provide National Labs with multi-year funding for specific research projects.[390] These announcements function like the FOAs, but are exclusive to National Labs. Responses to an announcement include a proposal that Energy staff evaluate to ensure alignment with Energy's research priorities.[391] Energy awards

---

[383] *Office of Science Funding,* U.S. DEP'T OF ENERGY (2019), https://www.energy.gov/science/office-science-funding.
[384] *Id.*
[385] *Funding Opportunity,* U.S. DEP'T OF ENERGY, OFFICE OF SCI. FUNDING (2018), https://www.energy.gov/science/office-science-funding/office-science-funding-opportunities.
[386] *Id.*
[387] *Funding Opportunity Announcements (FOAs),* U.S. DEP'T OF ENERGY, OFFICE OF SCI. (2019), https://science.osti.gov/grants/FOAs.
[388] *Grants Process,* U.S. DEP'T OF ENERGY, OFFICE OF SCI. (2019), https://science.osti.gov/grants/Grants-Process.
[389] *Funding Opportunity Announcements (FOAs),* U.S. DEP'T OF ENERGY, OFFICE OF SCI. (2019), https://science.osti.gov/grants/FOAs.
[390] *National Laboratory Research,* U.S. DEP'T OF ENERGY, OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY, (2019), https://www.energy.gov/eere/solar/national-laboratory-research.h.
[391] *Id.*

this funding based on competitive merit review and other criteria communicated in the announcement.[392]

Grant Process. After an applicant submits an application, the Office of Science conducts an initial review for completeness and responsiveness.[393] A Program Manager then conducts the merit review.[394] During the merit review, both federal and non-federal technical experts review the application and provide their assessment to the Program Manager.[395] The Program Manager then decides whether to recommend funding the application.[396] Grants and Contracts Support reviews the file after a series of senior officials approve the recommendation for funding.[397] The Integrated Service Center then releases the Notice of Financial Assistance Award, the binding award document that contains the assistance agreement, terms and conditions of award, and other items.[398]

Disclosure of Foreign Support and Affiliations. During the application process, Energy requires the disclosure of current and pending support, and affiliations in the applicant's biographical sketch.[399] At the time of this report, Energy requires the disclosure of the name and institutional affiliation for any collaborators and co-editors up to 48 months preceding the submission of the application.[400] The name and organizational affiliations of any graduate and postdoctoral advisors and advisees must also be disclosed.[401]

The awardee must also provide a list of all current and pending support for project directors and senior personnel, including sub awardees, for any ongoing projects or pending applications.[402] A list of all sponsored activities and awards that required a "measurable commitment of effort, whether paid or unpaid" must also be provided.[403] For every activity, the awardee must provide the following information:

---

[392] *Funding Opportunity Announcements (FOAs),* U.S. DEP'T OF ENERGY, OFFICE OF SCIENCE (2019), https://science.osti.gov/grants/FOAs.
[393] *Grants Process,* U.S. DEP'T OF ENERGY, OFFICE OF SCI. (2019), https://science.osti.gov/grants/Grants-Process.
[394] *Id.*
[395] *Id.*
[396] *Id.*
[397] *Id.*
[398] *Id.*
[399] U.S. DEP'T OF ENERGY, OFFICE OF SCIENCE, DE-FOA-0001968, FY 2019 CONTINUATION OF SOLICITATION FOR THE OFFICE OF SCI. FIN. ASSISTANCE PROGRAM, 61-62 (Dec. 31, 2018), https://science.osti.gov/-/media/grants/pdf/foas/2019/SC_FOA_0001968.pdf.
[400] *Id.*
[401] *Id.* at 62.
[402] *Id.*
[403] *Id.*

- Name of the activity sponsor or the source of funding;
- Title of the award or activity;
- Total cost or value of the award or activity, including direct and indirect costs;
- Total amount of requested funding for pending proposals;
- Award period;
- Months of effort per year being dedicated to the award or activity; and
- Brief description of the research being performed, explicitly identifying any overlaps with the proposed research.[404]

4. Energy Did Not Implement Policies Prohibiting Involvement in Foreign Talent Recruitment Plans Until 2019

Energy recently ramped up efforts to address vulnerabilities in its collaborative research systems, particularly those risks associated with countries of risk and foreign talent recruitment plans. Energy formalized its efforts in December 2018 when it approved "immediate policy changes" to prevent foreign countries of concern from exploiting the openness of the U.S. scientific community to the detriment of U.S. national security.[405] These new policies will eventually require all foreign nationals' resumes be included in Foreign Visits and Assignments requests to all National Labs, sites, and plants as well as in the Foreign Access Central Tracking System database.[406] Energy also began enhanced vetting of foreign nationals from sensitive countries seeking Foreign Visits and Assignments approval.[407]

Energy is implementing the Strategic International Science and Technology Engagement Policy ("SISTEP") to mitigate risks in scientific collaboration with countries of risk. SISTEP limits scientific engagement on sensitive, but unclassified technologies with countries and individuals of concern.[408] Under SISTEP, a newly established Federal Oversight Advisory Body reviews and maintains an S&T Risk Matrix.[409] The S&T Risk Matrix details areas of international scientific collaboration that pose potential risks to U.S. national interests and recommends research areas and technologies whose access by countries of risk should be limited

---

[404] *Id.*
[405] Dep't of Energy production (June 26, 2019).
[406] *Id.* In 2013, Energy's Inspector General identified concerns about FACTS. *See* ENERGY INSPECTOR GEN., INS-O-13-05, UNCLASSIFIED FOREIGN NAT'L VISITS AND ASSIGNMENTS AT OAK RIDGE NAT'L LABORATORY, 3 (Sept. 2013), https://www.energy.gov/sites/prod/files/2013/09/f2/INS-O-13-05.pdf.
[407] *Id.*
[408] Dep't of Energy production (June 26, 2019).
[409] *Id.*

or restricted.[410] Energy is still developing the S&T Risk Matrix in consultation with its National Labs and plans to implement that policy in early 2020.[411]

Months before finalizing SISTEP, however, policy drafts were leaked and at least two news reports detailed how Energy was looking to crack down on participation in foreign talent recruitment plans.[412] On February 11, 2019, an Energy employee wrote in an email, "I'm sure everyone has seen Science Magazine published an article and referenced the International S&T memo, which has been leaked. … I think this places greater urgency in getting the S2 guidance memo signed and disseminated to the labs so we can address any confusion behind the intent of the memo."[413] Research institutions and an advocacy group contacted Energy to try to better understanding the situation after a news report based on the leak generated confusion "among leaders of the academic research enterprise."[414]

In early 2019, Dan Brouillette, Energy's Deputy Secretary, announced that Energy personnel, including contractors, fellows, interns, and grantees, would be subject to limitations and possible prohibitions on their participation in foreign talent recruitment plans.[415] Energy issued its policy through directive DOE O 486.1 on June 10, 2019.[416] The directive states that Energy will prohibit "DOE employees and DOE contractor employees, while employed by the DOE or performing work under a contract, from the unauthorized transfer of scientific and technical information to foreign government entities through their participation in foreign government talent recruitment programs" as designated by Energy's Office of Intelligence and Counterintelligence.[417]

This directive requires Energy employees to disclose any participation in a foreign talent recruitment plan to their immediate supervisor and Designated Agency Ethics Official before entering into discussions with a foreign talent recruitment plan.[418] If an Energy employee is already participating in the foreign talent recruitment plan, they must report in writing such participation to their immediate supervisor and to the Designated Agency Ethics Official within 30 days.[419] Those who fail to report are "subject to discipline up to and including

---

[410] *Id.*
[411] Dep't of Energy briefing with the Subcommittee (Oct. 10, 2019).
[412] DOE 01 [169]; *See also* Jeffrey Mervis, *New DOE Policies Would Block Many Foreign Research Collaborations*, SCI. MAGAZINE (Feb. 2, 2019), https://www.sciencemag.org/news/2019/02/new-doe-policies-would-block-many-foreign-researchcollaborations.
[413] Dep't of Energy production (June 26, 2019).
[414] *Id.*
[415] Dep't of Energy production (Sept. 25, 2019).
[416] U.S. DEP'T OF ENERGY, DOE O 486.1, FOREIGN GOV'T TALENT RECRUITMENT PROGRAMS (June. 7, 2019), https://www.directives.doe.gov/directives-documents/400-series/0486-1-border/@@images/file.
[417] *Id.*
[418] *Id.*
[419] *Id.*

removal from federal service."[420] If the Designated Agency Ethics Official determines that participation in a foreign talent recruitment plan conflicts with legal requirements or Energy's policies and directives, the employee must cease participation in the foreign talent recruitment plan within 30 days.[421]

By September 24, 2019, all Energy contractors were required to revise employee contracts and implement these new requirements regarding foreign talent recruitment plans.[422] The effectiveness of these policies, however, remains to be seen. As of October 10, 2019, after full implementation of the policy, less than 12 Energy employees or contractors self-reported participation in a talent recruitment plan as defined by Energy's policies.[423] Energy's policy defines foreign talent recruitment plans as the following:

> In general, such programs include any foreign-state-sponsored attempt to acquire U.S. scientific-funded research or technology through foreign government-run or funded recruitment programs that target scientists, engineers, academics, researchers, and entrepreneurs of all nationalities working or educated in the United States. These recruitment programs are often part of broader whole-of-government strategies to reduce costs associated with basic research while focusing investment on military development or dominance in emerging technology sectors.[424]

Energy's definition of a talent recruitment plan is helpful in that it is the first publicly available federal agency definition that will aid research institutions in better understanding the issues and threats.

5. TTP Members Likely Stole Energy Research and Intellectual Property

Energy's Office of Intelligence and Counterintelligence produced three case examples of National Labs and connections to foreign government talent recruitment plans.[425] These case examples detail specific instances of TTP members likely stealing U.S.-funded intellectual property. The three case studies provided by Energy are detailed below. Separate from these limited case examples, Energy officials told the Subcommittee that it is "aware of hundreds of persons who

---

[420] *Id.*
[421] *Id.*
[422] Dep't of Energy briefing with the Subcommittee (Sept. 19, 2019).
[423] Dep't of Energy briefing with the Subcommittee (Oct. 10, 2019).
[424] U.S. DEP'T OF ENERGY, DOE O 486.1, FOREIGN GOV'T TALENT RECRUITMENT PROGRAMS (June. 7, 2019), https://www.directives.doe.gov/directives-documents/400-series/0486-1-border/@@images/file.
[425] Energy's Office of Intelligence and Counterintelligence primarily wrote these three case examples or "vignettes" due to law enforcement equities and classification issues. The Subcommittee edited them for clarity and uniformity.

have participated in Talent Programs and have ties to the Department of Energy."[426] In more detailed public testimony before the U.S. Senate Judiciary Committee, a U.S. defense contractor explained that "Thousand Talents websites name more than 300 U.S. government researchers who have accepted the program's money."[427] Most concerning, however, was Energy's admission that as of December 2018 it was aware of at least nine former employees linked to TTP who also maintained U.S.-issued security clearances.[428]

Individual M

A National Lab employee, Individual M, who accepted a joint appointment at a Chinese university as part of the TTP likely took National Lab intellectual property and patent information without consent of other laboratory scientists, in order to file a similar patent with Chinese collaborators. Individual M subsequently filed for a U.S. patent that overlapped with the design and claims of the patent held by the National Lab.[429]

Individual N

Energy's Office of Intelligence and Counterintelligence conducted an investigation of Individual N that applied to the TTP while working at a National Lab. The investigation determined that Individual N was a supervisor at the National Lab and oversaw other TTP applicants who worked on sensitive but unclassified national security topics.[430]

While employed at the National Lab, Individual N hosted dozens of other Chinese nationals, worked on numerous Energy funded projects, and visited multiple Energy labs. The individual hired at least four Chinese nationals and TTP participants, while at least eight others were known to be no-pay appointments paid for by other Chinese organizations. The investigation revealed a disproportionate collaboration with Chinese institutions, and the individual attempted to initiate official sharing agreements between the laboratory and a Chinese organization. Additionally, the investigation found that monitoring the group's work was complicated by the language barrier, the revolving door of personnel, and the somewhat insular nature of the group. A later review identified at least six projects designated as sensitive.[431]

---

[426] Documents on file with the Subcommittee (Sept. 22, 2019).
[427] *China's Non-Traditional Espionage Against the United States: Hearing on The Threat and Potential Policy Responses Before the S. Comm. on the Judiciary*, 115th Cong. (2018) (testimony of James Mulvenon, Ph.D. General Manager, Special Programs Division SOS International, LLC).
[428] Dep't of Energy briefing with the Subcommittee (Dec. 7, 2018).
[429] Documents on file with the Subcommittee (Aug. 13, 2019).
[430] *Id.*
[431] *Id.*

Individual O

Energy's Office of Intelligence and Counterintelligence investigated a post-doctoral researcher, Individual O, whom China selected for the TTP. The investigation determined that Individual O removed multiple gigabytes of unclassified data totaling over 30,000 electronic files from the National Lab prior to departing for China.[432]

While employed at the National Lab, Individual O was selected for China's TTP. In support of the TTP application, the researcher obtained recommendation letters from U.S. colleagues and detailed some ongoing projects. Shortly after being selected for the TTP, the researcher took a professorial position in China.[433]

After Individual O departed for China, Energy discovered that the researcher uploaded multiple gigabytes of information including presentations, technical papers, research, and charts, from the National Lab network to a personal cloud storage account. Individual O told his or her prospective Chinese employer that his or her research area in the United States would play a critical role in advanced defense applications. Individual O furthermore planned to leverage the Chinese university's strength in national defense and military research to support the modernization of the People's Republic of China's national defense. After returning to China, Individual O committed to keeping a close and collaborative relationship with several named research teams at the National Lab.[434]

---

[432] *Id.*
[433] *Id.*
[434] *Id.*

D. THE DEPARTMENT OF STATE

The U.S. Department of State ("State") "leads America's foreign policy through diplomacy, advocacy, and assistance by advancing the interests of the American people, their safety and economic prosperity."[435] State adjudicates nonimmigrant visa ("NIV") applications and manages the application process at U.S. embassies and consulates overseas in coordination with other federal departments and agencies.[436] NIVs are temporary permits given to foreign nationals seeking to visit the United States to study, work, or conduct research.[437] State considers every visa adjudication to be a national security decision.[438]

State's role in reviewing NIV applications puts it on the front line in the U.S. government's efforts to protect against intellectual property theft and technology transfers.[439] State has a process to examine NIV applicants who may be attempting to steal sensitive technologies or intellectual property. State's authority under the Immigration and Nationality Act to deny visas is limited, leading to a low denial rate for visa applicants. State denied less than five percent of the visa applications it determined warranted additional scrutiny due to concerns that the applicant might violate export control laws. State makes visa applicant files and supporting documentation available to U.S. law enforcement, but not in easily accessible or useful formats. Finally, State does not systematically track visa applicants linked to China's talent recruitment plans.

1. The Nonimmigrant Visa Application Review Process

State's Bureau of Consular Affairs ("Consular Affairs") is responsible "for the issuance of passports and other documentation to citizens and nationals" and for the "facilitation of legitimate travel to the United States."[440] Consular Affairs is funded in part through consular fees it collects for its services.[441] Foreign scientists,

---

[435] *About the U.S. Department of State*, U.S. DEP'T OF STATE, https://www.state.gov/about/about-the-u-s-department-of-state.
[436] U.S. GOV'T ACCOUNTABILITY OFF., GAO-18-608, NONIMMIGRANT VISAS: OUTCOMES OF APPLICATIONS AND CHANGES IN RESPONSE TO 2017 EXECUTIVE ACTIONS, 6 (Aug. 2018), https://www.gao.gov/assets/700/693763.pdf.
[437] *Requirements for Immigrant and Nonimmigrant Visas*, U.S. CUSTOMS AND BORDER PROTECTION, https://www.cbp.gov/travel/international-visitors/visa-waiver-program/requirements-immigrant-and-nonimmigrant-visas.
[438] *See U.S. Nonproliferation Policy and the FY 2020 Budget: Hearing Before the Subcomm. on Asia, the Pacific, and Nonproliferation of the H. Comm. on Foreign Affairs*, 116th Cong. 2–3 (2019) (statement of Christopher A. Ford, Assist. Secretary for Int'l Security & Nonproliferation, U.S. Dep't of State).
[439] *See* Complaint at 4, 10, *United States v. Zhongsan Liu*, 19MAG-864 (S.D.N.Y Sept. 13, 2019) [hereinafter LIU COMPLAINT (Sept. 13, 2019)].
[440] *Bureau of Consular Affairs: Mission*, U.S. DEP'T OF STATE, https://travel.state.gov/content/travel/en/about-us.html.
[441] *Id.*

students, and others seeking to acquire a NIV begin the visa process by filling out an online application called the DS-160.[442] The DS-160 collects a significant amount of information about a visa applicant such as name, marital status, travel companions, home address, places of employment, previous military experience, and educational history.[443] In addition, the applicant may be asked to provide supporting documentation such as a resume, research plans and publications, and information on any universities or other entities with which the applicant is associated.[444] There currently is no online form that would require applicants to submit these materials in a standardized format, and as a result, State stores these documents as unsearchable PDFs.[445]

After completing the DS-160, the foreign national schedules a visa interview with a consular officer.[446] During the interview, a consular official reviews the visa application, checks the applicant's name in State's databases for potential criminal activity, adverse information, previous visa denials, and other immigration violations.[447] The official also obtains fingerprints and a photograph and ensures the applicant is eligible for the type of visa.[448] Once the consular official determines that the applicant is eligible for the visa, the applicant is typically notified within 24 hours.[449] Consular officials, however, can request a more in-depth review of the visa application and supplemental documentation from the visa applicant.

2. Security Advisory Opinions

A consular official can request a Security Advisory Opinion or "SAO" if the visa applicant appears to pose a national security risk to the United States. U.S. national security agencies screen over 100,000 visa applications every year for potential issues ranging from the proliferation of weapons of mass destruction to

---

[442] *Online Nonimmigrant Visa Application: DS-160 Exemplar*, U.S. DEP'T OF STATE, BUREAU OF CONSULAR AFFAIRS, https://travel.state.gov/content/dam/visas/PDF-other/DS-160-Example_07292019.pdf.
[443] *Id.*
[444] *Id.*
[445] Interview with U.S. State Dep't, Bureau of Int'l Security and Nonproliferation (July 23, 2019) [hereinafter STATE DEP'T, BISN INTERVIEW (July 23, 2019)].
[446] *Id.* The foreign national provides all of the necessary paperwork concerning their proposed U.S. institutional assignment, unlike the situation with export license applicants where the U.S. company is responsible for providing information.
[447] U.S. GOV'T ACCOUNTABILITY OFF., GAO-05-198, BORDER SECURITY: STREAMLINED VISAS MANTIS PROGRAM HAS LOWERED BURDEN ON FOREIGN SCI. STUDENTS AND SCHOLARS, BUT FURTHER REFINEMENTS NEEDED 3 (Feb. 2005), https://www.gao.gov/new.items/d05198.pdf [hereinafter 2005 GAO MANTIS REPORT].
[448] *Id.*
[449] *Id.* at 4.

illicit transfers of sensitive technology.[450] According to a 2005 Government Accountability Office report on SAOs:

> SAOs are required for a number of reasons, including concerns that a visa applicant may engage in illegal transfers of sensitive technology. An SAO based on sensitive technology transfer concerns is known as Visas Mantis and, according to State officials, is the most common type of SAO applied to science applicants.[451]

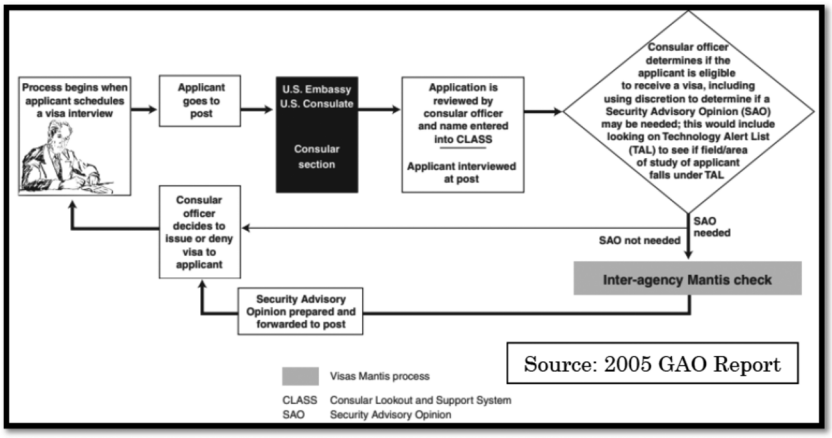
State designed the Visa Mantis process to further four important national security objectives:

- prevent the proliferation of weapons of mass destruction and their missile delivery systems;
- restrain the development of destabilizing conventional military capabilities in certain regions of the world;
- prevent the transfer of arms and sensitive dual-use items to terrorists and states that sponsor terrorism; and
- maintain U.S. advantages in certain militarily critical technologies.[452]

After a consular officer requests a Visa Mantis review, the officer submits the application package and visa interview notes through State's cabling system to Consular Affairs in Washington, D.C.[453] Consular Affairs coordinates with DHS and other U.S. government agencies to conduct a review of the application and supporting documents for the visa application.[454] State typically gives DHS ten business days to conclude its review, with extensions granted on a case-by-case basis.[455] After the interagency review process is completed, a consular official abroad "reviews the SAO and, based on the information from Washington, decides whether to deny or issue the visa to the applicant."[456] The 2005 GAO report provides a graphic that further explains the visa adjudication process, including the Visa Mantis review.[457]

---

[450] *U.S. Nonproliferation Policy and the FY 2020 Budget: Hearing Before the Subcomm. on Asia, the Pacific, and Nonproliferation of the H. Comm. on Foreign Affairs*, 116th Cong. 2–3 (2019) (statement of Christopher A. Ford, Assist. Secretary for Int'l Security & Nonproliferation, U.S. Dep't of State).
[451] 2005 GAO MANTIS REPORT at 5.
[452] *Id.* at 5.
[453] *Id.* at 6.
[454] A DHS official told the Subcommittee that this and other similar reviews can be delayed as State does not make the attachments to the visa applications, typically the resume and other supporting documents, keyword searchable. Interview with U.S. Dep't of Homeland Security, Office of Intelligence (Sept. 11, 2019). *See also* 2005 GAO MANTIS REPORT.
[455] 2005 GAO MANTIS REPORT at 7.
[456] *Id.*
[457] *Id.* at 6.



3. Consular Affairs Has Limited Authority to Deny Visa Applicants on National Security Grounds Related to Intellectual Property Theft

According to State officials, Consular Affairs has limited authority to deny visa applicants suspected of involvement in intellectual property theft. This is because denial must be specifically linked to violations of export control laws related to controlled technology.[458] The commonly cited export control laws include the Export Administration Regulations, including the Commerce Control list, and the International Traffic in Arms Regulations.[459] Edward Ramotowski, with State's Consular Affairs, elaborated on State's limited authorities under the Immigration and Nationality Act in recent congressional testimony when he stated that a consular officer can consider "whether there are reasonable grounds to believe that a visa applicant seeks to enter the United States to engage solely, principally, or incidentally in activity to violate or evade U.S. law prohibiting the export from the United States of goods or technology."[460]

---

[458] STATE DEP'T, BISN INTERVIEW (July 23, 2019). If the visa applicant's field of study or work is not covered by an export law, State indicated that it can rely on a "catch all" provision, 15 C.F.R. § 744.3, to make denial recommendations. To rely on this provision, however, State would need to explain how a visa applicant visit could contribute to a controlled end use.

[459] *Student Visa Integrity: Protecting Educational Opportunity and National Security: Hearing Before the Subcomm. on Border Security and Immigration of the S. Comm. on the Judiciary*, 115th Cong. (2018) (statement of Edward J. Ramotowski, Dep. Assist. Secretary of Consular Affairs, U.S. Dep't of State) [hereinafter RAMOTOWSKI TESTIMONY (June 6, 2018)].

[460] *Id.*

As a result, denials must be linked to tightly controlled commodities and technology that are subject to export controls under the Export Administration Regulations, International Traffic in Arms Regulations, or other U.S. regulations such as those imposing economic sanctions.[461] Ramotowski further stated that, "[t]he broader these export controls are, the more often we can use them to deter and disrupt activities of concern."[462] The Export Control Reform Act of 2018, which requires Commerce to regularly update Commerce Control List to include "emerging and foundational technologies," may provide State greater flexibility to deny NIV applicants seeking to steal intellectual property as Commerce updates its list.[463]

Because consular officials must base a denial on a specific anticipated violation of an already existing export law, they cannot currently deny a visa application if they have reason to believe that the visa applicant seeks to "lawfully gain knowledge through work or study in a sensitive area of technology that is not export controlled—for example, certain technology related to robotics or artificial intelligence."[464] Furthermore, State officials told the Subcommittee that participation in a foreign talent recruitment plan does not automatically lead to visa ineligibility.[465] Those same officials, however, said that State has denied some TTP members NIVs.[466]

4. Consular Officers Manually Search State's "Technology Alert List" and Other Supporting Documentation

When deciding whether to conduct a Visa Mantis review, a consular official determines whether the applicant's background or proposed activity in the United States could include exposure to technologies on the Technology Alert List ("TAL").[467] The TAL is a list based on U.S. export control laws published by State in coordination with the interagency community that "includes science and technology-related fields where, if knowledge gained from research or work in these fields were used against the U.S., it could be potentially harmful."[468]

While older, incomplete versions of the TAL are publicly available online, the Subcommittee reviewed the most recent, comprehensive version.[469] The more than

---

[461] *Id.*
[462] *Id.*
[463] Pub. L. No. 115–232, 132 Stat. 2208 (codified as amended at 50 U.S.C. §4801 et seq).
[464] RAMOTOWSKI TESTIMONY (June 6, 2018).
[465] STATE DEP'T, BISN INTERVIEW (July 23, 2019).
[466] *Id.*
[467] 2005 GAO MANTIS REPORT at 5.
[468] *Id.* at 5–6.
[469] *U.S. Dep't of State: Tech. Alert List*, BOSTON U. (Aug. 2002), https://www.bu.edu/isso/files/pdf/tal.pdf; *Tech. Alert List – Info. for Scholars/Students*, CARNEGIE MELLON U., https://www.cmu.edu/oie/foreign-students/docs/tal-students.pdf.

60-page document provides 16 categories of technologies that State considers sensitive, including for example nuclear and missile technologies.[470] The TAL also contains additional instructions on how to evaluate visa applicants and an FAQ for consular officers.[471] The TAL, however, does not contain entities of concern or any references to foreign talent recruitment plans.[472]

The Subcommittee identified some shortcomings in Consular Affairs' process for reviewing a visa applicant according to the TAL. For example, State officials told the Subcommittee that a consular officer would have a copy of the TAL available while interviewing the applicant. As the process is not automated, consular officers search the TAL manually.[473] Some consular officers even refer to printed copies of the TAL during interviews.[474] State officials indicated that while there are not concrete plans to automate the process of reviewing visa applicants for concerns related to export controlled technology, there are ongoing discussions within Consular Affairs to determine if automation would be more efficient.[475]

5. Chinese Visa Applicants Comprise a Majority of Visa Mantis Reviews, But Are Rarely Denied

State classified the specific number of visa applicants that receive a Visa Mantis review. In 2005, however, the last time State publicly released data regarding State's Mantis program, the GAO found that "China and Russia account for roughly 76 percent of all Visa Mantis cases."[476] The Subcommittee learned that Chinese visa applicants also continue to comprise a majority of Visa Mantis reviews in 2019.[477] State rarely denies visa applicants after the review. A Subcommittee survey of Visa Mantis reviews showed that State denied less than five percent of reviewed Chinese visa applicants.[478]

The Subcommittee asked State to provide case examples of Visa Mantis files related to visa applicants with connections to China's talent recruitment plans, including the TTP.[479] State could not provide any of the requested files. State wrote that it was "unable to provide specific examples of applicants involved in China's talent recruitment plans, as [State] does not systematically track this

---

[470] State Dep't briefing with the Subcommittee (Sept. 24, 2019).
[471] *Id.*
[472] *Id.*
[473] STATE DEP'T, BISN INTERVIEW (July 23, 2019).
[474] *Id.*
[475] *Id.*
[476] 2005 GAO MANTIS REPORT at 16.
[477] U.S. Dep't of State letter to the Subcommittee (July 21, 2019) (documents on file with Subcommittee).
[478] *Id.*
[479] Subcommittee letter to U.S. Dep't of State (July 31, 2019).

information."[480] Instead, State provided 20 classified case examples—unrelated to talent recruitment plans—of denied Chinese visa applicants to demonstrate State's review process.[481]

6. Ongoing Criminal Prosecution Highlights Problems with State's Lack of Scrutiny of Research Scholar Visas

A recent indictment from the Southern District of New York shows that Chinese government officials are aware of State's weakness in screening certain types of visas, particularly student and researcher scholar visas. On September 17, 2019, a complaint was unsealed, detailing an alleged Chinese government conspiracy to commit visa fraud.[482] Zhongshan Liu, a Chinese citizen, was charged in connection with "his involvement in a conspiracy to fraudulently obtain U.S. visas for Chinese government employees."[483] As alleged in the complaint, "Liu conspired to obtain research scholar visas fraudulently for people whose actual purpose was not research but recruitment" of scientists and researchers.[484] Liu allegedly provided assistance in obtaining visas for individuals claiming to be research scholars, but in reality his assignment was to recruit for China's talent recruitment plans.[485]

According to the complaint, Liu operated the New York office of the China Association for International Exchange of Personnel ("CAIEP-NY").[486] CAIEP-NY is a Chinese government agency that, among other things, recruits scientists, academics, engineers and other experts in the United States to work in China.[487] Liu worked with other Chinese government employees in the United States, including at Chinese consulates, to fraudulently procure J-1 Research Scholar visas for a CAIEP-NY employee and a prospective CAIEP-NY employee.[488] In addition, Liu attempted to assist a CAIEP-NY hire to obtain a J-1 research scholar visa

---

[480] U.S. Dep't of State letter to the Subcommittee (Sept. 19, 2019) (unclassified cover letter when separated from classified enclosures).
[481] U.S. Dep't of State production to the Subcommittee (Sept. 19, 2019) (classified S//NF).
[482] Press Release, U.S. Dept. of Justice, Chinese Government Employee Charged in Manhattan Federal Court with Participating in Conspiracy to Fraudulently Obtain U.S. Visas (Sept. 16, 2019) (https://www.justice.gov/opa/pr/chinese-government-employee-charged-manhattan-federal-court-participating-conspiracy).
[483] *Id.*
[484] *Id.*
[485] *Id.*
[486] *See* LIU COMPLAINT at 6 (Sept. 13, 2019).
[487] Press Release, U.S. Dept. of Justice, Chinese Government Employee Charged in Manhattan Federal Court with Participating in Conspiracy to Fraudulently Obtain U.S. Visas (Sept. 16, 2019) (https://www.justice.gov/opa/pr/chinese-government-employee-charged-manhattan-federal-court-participating-conspiracy).
[488] The J-1 Research Scholar visa program permits foreign nationals to come to the United States for the primary purpose of conducting research at a corporate research facility, museum, library, university or other research institution. LIU COMPLAINT at 11 (Sept. 13, 2019).

under false pretenses.[489] Liu contacted multiple U.S. universities to try to arrange for a university to invite the CAIEP-NY hire to come as a J-1 Research Scholar.[490] Liu was in communication with an individual affiliated with a U.S. university who explained that it would "be very easy for us to give him/her a J-1 [visa]."[491]

---

[489] Press Release, U.S. Dept. of Justice, Chinese Government Employee Charged in Manhattan Federal Court with Participating in Conspiracy to Fraudulently Obtain U.S. Visas (Sept. 16, 2019) (https://www.justice.gov/opa/pr/chinese-government-employee-charged-manhattan-federal-court-participating-conspiracy).

[490] *Id.*

[491] LIU COMPLAINT at 15 (Sept. 13, 2019).

E. THE DEPARTMENT OF COMMERCE

The Department of Commerce's ("Commerce") mission is to create "the conditions for economic growth and opportunity."[492] Commerce has offices in every state and territory and more than 86 countries worldwide.[493] Commerce consists of multiple operating units, including the National Oceanic and Atmospheric Administration, International Trade Administration, Bureau of Economic Analysis, National Institute of Standards and Technology, United States Patent and Trademark Office, and the Bureau of Industry and Security ("BIS").[494]

Commerce relies on BIS to advance "U.S. national security, foreign policy, and economic objectives by ensuring an effective export control and treaty compliance system, and by promoting continued U.S. leadership in strategic technologies."[495] BIS conducts industrial base assessments of defense-related technologies and also "administers export controls of dual-use items which have both military and commercial applications."[496]

To work with controlled dual-use technology in the United States, foreign nationals and the firms that employ or sponsor them must comply with U.S. export controls and visa regulations. Commerce, through an interagency review process, is responsible for issuing deemed export licenses to firms that employ or host foreign nationals seeking to work on controlled technology projects.[497] A Subcommittee review of those license applications found that Commerce issued deemed licenses to Chinese nationals who participated in talent recruitment plans and were affiliated with other concerning entities, including some now on Commerce's Entity List.[498]

---

[492] *History,* U.S. DEP'T OF COMMERCE (2019), https://www.commerce.gov/about/history; *Strategic Plan 2018–2022,* U.S. DEP'T OF COMMERCE, 2 (Oct. 7, 2017), https://www.commerce.gov/sites/default/files/us_department_of_commerce_2018-2022_strategic_plan.pdf.

[493] *Strategic Plan 2018–2022,* U.S. Dep't of Commerce, 2 (Oct. 7, 2017), https://www.commerce.gov/sites/default/files/us_department_of_commerce_2018-2022_strategic_plan.pdf.

[494] *Organizational Chart Final,* U.S. Dep't of Commerce (2015), https://www.commerce.gov/sites/default/files/media/files/2015/docorgchartfinal.pdf.

[495] *Budget in Brief Fiscal Year 2019*, U.S. DEP'T OF COMMERCE, 47 (2019), http://www.osec.doc.gov/bmi/budget/FY19BIB/FinalBiBFY2019.pdf.

[496] U.S. GOV'T ACCOUNTABILITY OFF., GAO-19-516, DEFENSE SUPPLIER BASE: CHALLENGES AND POL'Y CONSIDERATIONS REGARDING OFFSHORING AND FOREIGN INVESTMENT RISKS, 7 (Sept. 2019), https://www.gao.gov/assets/710/701170.pdf.

[497] U.S. GOV'T ACCOUNTABILITY OFF., GAO-02-972, EXPORT CONTROLS: DEPARTMENT OF COM. CONTROLS OVER TRANSFERS OF TECHNOLOGY TO FOREIGN NATI'LS NEED IMPROVEMENT, 2 (Sept. 6, 2002), https://www.gao.gov/products/GAO-02-972.

[498] *Lists of Parties of Concern,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY (2019), https://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern. ("The Entity List identifies foreign parties that are prohibited from receiving some or all items subject to the EAR unless the exporter secures a license. These parties present a greater risk of diversion to weapons of

1. Deemed Export Licensing

BIS is charged with administering the Export Administration Regulations which impose licensing requirements on the export of items that are controlled for national security and foreign policy reasons.[499] The Regulations' export control provisions serve the national security, foreign policy, and other interests of the United States by restricting access to items by countries or persons that might use such items in a way hostile to U.S. interests.[500] According to the GAO's 2002 review of BIS licensing standards:

> Under U.S. export control regulations, a firm is required to seek a deemed export license if the export of the technology to the foreign national's country of citizenship would require a license. If a license is required, the exporter must submit a license application to Commerce identifying the technology, the reason it is controlled, the proposed destination, and the intended end user. In the case of deemed export license applications, firms must also provide the foreign national's resume, visa type, and a list of his or her publications.[501]

The Regulations obligate U.S. individuals and corporations to apply for and receive a license from the U.S. government before releasing to foreign-individuals and employees in the United States certain types of technology.[502] This obligation is commonly known as the "deemed export rule," as releases of controlled technology to foreign individuals in the U.S. are "deemed" to be an export to that person's country.[503]

Organizations that commonly use deemed export licenses include high-tech research and development institutions, bio-chemical firms, and the medical and computer sectors.[504] Individuals with legal permanent residence status or U.S.

---

mass destruction (WMD) programs, terrorism, or other activities contrary to U.S. national security and/or foreign policy interests. By publicly listing such parties, the Entity List is an important tool to prevent unauthorized trade in items subject to the EAR.").

[499] *Fact Sheet for Revised Form I-129,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY, 1 (Feb. 18, 2011), https://www.bis.doc.gov/index.php/documents/deemed-exports/101-dhs-non-immigrant-form-i-129/file.

[500] CONG. RESEARCH SERV., R41916, THE U.S. EXPORT CONTROL SYSTEM AND THE EXPORT CONTROL REFORM INITIATIVE, 3 (Apr. 5, 2019), https://fas.org/sgp/crs/natsec/R41916.pdf.

[501] U.S. GOV'T ACCOUNTABILITY OFF., GAO-02-972, EXPORT CONTROLS: DEPARTMENT OF COM. CONTROLS OVER TRANSFERS OF TECH. TO FOREIGN NAT'LS NEED IMPROVEMENT, 6 (Sept. 6, 2002), https://www.gao.gov/products/GAO-02-972.

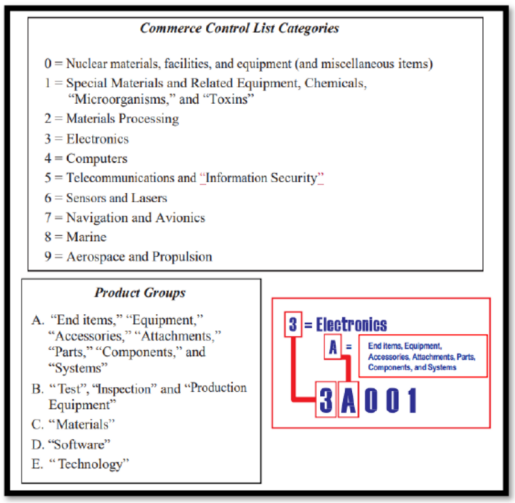
[502] *Fact Sheet for Revised Form I-129,* U.S. DEP'T OF COMMERCE, BUREAU OF INDUS. AND SECURITY , 1 (Feb. 18, 2011), https://www.bis.doc.gov/index.php/documents/deemed-exports/101-dhs-non-immigrant-form-i-129/file.

[503] *Id.*

[504] *Deemed Exports,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY (2019), https://www.bis.doc.gov/index.php/policy-guidance/deemed-exports.

citizenship and persons granted status as "protected individuals" are exempt from the deemed export rule.[505] A deemed export license is only required for release of controlled technology or software to a foreign individual if a license would be required for the export of such items to the individual's country of origin.[506]

A deemed export license is required if an export license is needed to export technology described under an Export Control Classification Number listed on the Commerce Control List and if the foreign national' country of most recent citizenship or affiliation would require an export control license.[507] An Export Control Classification Number describes the item that is exported and indicates licensing requirements.[508] The Commerce Control List consists of ten broad categories with each subdivided into five product groups, as shown in the example below.[509]



---

[505] *Id.*

[506] *Guidelines for Preparing Export License Applications Involving Foreign Nationals,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY, 1 (2018), https://www.bis.doc.gov/index.php/documents/deemed-exports/709-guidelines-for-foreign-national-license-applications/file.

[507] *Commerce Control List,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY (2019), https://www.bis.doc.gov/index.php/regulations/commerce-control-list-ccl.

[508] *Id.*

[509] *Id. See also Introduction to Commerce Department Export Controls,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY, 3, https://www.bis.doc.gov/index.php/documents/regulations-docs/142-eccn-pdf/file.

If an item under Commerce's jurisdiction is not listed on the Commerce Control list—typically low-technology consumer goods—it generally does not require a license.[510] If the item is being shipped to an embargoed country, to an end user of concern, or in support of a prohibited end use, an export license may still be required.[511] Commerce does not regulate all goods, services, and technologies being exported; other federal agencies have export control responsibilities for regulating exports that are more specialized.[512]

To be granted a deemed export license, an employer must fill out an application requiring the disclosure of the following three items:

(1) how the controlled technology will be used by the foreign individual;

(2) the immigration status of the foreign individual; and

(3) a resume including personal background, educational and vocational background, employment history, military service, and optionally special information the applicant believes the BIS should take into account when reviewing the application.[513]

Commerce and other reviewing agencies use this information to determine the risk that the technology could be diverted for unauthorized uses or unauthorized users.[514] Commerce, under Executive Order 12981, conducts the review of license applications with the Departments of Defense, State, and Energy.[515] Commerce also may request information or input from other federal agencies, including the FBI, but the Executive Order nor the Export Control Reform Act, grants the FBI specific authority or responsibility in this process.[516] Commerce's intelligence analysts review open source, classified, and law enforcement databases when reviewing license applications.[517]

---

[510] *Commerce Control List,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY (2019), https://www.bis.doc.gov/index.php/regulations/commerce-control-list-ccl.
[511] *Id.*
[512] *Frequently Asked Questions to Export Licensing Requirements,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY, 2, https://www.bis.doc.gov/index.php/documents/pdfs/286-licensing-faq/file. *See also* CONG. RESEARCH SERV., R41916, THE U.S. EXPORT CONTROL SYSTEM AND THE EXPORT CONTROL REFORM INITIATIVE, 3 (Apr. 5, 2019), https://fas.org/sgp/crs/natsec/R41916.pdf.
[513] *Guidelines for Preparing Export License Applications Involving Foreign Nationals,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY, 1 (2018), https://www.bis.doc.gov/index.php/documents/deemed-exports/709-guidelines-for-foreign-national-license-applications/file.
[514] *Id.*
[515] Dep't of Commerce briefing with the Subcommittee (Sept. 20, 2019).
[516] *Id.*
[517] *Id.*

2. A Majority of Deemed Export Licenses are for Chinese Nationals

Since 2013, Commerce has processed 7,777 deemed export license applications.[518] More than 52 percent of all deemed license applications were for Chinese nationals during that time.[519] "In 2018, 3,102 companies submitted a total of 34,851 license applications, including deemed exports."[520] "1,101 companies applied for only one license, 506 companies applied for two licenses and 937 companies applied for three to nine licenses."[521] In 2018, applications for Chinese nationals accounted for approximately 35 percent of approved applications, as shown below.[522]

Top 15 Countries of Origin for Deemed Export Licenses
2013-2018
Approved

Country of Origin	Top ECCN 2018	2013	2014	2015	2016	2017	2018	Country Approvals/ Total Applications 2018
China	3E001	852	633	697	799	771	350	34.8%
Iran	5E002	162	162	172	224	267	184	18.3%
India	3E001	67	29	108	50	79	77	7.6%
Mexico	9E610	2	9	15	18	20	31	3.1%
United Kingdom	3E611	0	11	24	28	25	20	2.0%
Japan	9E002	26	0	13	8	21	16	1.6%
Syria	5E002	6	8	15	20	16	14	1.4%
Armenia	3E001	2	1	0	2	8	12	1.2%
France	9E610	1	4	12	16	9	12	1.2%
Vietnam	3E001	16	6	14	19	15	9	0.9%
Russia Federation	3E001	39	43	52	85	44	9	0.9%
Germany	0E606	0	2	13	8	6	9	0.9%
Taiwan	3E001	1	2	2	2	2	8	0.8%
Finland	0E982	0	0	1	0	0	7	0.7%
Brazil	0E606	2	2	13	3	9	6	0.6%
Total applications		1,325	1,063	1,381	1,476	1,525	1,007	

Source: Commerce U.S. Exports Exporter Support System, retrieved on March 5, 2019

Note: 1. Ranking is based on 2018 data.
2. All previously reported numbers are subject to revision based on changes in the source data on the retrieving date.

---

[518] *Deemed Export Licenses,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY (Mar. 5, 2019), https://www.bis.doc.gov/index.php/documents/technology-evaluation/ote-data-portal/licensing-analysis/2410-2018-statistical-analysis-of-bis-licensing-pdf/file.
[519] *Id.*
[520] *Statistics of 2018 BIS License Authorization,* U.S. DEP'T OF COM., BUREAU OF INDUS. AND SECURITY, https://www.bis.doc.gov/index.php/documents/technology-evaluation/ote-data-portal/licensing-analysis/2453-2018-statistical-analysis-of-bis-licensing-pdf-1/file.
[521] *Id.*
[522] *Id.*

3. Commerce Rarely Denies License Applications

Commerce rarely denies deemed export license applications. As shown below, Commerce's denial rate in 2018 was 1.1 percent.[523] Commerce also told the Subcommittee that it has not revoked a deemed export license in the past five years, despite the recent listing of new entities on Commerce's Entity List.[524]

Deemed Export Licenses Processed by BIS
2013-2018

	2013	2014	2015	2016	2017	2018	% Change from 2017
Approved	1,245	964	1,268	1,377	1,394	846	-39.3%
Rejected	13	18	18	13	24	11	-54.2%
RWA*	67	81	95	86	107	150	40.2%
Total	1,325	1,063	1,381	1,476	1,525	1,007	-34.0%

RWA: Return without action

Source: Commerce U.S. Exports Exporter Support System, retrieved on March 5, 2019

Note: All previously reported numbers are subject to revision based on changes in the source data on the retrieving date.

4. Commerce Issued Deemed Export Licenses for Chinese Nationals Linked to Talent Recruitment Plans and Other Concerning Entities

The Subcommittee examined nearly 2,000 deemed export license applications for Chinese nationals that Commerce issued over the past three years. Following an interagency review, Commerce issued deemed export licenses to Chinese foreign nationals linked to talent recruitment plans and other concerning entities, including Huawei and Chinese universities with connections to the Chinese military. Most of the issued licenses allow "foreign nationals from countries of concern to work with advanced computer, electronic, or telecommunication and information security technologies."[525]

---

[523] *Id.*

[524] Email from Dep't of Commerce Legis. Aff. to the Subcommittee (Aug. 5, 2019) (on file with Subcommittee).

[525] Note, however, that not "all domestic transfers of controlled technology to foreign nationals require a license. For example, certain types of dual-use technology and software may be provided to foreign nationals from India, Pakistan, and Israel without a license." U.S. GOV'T ACCOUNTABILITY OFF., GAO-02-972, EXPORT CONTROLS: DEP'T OF COM. CONTROLS OVER TRANSFERS OF TECHNOLOGY TO FOREIGN NATIONALS NEED IMPROVEMENT, 2 (Sept. 6, 2002),

Talent Recruitment Plans. Commerce issued at least 20 licenses to Chinese nationals associated with various Chinese talent recruitment plans.[526] A sample of these license applications follow below.

- In 2017, a U.S. company applied for a Chinese national to work on digital cellular radio equipment. According to the application, the nature of the work would allow the foreign national access to controlled technology and capabilities of various products in development by the U.S. company. That same foreign national previously worked on at least two research projects concerning video-based, real-time object tracking supported by two talent recruitment plans.[527]

- In 2016, a U.S. company applied for a Chinese national to work on controlled and proprietary wireless technology. That same individual published a research paper in 2016 on wireless technology that was funded, in part, by a talent recruitment plan.[528]

- In 2016, a U.S company applied for a Chinese national to work on controlled cellular technology. That same individual published a research paper on similar technology funded by a talent plan.[529]

China's National Defense Universities. Commerce issued licenses to individuals associated with one of the seven Chinese universities, known as the "Seven Sons" that are under "direct supervision" by China's Military Commission.[530] Two of these universities, Beihang University and Northwest Polytechnical University, are currently on Commerce's Entity List.[531] The other five institutions, Beijing Institute of Technology, Harbin Institute of Technology, Harbin Institute Engineering University, Nanjing University of Aeronautics and Astronautics, and Nanjing University of Science and Technology, are not on Commerce's Entity List as of this report.[532] Commerce granted more than 150 licenses to Chinese nationals linked to one of the seven defense universities.[533] A sample of these license applications follow below.

---

[526] Production from the Dep't of Commerce (June 17, 2019).
[527] *Id.*
[528] *Id.*
[529] *Id.*
[530] C4ADS, OPEN ARMS: EVALUATING GLOBAL EXPOSURE TO CHINA'S DEFENSE INDUS. BASE, 21 (Sept. 26, 2019), https://static1.squarespace.com/static/566ef8b4d8af107232d5358a/t/5d95fb48a0bfc672d825e346/1570110297719/Open+Arms.pdf; PEIJIE WANG, CHINA'S GOVERNANCE: ACROSS VERTICAL AND HORIZONTAL CONNEXIONS, 54 (2017).
[531] *Lists of Parties of Concern,* U.S. DEP'T OF COMMERCE, BUREAU OF INDUSTRY AND SECURITY, (2019), https://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern.
[532] *Id.*
[533] Production from the Dep't of Commerce (June 17, 2019).

- In 2018, a U.S. company applied for a Chinese national to access semiconductor technology and converter integrated circuits. That same individual received a Bachelor's of Electronic Information Engineering from Beihang University.[534]

- In 2017, a U.S. company applied for a Chinese national to work as a packaging engineer, providing packaging design, development, and support for semiconductor technology. That same individual received a Bachelor's in Optical Information Science and Technology and a Masters in Optics from the Northwestern Polytechnical University.[535]

Huawei. According to information reviewed by the Subcommittee, Commerce issued at least 65 licenses to Chinese nationals who previously worked for or were supported by Huawei. Huawei is on Commerce's Entity List as of this report. A sample of these license applications follow below.

- In 2018, a U.S. company applied for a Chinese national to work on systems for telecommunications carriers, cable providers, and data center customers. This individual previously worked at Huawei as a software engineer.[536]

- In 2017, a U.S. company applied for a Chinse national that previously worked on machine learning and embedded software for Huawei and also graduated from Harbin Institute of Technology with a bachelor's degree in engineering.[537]

The Chinese Academy of Sciences ("CAS"). CAS has been referred to as the "backbone" of the Chinese innovation system. According to the U.S.-China Economic and Security Review Commission, CAS has a research staff of 50,000 and "employs much of China's best scientific and engineering talent and has an extensive system of roughly 100 research institutes and laboratories."[538] The U.S. Department of Defense also found that CAS is the:

> [H]ighest academic institution for comprehensive R&D in the natural and applied sciences in China and reports directly to the State Council

---

[534] *Id.*
[535] *Id.*
[536] *Id.*
[537] *Id.*
[538] SECURITY COMMISSION REPORT at 18 (Jan. 2011).

in an advisory capacity, with *much of its work contributing to products for military use*.[539]

According to information reviewed by the Subcommittee, Commerce, after an interagency review, issued more than 60 licenses to Chinese nationals associated with CAS. A sample of these license applications follow below.

- In 2018, a U.S. company applied for a Chinese national to work on microelectronics fabrication intended for semiconductor technology. That same individual received a Master's in Electrical Engineering from the Institute of Microelectronics at CAS.[540]

- In 2017, a U.S. company applied for a Chinese national to have access to semiconductor technology for the development and production of integrated circuits. That same individual received a Masters of Electronics and Communication Engineering from the Institute of Semiconductors at CAS.[541]

---

[539] U.S. DEP'T OF DEFENSE, ANNUAL REP. TO CONGRESS: MILITARY AND SECURITY DEVELOPMENTS INVOLVING THE PEOPLE'S REPUBLIC OF CHINA 2019, 97–98 (May 2, 2019), https://media.defense.gov/2019/May/02/2002127082/-1//1/2019_CHINA_MILITARY_POWER_REPORT.pdf (emphasis added); WAYNE M. MORRISON, CONG. RES. SERV., IF10964, THE MADE IN CHINA 2025 INITIATIVE: ECON. IMPLICATIONS FOR THE UNITED STATES, (Apr. 12, 2019), https://www.crs.gov/Reports/IF10964?source=search&guid=404a7bd0aad54011bda40bb9f7d1880e&index=1. China's State Council is "the highest Chinese executive organ of state power."

[540] Production from the Dep't of Commerce (June 17, 2019).

[541] *Id.*

F. THE FEDERAL BUREAU OF INVESTIGATION

The FBI is a federal law enforcement agency that operates under the Department of Justice's jurisdiction. The FBI employs 35,000 people, including special agents, intelligence analysts, language specialists, scientists, and information technology specialists at its headquarters in Washington D.C. and 56 field offices.[542] The FBI has broad law enforcement responsibilities, including protecting and defending the United States against terrorist attacks, foreign intelligence threats and espionage, cyber-based attacks and high-technology crimes.[543] The FBI also informs the public and state and local law enforcement agencies of potential crimes and vulnerabilities to criminal organizations. Specifically, the FBI is charged with working with state and local law enforcement "to address crime problems common to federal/state/local agencies" and providing "timely and relevant criminal justice information and identification services concerning individuals, stolen property, criminal organizations and activities, crime statistics, and other law enforcement related data" to "FBI qualified law enforcement, criminal justice, civilian, academic, employment, licensing, and firearms sales organizations."[544]

The FBI has been slow to respond to threats posed by Chinese talent recruitment plans. Despite the Chinese government's public announcements in 2008 of its intent to recruit overseas researchers with access to cutting-edge research and absorb, assimilate, and re-innovate technologies, the FBI did not identify Chinese talent recruitment plans as a "threat vector" until 2015.[545] In a 2018 FBI document, the Bureau acknowledged that the U.S. government "was slow to recognize the threat of the Chinese Talent Plans, but that has changed in recent years."[546] The FBI also took nearly two years to make a coordinated dissemination of information identifying potential talent recruitment plan participants to federal grant-making agencies. This delay may have deprived those agencies and inspectors general additional opportunities to identify talent recruitment plan members who engaged in crimes, unethical grant practices, or unauthorized technology transfers. Finally, while the FBI is making progress towards creating a unified messaging strategy to U.S. research institutions, it still lacks a coordinated national outreach program to address these issues.

---

[542] *Missions and Priorities,* FED. BUREAU OF INVESTIGATION, https://www.fbi.gov/about/mission.
[543] *Id.*
[544] *Organization, Mission and Functions Manual: Federal Bureau of Investigation,* DEP'T OF JUSTICE, (2014), https://www.justice.gov/jmd/organization-mission-and-functions-manual-federal-bureau-investigation.
[545] Fed. Bureau of Investigation production, 16 (Oct. 12, 2018).
[546] *Id.*

1. The FBI was Slow to Recognize the Threat

In 2008, the Chinese government announced its plan to recruit top overseas-researchers and to eventually bring their talents and expertise to China to benefit the government. Despite China's public declaration of its intentions, the FBI took nearly ten years to recognize that Chinese government talent programs posed a threat to the U.S. academic community and federal research grants. In 2015, the FBI "identified the Chinese Talent Plans as a known vector of the non-traditional threat."[547] It was not until mid-2018, however, that FBI headquarters in Washington, D.C. took control of the FBI's response to the threat.[548]

An early and significant FBI criminal investigation of a TTP member resulted in a guilty plea in December 2016. A team of FBI special agents in the Connecticut field office arrested Dr. Long Yu, a Chinese citizen and U.S. legal permanent resident, in November 2014 for attempting to take hundreds of gigabytes of export-controlled, proprietary information to China.[549] These materials included design information for the F-22 and JSF-35 military jet engines.[550] In court documents, Dr. Long confirmed he used his knowledge of U.S. technology to apply for multiple Chinese talent plans, and he did so while employed by a U.S. defense contractor.[551]

As part of his applications, Dr. Long corresponded with Chinese government researchers and described how he would use his future position to benefit Chinese government research.[552] Dr. Long described the ways he would leverage his knowledge of U.S. technologies and manufacturing processes to benefit China, saying, "These unique working experiences have provided me a great starting point to perform R&D and further spin off business in China. I believe my efforts will help China to mature its own aircraft engines."[553] In December 2016, Dr. Long pleaded guilty to conspiracy to commit economic espionage and attempted export of defense articles.[554] During the course of the Dr. Long investigation, FBI special agents who were working the case concluded that Dr. Long's illegal activity was not an isolated incident of a talent recruitment plan member's illegal behavior.

A 2018 FBI PowerPoint presentation titled, "Talent Plan Education Package Briefing," recognized that the U.S. "government has identified the Talent Plans as an avenue of illicit technology transfer."[555] That same presentation also stated that

---

[547] *Id.*
[548] Fed. Bureau of Investigation briefing with the Subcommittee (Sept. 12, 2019).
[549] Documents on file with the Subcommittee (Oct. 12, 2018).
[550] *Id.*
[551] *Id.*
[552] *Id*
[553] *Id.*
[554] *Id.*
[555] Fed. Bureau of Investigation production, 16 (Oct. 12, 2018).

the "[t]he U.S. government was slow to recognize the threat of the Chinese Talent Plans, but that has changed in recent years."[556] The FBI's slow response to Chinese recruitment operations through the TTP and other talent recruitment plans provided the Chinese government the opportunity to recruit U.S.-based researchers and scientists. Though Chinese government statistics on the number of TTP members in China are sparse, a state-run media outlet lauded China for recruiting more than 6,000 TTP members by 2016, including 70 Nobel Prize laureates and academicians from the United States and Europe.[557] A U.S. media report showed a year later that the number of TTP members had further increased to over 7,000.[558]

2. The FBI Took Nearly Two Years to Disseminate Talent Recruitment Plan Information to Federal Grant-Making Agencies

The FBI received information concerning members of the TTP and other talent recruitment plans in 2016.[559] The FBI took nearly two years to coordinate a dissemination of that information to federal grant-making agencies.[560]

[redacted]

This

[556] *Id.*
[557] *National Talent Base Statistics Show Our Country Speeding Toward Becoming a 'Talent Country'*, XINHUA (Aug. 29, 2017), http://www.xinhuanet.com//politics/2017-08/29/c_1121565760.htm; Su Zhou, *Returnees finding big opportunities*, CHINA DAILY (Feb. 25, 2017), http://www.chinadaily.com.cn/china/2017-02/25/content_28345785.htm.
[558] Hepeng Jia, *China's plan to recruit talented researchers*, NATURE (Jan. 17, 2018), https://www.nature.com/articles/d41586-018-00538-z.
[559] Fed. Bureau of Investigation production (Oct. 4, 2019) (on file with the Subcommittee). The following information is redacted as the FBI classified it as "Law Enforcement Sensitive."
[560] *Id.*
[561] *Id.*
[562] *Id.*
[563] *Id.*
[564] *Id.*
[565] *Id.*

delay may have deprived the NIH, the Department of Energy, and the NSF and their respective inspectors general from effectively identifying talent recruitment plan members that engaged in illegal or unethical grant practices using taxpayer dollars and preventing any unauthorized technology transfers.

3. The FBI Disbanded its National Security Higher Education Advisory Board

The FBI disbanded its National Security Higher Education Advisory Board ("NSHEAB") designed to facilitate security cooperation with the U.S. higher education community in 2018.[566] The FBI created the NSHEAB in 2005 to better understand "the unique culture, traditions, and practices of higher education, including the culture of openness and academic freedom and the importance of international collaboration" and to serve as an "ongoing dialogue about national security issues between higher education institutions, the FBI, and other federal agencies."[567] The NSHEAB met quarterly from 2005 until 2014 and included approximately 20 representatives from leading institutes of higher learning and research.[568]

According to the FBI, because participation in the NSHEAB waned in 2014, the FBI ceased holding NSHEAB meetings, despite the growing threat of foreign talent plans such as the TTP.[569] After a four year hiatus, the FBI sent a letter in February 2018 to NSHEAB members informing them of the decision to disband the NSHEAB. The FBI told NSHEAB members that the FBI's Office of the Private Sector would reevaluate "mutually-beneficial academic engagement opportunities" and would potentially initiate "new advisory groups to partner with the FBI."[570]

The FBI's decision to disband its forum for discussing national security issues with the U.S. academic community came one week after FBI Director Wray's Senate Select Intelligence Committee testimony highlighted the Chinese threat to the U.S. academic community. During his February 13, 2018 testimony, Director Wray stated:

> [T]he use of nontraditional collectors, especially in the academic setting, whether it's professors, scientists, students, we see in almost every field office that the FBI has around the country. It's not just in major cities. It's in small ones as well. It's across basically every discipline. I think

---

[566] Fed. Bureau of Investigation Email to the Subcommittee (Sept. 27, 2019).
[567] Press Release, Fed. Bureau of Investigation, National Security Higher Education Advisory Board Confirms Seven New Members (Oct. 3, 2007), https://archives.fbi.gov/archives/news/pressrel/press-releases/national-security-higher-education-advisory-board-confirms-seven-new-members.
[568] Fed. Bureau of Investigation briefing with the Subcommittee (Oct. 4, 2019; 11:00 A.M.); Fed. Bureau of Investigation briefing with the Subcommittee (Oct. 4, 2019; 12:00 P.M.)
[569] Fed. Bureau of Investigation Email to the Subcommittee (Sept. 27, 2019).
[570] *Id.*

> the level of naiveté on the part of the academic sector about this creates its own issues. They're exploiting the very open research and development environment that we have, which we all revere, but they're taking advantage of it.[571]

Shortly after the FBI dissolved the NSHEAB, ACE, the Association of American Universities, the Association of Public and Land-Grant Universities, and the Council on Government Relations publicly criticized the FBI's decision. In a joint statement submitted during an April 11, 2018 house hearing on foreign plots targeting America's research, ACE and the other associations noted that the disbandment came "at a time when the very types of discussions the Board enabled between the university community and federal security agencies could be especially valuable."[572]

The FBI has defended its decision to disband the NSHEAB, stating that it was "no longer the most practical medium for sharing threat information and engaging academia."[573] Instead, the FBI created the Office of Private Sector ("OPS") in 2014 as it recognized the need for more resources, coordination, and engagement with the private sector.[574] The OPS was supposed to reflect the FBI's desire to remain "ahead of the threat through leadership, agility, and integration."[575] The FBI now designates "at least one Private Sector Coordinator in every FBI field office focused on engagement with the private sector, to include academia."[576] The OPS also has full-time personnel, including a Supervisory Special Agent, a senior Management and Program Analyst, and administrative contractor support, who are "solely committed to academia outreach and coordination."[577] Notably, the FBI's OPS did not have a dedicated outreach team for U.S. universities until July 2019.[578] The OPS then began collaborating with the three largest academia associations—ACE, Association of American Universities,

---

[571] *Worldwide Threats: Hearing Before the S. Select Comm. on Intelligence*, 115th Cong. (2018) (testimony of Christopher Wray, Director, Fed. Bureau of Investigation).
[572] Joint Statement of the American Council on Education, Association of American Universities, Association of Public and Land-grant Universities and the Council on Governmental Relations to the Subcommittees on Oversight and Research & Technology, Committee on Science, Space, and Technology, Hearing: *Scholars or Spies: Foreign Plots Targeting America's Research and Development* (Apr. 11, 2018), https://www.aau.edu/sites/default/files/AAU-Files/Key-Issues/Science-Security/Higher-Ed-Assn-Statement-April-11-2018-House-SST-Cmte-Hearing.pdf
[573] *Id.*
[574] Fed. Bureau of Investigation Email to the Subcommittee (Sept. 27, 2019).
[575] DARREN E. TROMBLAY, INFO. TECH. & INNOVATION FOUND., PROTECTING PARTNERS OR PRESERVING FIEFDOMS? HOW TO REFORM COUNTERINTELLIGENCE OUTREACH TO INDUSTRY, 10 (Oct. 2017), http://www2.itif.org/2017-counterintelligence-outreach-industry.pdf?_ga=2.214257303.1084333806.1572981056-1186362390.1572981056.
[576] Fed. Bureau of Investigation Email to the Subcommittee (Sept. 27, 2019).
[577] *Id.*
[578] Fed. Bureau of Investigation briefing with the Subcommittee (Oct. 31, 2019).

and Association of Public and Land-Grant Universities—on issues of mutual concern.[579]

The FBI told the Subcommittee that OPS provides support to FBI field offices to hold regional academia conferences with universities and "hosts an annual Academia Summit at FBI Headquarters with university executives, science funding agencies (such as NIH and NSF), academia associations, and other government agencies in attendance."[580] To better understand the FBI's engagement with the higher education community, the Subcommittee requested on two occasions to attend the annual Academia Summit. The FBI declined the Subcommittee's requests, but offered to brief the Subcommittee after the summit.[581]

4. The FBI Continues to Lack a Coordinated National Outreach Program on the Threat from Talent Recruitment Plans

The FBI has delivered mixed messages to the U.S. higher education community concerning how to respond to threats posed by foreign talent recruitment plans. More than a dozen U.S. universities and higher education advocacy groups told the Subcommittee that the Bureau's outreach efforts were inconsistent and lacked specificity. The FBI is making progress towards a unified strategy, but still lacks a coordinated national outreach program to address these issues.

The Subcommittee met with more than a dozen U.S. universities and higher education advocacy groups to discuss research security as well as the Bureau's outreach efforts.[582] The responses varied, but in nearly all cases, the U.S. higher institutions expressed the need to have more specific information about the threat that Chinese talent recruitment plans pose.[583] This included specific requests for case examples or talent recruitment plan contracts that could provide more detail about the loss of intellectual capital and property or violations of federal grant terms and conditions.[584] University officials also described the FBI's outreach on

---

[579] Fed. Bureau of Investigation Email to the Subcommittee (Sept. 27, 2019).
[580] *Id.*
[581] Fed. Bureau of Investigation Email to the Subcommittee (Sept. 30, 2019).
[582] Briefing with the Subcommittee (Oct. 31, 2019); Briefing with the Subcommittee (Oct. 30, 2019); Briefing with the Subcommittee (Oct. 24, 2019); Briefing with the Subcommittee (Oct. 17, 2019); Briefing with the Subcommittee (Oct. 10, 2019); Briefing with the Subcommittee (Oct. 7, 2019); Briefing with the Subcommittee (Oct. 4, 2019; 11:00 A.M.); Briefing with the Subcommittee (Oct. 4, 2019; 12:00 P.M.); Briefing with the Subcommittee (Oct. 1, 2019); Briefing with the Subcommittee (Sept. 19, 2019); Briefing with the Subcommittee (July 17, 2019); Briefing with the Subcommittee (June 13, 2019); Briefing with the Subcommittee (May 18, 2019); Briefing with the Subcommittee (Apr. 24, 2019).
[583] *Id.*
[584] *Id.*

the threat that China poses as "haphazard" or a "mixed bag."[585] These criticisms were meant to be constructive as many U.S. universities officials also indicated that they maintained productive relationships with the local FBI field office.[586] This included coordinating with the FBI on threats such as campus security.[587]

University officials' criticism of FBI outreach on foreign talent recruitment plans is well-founded. For example, in one case, the FBI provided a university a list of suspected TTP members without explaining what next steps the university should take to protect itself.[588] At least one university president wrote in a public opinion piece that he interpreted the FBI's outreach as inappropriate direction to "spy" on "foreign-born students."[589] Several other universities felt compelled to issue public letters to their university communities to clarify that their communities remain "open to people from all over the world."[590]

Despite OPS forming a team specifically to explain risks to the U.S. higher education community earlier this year, the FBI continues to lack a coordinated national outreach program on these issues. Prior to 2019, special agents needing information before briefing or interacting with higher education institutions in their area of responsibility would contact FBI headquarters to receive briefing

---

[585] Briefing with the Subcommittee (Oct. 30, 2019); Briefing with the Subcommittee (Oct. 4, 2019; 11:00 A.M.); Briefing with the Subcommittee (Oct. 31, 2019); Briefing with the Subcommittee (Oct. 7, 2019); Briefing with the Subcommittee (June 13, 2019).

[586] Briefing with the Subcommittee (Oct. 7, 2019); Briefing with the Subcommittee (Oct. 4, 2019; 11:00 A.M.); Briefing with the Subcommittee (Oct. 4, 2019; 12:00 P.M.); Briefing with the Subcommittee (Oct. 1, 2019); Briefing with the Subcommittee (Sept. 19, 2019); Briefing with the Subcommittee (July 17, 2019); Briefing with the Subcommittee (June 13, 2019); Briefing with the Subcommittee (May 18, 2019); Briefing with the Subcommittee (Apr. 24, 2019).

[587] *Id.*

[588] Briefing with the Subcommittee (June 13, 2019).

[589] Lee C. Bollinger, *No, I Won't Start Spying on my Foreign-Born Students,* WASH. POST (Aug. 20, 2019), https://www.washingtonpost.com/opinions/no-i-wont-start-spying-on-my-foreign-born-students/2019/08/29/01c80e84-c9b2-11e9-a1fe-ca46e8d573c0_story.html.

[590] Carol Christ, *Campus & Community: Reaffirming our Support for Berkeley's International Community*, U.C. BERKELEY (Feb. 21, 2019), https://news.berkeley.edu/2019/02/21/reaffirming-our-support-for-berkeleys-international-community; Peter Salovey, *Office of the President: Yale's Steadfast Commitment to our International students and Scholars,* YALE U. (May 23, 2019), https://president.yale.edu/yale-s-steadfast-commitment-our-international-students-and-scholars. L. Rafael Reif, *Letter to the MIT community: Immigration is a Kind of Oxygen,* MIT NEWS (June 25, 2019), http://news.mit.edu/2019/letter-community-immigration-is-oxygen-0625#.XROIF2_3H7A.twitter; Patrick Gallagher, *Office of the Chancellor: In Support of Global Education*, U. OF PITT. (2019), https://www.chancellor.pitt.edu/spotlight/support-global-education; Farnam Jahanian, *Leadership: The Importance of Being an Open, Global and Secure Research University*, CARNEGIE MELLON U. (Aug. 15, 2019), https://www.cmu.edu/leadership/president/campus-comms/2019/2019-08-15.html; Ronald J. Daniels, Sunil Kumar & Paul B. Rothman, *Office of the President: Supporting our international scholars and students*, JOHNS HOPKINS U. (July 9, 2019), https://president.jhu.edu/meet-president-daniels/speeches-articles-and-media/supporting-our-international-scholars-and-students.

information or talking points on a case-by-case basis.[591] The FBI maintained presentation materials on the broader risks associated with Chinese economic espionage, but not specifically talent recruitment plans.[592] In January 2019, OPS created a publicly available document titled "China: The Risk to Academia" to increase the information sharing by FBI special agents meeting with higher education institutions.[593] OPS and FBI counterintelligence are currently working on a standard PowerPoint presentation concerning China's economic espionage efforts, including talent recruitment plans, to better coordinate messaging across its 56 field offices.[594]

[591] Fed. Bureau of Investigation with the Subcommittee (Oct. 31, 2019).
[592] *Id.*
[593] *Id.*
[594] *Id.*

G. THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY

The White House Office of Science and Technology Policy ("OSTP"), established in 1976 in the Executive Office of the President, advises "the President of scientific and technological considerations involved in areas of national concern" and serves "as a source of scientific, engineering, and technological analysis and judgement for the President with respect to major policy, plans, and programs of the Federal Government."[595] OSTP also facilitates and directs interagency science and technology efforts, policy coordination, and safety coordination.[596]

Currently, OSTP is in the midst of a policy review to take a coordinated approach to adopt best practices across the federal government to mitigate foreign exploitation of "the U.S. open innovation system."[597] This review is to develop a "longer-term strategy for balancing engagement and risk without stifling innovation."[598] The U.S. government's vast and varied array of grant-making agencies complicates this policy review. As of today, federal agencies are providing the academic community with varied messages on the appropriate response to foreign exploitation.

1. The National Science and Technology Council

OSTP's National Science and Technology Council ("NSTC") seeks to "coordinate the science and technology policy-making process."[599] NSTC is chaired by the President, and "upon his direction, the Assistant to the President for Science and Technology may convene meetings of the council."[600] Additionally, NSTC may utilize "established or ad hoc committees, task forces, or interagency groups."[601] The NSTC is comprised of "the Vice President, Cabinet Secretaries and Agency Heads with significant science and technology responsibilities, and other White House officials."[602] NSTC manages six primary committees: (1) Science and Technology (S&T) Enterprise; (2) Environment; (3) Homeland and National Security; (4) Science; (5) STEM Education; and (6) Technology.[603] In addition, NSTC operates two special committees: the Joint Committee on the Research

---

[595] National Science and Technology Policy, Organization, and Priorities Act of 1976, Pub. L. No. 94-282, Title II, §§ 205–06, 90 Stat. 464 (1976) (codified as amended in scattered sections of 42 U.S.C.).
[596] *Office of Science and Technology Policy*, WHITE HOUSE, www.whitehouse.gov/ostp/.
[597] Off. of Sci. and Tech. Pol'y briefing with the Subcommittee (July 29, 2019).
[598] *Id.*
[599] Exec. Order No. 12,881, 58 Fed. Reg. 62,491 (Nov. 26, 1993).
[600] *Id.*
[601] *Id.*
[602] *Office of Science and Technology Policy: NSTC*, WHITE HOUSE, https://www.whitehouse.gov/ostp/nstc/.
[603] *Id.*

Environment and the Select Committee on Artificial Intelligence.[604] Each committee oversees various subcommittees and working groups.[605]

2. Joint Committee on the Research Environment

In May 2019, NSTC launched the Joint Committee on the Research Environment ("JCORE") to "coordinate interagency work related to improving the safety, integrity, and productivity of research settings."[606] JCORE is co-chaired by representatives from OSTP, the NSF, the NIH, the Department of Energy, and the National Institute of Standards and Technology.[607] JCORE aims to take an integrative approach to improve "the collective safety, integrity, productivity, and security of [the] nation's multi-sector research environment."[608] To further these efforts, JCORE maintains four subcommittees in the following areas: (1) Coordinating Administrative Requirements for Research; (2) Rigor & Integrity; (3) Research Security; and (4) Safe and Inclusive Research Environments.[609] Each subcommittee is comprised of approximately two dozen leaders across numerous federal science, foreign affairs, and security agencies.[610]

First, the Subcommittee on Coordinating Administrative Requirements for Research ("CARR") works to fulfill statutory requirements and the needs of the research community.[611] CARR's aim is to create significant reductions in administrative work and costs in the research community[612] and is working to simplify grant application requirements.[613] CARR also has planned initiatives to consult with the research community when developing next steps and share Research Business Model efforts with the research community.[614]

---

[604] *Id.*
[605] *Id.*
[606] *Id.*
[607] *Id.*
[608] NAT'L SCI. & TECH. COUNCIL, JOINT COMMITTEE ON THE RES. ENV'T, SUMMARY OF THE 2019 WHITE HOUSE SUMMIT OF THE JOINT COMMITTEE ON THE RESEARCH ENVIRONMENT (JCORE) (2019), https://www.aau.edu/sites/default/files/AAU-Files/Key-Issues/Science-Security/Summary-of-JCORE-Summit-November-2019.pdf.
[609] *See Office of Science and Technology Policy: NSTC*, WHITE HOUSE, https://www.whitehouse.gov/ostp/nstc/.
[610] Letter from Kelvin Droegemeier, Director, Exec. Off. of the President, Off. of Sci. and Tech. Pol'y, to the United States Res. Community (Sept. 16, 2019), https://www.whitehouse.gov/wp-content/uploads/2019/09/OSTP-letter-to-the-US-research-community-september-2019.pdf.
[611] Off. of Sci. and Tech. Pol'y briefing with the Subcommittee (July 29, 2019).
[612] WHITE HOUSE: OFF. OF SCI. AND TECH. POL'Y, UPDATE FROM THE NATIONAL SCIENCE AND TECHNOLOGY COUNCIL JOINT COMMITTEE ON RESEARCH ENVIRONMENTS (July 9, 2019), https://www.whitehouse.gov/wp-content/uploads/2019/07/Update-from-the-NSTC-Joint-Committee-on-Research-Environments-July-2019.pdf.
[613] Off. of Sci. and Tech. Pol'y briefing with the Subcommittee (July 29, 2019).
[614] WHITE HOUSE: OFF. OF SCI. AND TECH. POL'Y, UPDATE FROM THE NATIONAL SCIENCE AND TECHNOLOGY COUNCIL JOINT COMMITTEE ON RESEARCH ENVIRONMENTS, 3 (July 9, 2019),

Second, the Subcommittee on Rigor and Integrity of Research ("Rigor and Integrity") "seeks to address concerns over institutional incentives and systemic practices that undermine rigor and integrity."[615] Rigor and Integrity has identified areas across federal agencies to promote baseline policies and hopes to work with stakeholders in the research community to disseminate the recommendations and best practices.[616] Rigor and Integrity will identify policies, practices, and incentives that do not reward rigor, and create best practices and trainings to address the issues.[617] Rigor and Integrity hopes to maximize federally funded Research and Development investments.[618]

Third, the Subcommittee on Research Security ("Research Security") aims to "protect America's researchers from undue foreign influence without compromising our values or our ability to maintain the openness and integrity of our innovation ecosystem."[619] In other words, Research Security seeks to balance the need for open research environments while at the same time protecting national assets. During a recent congressional hearing, the director of OSTP noted the benefit of collaborative and open research but emphasized the risks faced in the absence of protocols.[620] Additionally, he stressed that the subcommittee's goal is to generate best practices that do not place cumbersome burdens on institutions, but rather establish effective and efficient standards.[621]

Research Security also collaborates with private and public partners on four key areas:

- Coordinating outreach and engagement with research partners to help understand and demonstrate the challenges;
- Establishing and coordinating disclosure requirements for participation in the federally funded research enterprise;
- Developing best practices for academic research institutions; and

---

https://www.whitehouse.gov/wp-content/uploads/2019/07/Update-from-the-NSTC-Joint-Committee-on-Research-Environments-July-2019.pdf.

[615] *Id.*

[616] *Id.* at 3.

[617] Off. of Sci. and Tech. Pol'y briefing with the Subcommittee (July 29, 2019).

[618] *Id.*

[619] WHITE HOUSE: OFF. OF SCI. AND TECH. POL'Y, UPDATE FROM THE NATIONAL SCIENCE AND TECHNOLOGY COUNCIL JOINT COMMITTEE ON RESEARCH ENVIRONMENTS, 3 (July 9, 2019), https://www.whitehouse.gov/wp-content/uploads/2019/07/Update-from-the-NSTC-Joint-Committee-on-Research-Environments-July-2019.pdf.

[620] *Budget and Oversight: Hearing on White House Office of Science and Technology Policy Before the Subcomm. on House Subcomm. on Commerce, Justice, Sci., and Related Agencies of the H. Comm. On Appropriations*, 116th Cong. (July 24, 2019) (testimony of Kelvin Droegemeier, Director, White House Office of Science and Technology Policy).

[621] *Id.*

- Developing methods for identification, assessment, and management of risk.[622]

Research Security expects to provide best practices to funding agencies and academia on topics like conflicts of interest, vetting responsibilities, and enforcement mechanisms.[623] Additionally, Research Security is working with federal grant-making agencies to standardize grant terms, conditions, forms, and language—a process OSTP plans to complete by early 2020.[624]

Fourth, the Subcommittee on Safe and Inclusive Research Environments ("Safe and Inclusive") "is the primary coordinating body for Federal agencies to share practices, challenges, and activities to combat harassment of all types in the research environment."[625] Safe and Inclusive will focus on polices which help to recruit and retain diverse researchers.[626]

3. Inconsistent Federal Grant Policies and Outreach Efforts Complicate OSTP's Ability to Respond to Foreign Talent Recruitment Plans

While JCORE's goal is to make federal grant proposals as harmonized and standardized as possible, federal grant-making agencies' policies and processes currently differ in several key ways.[627] These differences complicate the grant process for applicants, stifle U.S. law enforcement's ability to investigate grant crimes, and frustrate the federal government's ability comprehensively understand grant spending.

One key problem is different disclosure requirements concerning foreign support across the government. For example, current NSF conflict of interest and conflict of commitment reporting does not require investigators to disclose in-kind support or any activities outside a principal investigator's institutional

---

[622] Letter from Kelvin Droegemeier, Director, Exec. Off. of the President, Off. of Sci. and Tech. Pol'y, to the United States Res. Community (Sept. 16, 2019), https://www.whitehouse.gov/wp-content/uploads/2019/09/OSTP-letter-to-the-US-research-community-september-2019.pdf.
[623] *Id.*
[624] *Id.*
[625] WHITE HOUSE: OFF. OF SCI. AND TECH. POL'Y, UPDATE FROM THE NATIONAL SCIENCE AND TECHNOLOGY COUNCIL JOINT COMMITTEE ON RESEARCH ENVIRONMENTS, 3 (July 9, 2019), https://www.whitehouse.gov/wp-content/uploads/2019/07/Update-from-the-NSTC-Joint-Committee-on-Research-Environments-July-2019.pdf.
[626] *Id.*
[627] *See Budget and Oversight: Hearing on White House Office of Science and Technology Policy Before the Subcomm. on House Subcomm. on Commerce, Justice, Sci., and Related Agencies of the H. Comm. On Appropriations*, 116th Cong. (July 24, 2019) (testimony of Kelvin Droegemeier, Director, White House Office of Science and Technology Policy).

appointment.[628] On the other hand, NIH "requires reporting of all sources of research support, financial interests, and affiliations."[629]

Another policy difference concerns the permissibility of participation in foreign talent recruitment programs. The new Energy policy restricts participation in talent recruitment programs by all Energy employees and Energy contractor employees.[630] NSF's policy makes it clear that NSF personnel detailed to NSF cannot participate in foreign government talent recruitment programs, but the policy does not extend to principal investigators.[631] And NIH does not have a policy specifically concerning foreign government talent recruitment programs at all.[632]

U.S. university officials told the Subcommittee that they have received letters from federal grant-making agencies detailing new obligations regarding talent recruitment plans, but the agencies all have their own approach, and there is a lack of coordination.[633] One U.S. higher education organization told the Subcommittee "the messaging from federal agencies that foreign talent programs are a concern is consistent, but federal agency efforts are dissimilar."[634] Other university officials told the Subcommittee that their institution "is not sure what to do with the information on Chinese foreign talent programs provided" by the FBI.[635] Another U.S. school told the Subcommittee that there is concern in the academic community "that an entire group [Chinese-Americans and Chinese students and faculty] is being painted with a broad brush" and is "under attack."[636]

OSTP acknowledged there has not been a clear message on university administrative responsibilities, noting that JCORE plans to coordinate outreach and engagement with federal agencies, academic research institutions, companies, non-governmental organizations, researchers, and students.[637] JCORE also will focus on best practices to combat harassment of all types in the research

---

[628] *See* NAT'L SCI. FOUND., NSF-20-1, PROPOSED CHANGES TO THE PROPOSAL AND AWARD POLICIES AND PROCEDURES GUIDE, II-23 (May 29, 2019).
[629] HHS IG REPORT: FCOIS (Sept. 2019).
[630] *See* U.S. DEP'T OF ENERGY, DOE O 486.1, FOREIGN GOV'T TALENT RECRUITMENT PROGRAMS (June. 7, 2019), https://www.directives.doe.gov/directives-documents/400-series/0486-1-order/@@images/file.
[631] *See* NAT'L SCI. FOUND., PERSONNEL POLICY ON FOREIGN GOVERNMENT TALENT RECRUITMENT PROGRAMS (July 11, 2019), https://www.nsf.gov/bfa/dias/policy/researchprotection/PersonnelPolicyForeignGovTalentRecruitment%20Programs07_11_2019.pdf.
[632] Nat'l Inst. of Health briefing with the Subcommittee (Oct. 3, 2019).
[633] Briefing with the Subcommittee (Oct. 7, 2019); Briefing with the Subcommittee (Oct. 4, 2019; 11:00 A.M.); Briefing with the Subcommittee (Oct. 4, 2019; 12:00 P.M.); Briefing with the Subcommittee (Oct. 1, 2019); Briefing with the Subcommittee (Sept. 19, 2019); Briefing with the Subcommittee (Sept. 17, 2019); Briefing with the Subcommittee (July 17, 2019); Briefing with the Subcommittee (June 13, 2019); Briefing with the Subcommittee (May 18, 2019); Briefing with the Subcommittee (Apr. 24, 2019).
[634] Briefing with the Subcommittee (Sept. 19, 2019).
[635] Briefing with the Subcommittee (Sept. 17, 2019).
[636] Briefing with the Subcommittee (Sept. 19, 2019).
[637] Off. of Sci. and Tech. Pol'y briefing with the Subcommittee (July 29, 2019).

environment and support recruiting and retaining diverse researchers.[638] During the next few months, OSTP announced it will be "holding meetings at academic institutions across the Nation to converse with researchers and students on matters of research security and other topics within JCORE."[639]

[638] *Id.*

[639] Letter from Kelvin Droegemeier, Director, Exec. Off. of the President, Off. of Sci. and Tech. Pol'y, to the United States Res. Community (Sept. 16, 2019), https://www.whitehouse.gov/wp-content/uploads/2019/09/OSTP-letter-to-the-US-research-community-september-2019.pdf.

APPENDIX A

CHINA'S TALENT RECRUITMENT PLAN CONTRACTS

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS

UNITED STATES SENATE

《岗位职责和工作任务书》

Post Responsibilities and Work Duties Agreement

Party A: Wuhan University
Unit: School of Information Management
Legal representative: [redacted]
Address: Wuhan University Postal code: 430072

Party B (name): [redacted]
Sex: Male
Date of birth: [redacted]
ID number / passport number: [redacted]
Address: School of Information Management, Wuhan University
Email: [redacted]@gmail.com

Duration of Agreement: [redacted]
Appointment expiration: [redacted]

As required by the needs in the field of information management, as well as the school and research institutions demand for professors (Thousand Talents Program), Party B shall perform the following duties and tasks:

(1) Job Responsibilities

1. Conscientiously implement the national education policy and provide educational services in accordance with national laws and regulations and university rules and professional ethics.
2. Strive to continuously improve teaching methods, create new teaching content, and provide proper education in undergraduate and graduate courses.
3. Actively seek to host provincial and ministerial and above research projects addressing the country's strategic needs and international cutting-edge science.
4. Be an expert in the field, follow developments, develop original theoretical and practical research, and seek to obtain landmark results.
5. Actively participate in the department's work.
6. Actively provide local government theoretical and technical advice and support.

(2) Work Tasks

1. Teaching Work
   1) On average, teach one graduate course per year.

2) On average, advise two undergraduate students and recruit three graduate students each year.
3) Each year the work time shall be not less than two months.

2. Research Work
   1) Seek to create two provincial-level research projects, among them one national-level project. The funds received shall not be less than the matching funds provided by the school.
   2) Publish at least 12 papers in mainstream international journals in the relevant discipline during the term of the Agreement (meaning as the author or lead completion work unit of SCI Region 2 and above papers)

3. Team Building and International Exchanges
   1) Assist in introducing the research institution to core domestic and international talent, helping to build a high-level research team; or participate in an existing team; or build flexible project-based teams.
   2) Participate in at least four international academic conferences, public papers in at least three international conferences, attempt to have three papers read (lectured on?) at international conferences.
   3) Continuously improve academic work and influence, strengthen domestic and international connections and exchanges, and serve in positions such as judge, reviewer, and expert in domestic and international research groups.

4. Social Work
   1) Actively participate in and complete the social construction work organized by the school and research institution (subject level and fundamental evaluation, review and reporting).
   2) Actively participate in relevant public welfare activities organized by the university and research institute.
   3) Participate in student activities organized by the research institute, advise students in extracurricular activities, or actively participate in political and ideological education of the students, and complete other student advising and counseling as directed.
   4) Complete other work as directed by the institute.

(3) Assignment Working Conditions
   1. Work Conditions
      1) Party A shall provide Party B with research start-up funds of 2 million RMB, disbursed in accordance with the annual usage plan [budget]. Party B shall use the funds within the three years from the commencement of the contract, with unspent funds returned to Party A.

2) Party A's post-appointment unit will provide Party B with two lab and office rooms.
3) During the first appointment period, Party A will provide Party B with a list of doctoral and graduate students and focus on recruiting 1-2 post-doctoral students each year. Depending on actual needs, Party B's post-appointment work unit may set the graduate student admissions standards based on Party B's requests.

2. Benefits
1) Give a monthly stipend of 10,000 RMB in the form of a talent special region allowance. Provide international travel expenses to Wuhan University two times per year. Provide housing at Wuhan University.
2) Awards are given according to actual high-level achievements, calculated according to the "Interim Measures for Wuhan University High Level Research Awards."
3) Party A will provide Party B with a housing subsidy of 500,000 RMB. Party B may receive 30% of this subsidy in a one-time disbursal, with the remainder 70% paid out over eight years. If Party B transfers out of or is released from the teaching appointment during the term of this Agreement, Party B will return the housing subsidy.

[redacted]

中山大學 人类病毒学研究所
Institute of Human Virology, SYSU

September 30, 2015

[redacted]
[redacted] Pennsylvania [redacted]
United States of America

Dear [redacted]

On behalf of the Institute of Human Virology in Sun Yat-sen University, I am writing to confirm the terms of your engagement by our institution. The goal of this engagement is to obtain your assistance in building a new program in immunology that will advance our institutional capabilities in basic medical science. The following paragraphs describe key elements of the engagement.

1. You will be responsible for assisting our institutions in the establishment of a major immunology laboratory that integrates basic and translational medicine, and pharmaceutical science. You will provide expertise to guide us in recruiting and training staff, and supervising research in the laboratory. In conjunction with these activities, we anticipate that you will offer periodic lectures, assist in organizing conferences and scientific exchanges that promote international collaboration, and author publications with scientists here.

2. We anticipate that you will make several trips to China each year during the term of your engagement, but will perform much of your work remotely. We acknowledge that you are and will remain a professor and principle investigator (PI) of [redacted] for a period of time, based upon your appointment contract with [redacted] and that you are subject to [redacted] policies, including those concerning consulting, conflicts of interest and intellectual property. When you are not in China, your laboratory here will be overseen by [redacted].

3. We recognize that your research in China will relate closely to your ongoing work at [redacted] and that it may be difficult to avoid comingling the results of your work. As a consequence, [redacted] will own your interest in all discoveries or inventions, whether

中山大學 人类病毒学研究所
Institute of Human Virology, SYSU

or not patentable, that you may make in the course of your research at [redacted] or at our institutions. This agreement does not give our institutions any right to inventions that are owned solely by [redacted] However, should Chinese scientists contribute to your discoveries in China, as we anticipate, [redacted] and our institutions will jointly own, protect and manage the commercialization of these jointly-made discoveries.

4. Based on your strong scientific record, we expect that you will author publications based on your work in China. You will have the right to publish the results of your research in China without restriction. In any publication describing research that was primarily conducted in China, you will list our institution as your primary, and [redacted] as your secondary, site of academic appointment. Authorship on publications will follow the guidelines established by the International Committee of Medical Journal Editors (ICMJE).

5. Your engagement will continue for a term of five (5) years. However, either you or we may terminate the engagement for any reason by giving sixty (60) days advance notice.

If these terms accurately reflect your understanding of this engagement, please co-sign this letter as indicated below. Again, we look forward with great anticipation to your work with us and are confident that we will build a successful research program together during the years to come.

Sincerely yours,

[redacted]

Zhongshan School of Medicine
Sun Yat-sen University
74 Zhongshan 2nd Road
Guangzhou, China 510080

Read and Agreed To: [redacted] 09/30/2015

[redacted] Date:

中国广州市中山二路 74 号医学科技综合楼北 [redacted] 邮编：510080 电话/Tel：[redacted] 传真/Fax：[redacted]

CONTRACT OF EMPLOYMENT

Printed by
State Administration of Foreign Experts Affairs, P. R. China
(Photocopy not Accepted)

CONTRACT OF EMPLOYMENT

Employer (Party A)

Name of the Employer: Tsinghua University

Legal Representative: [redacted]

Agent ad litem: [redacted]

Address: Medical sciences building, Tsinghua University, Beijing 100084

Tel: [redacted]

Fax: [redacted]

Employed Foreign Experts or Professionals (Party B)

Name: [redacted]

Sex: [redacted]

Date of Birth: [redacted]

Nationality: [redacted]

ID Number: [redacted]

Overseas Address: [redacted]

Tel:

Fax:

1. Both parties, in line with the principles of legality, fairness, equality, mutual agreement, honesty, and trustworthiness, on a

voluntary basis, and in a spirit of friendly cooperation, agree to sign this contract and pledge to fulfill all the obligations stipulated hereinafter.

II. The term of this contract shall be from June 1, 2014 to May 31, 2017, with the first month set as probation period.

III. Tasks assigned to Party B (see the appendix).

IV. ~~Party B's monthly salary shall be RMB~~ Party B's annual salary shall be RMB 800, ~~(before tax)~~ (before tax), of which 50 % can be converted into foreign currency on a monthly basis. Please see the appendix for terms and conditions on other remunerations and benefits concerned.

V. Party A's Obligations:

1. Party A shall inform Party B of relevant laws and regulations of the People's Republic of China as well as any institutions and administrative stipulations concerned with Party B's employment as herein provided.
2. Party A shall conduct regular supervision, inspection and review of Party B's working performance.
3. Party A shall provide Party B with necessary working and living conditions.
4. Party A shall deploy fellow staff for Party B for coordination affairs.
5. Party A shall pay Party B's salary as scheduled.

VI. Party B's Obligations:

1. Party B shall observe relevant laws and regulations of the People's Republic of China and shall not interfere in China's internal affairs.
2. Party B shall observe any institutions and administrative stipulations concerned with its employment, and shall be subject to Party A's arrangements, supervision, inspection and review of his/her working performance. Without Party A's consent, Party B shall not conduct any part-time job assigned by any other party.
3. Party B shall fulfill the tasks assigned to him/her with high standards within the prescribed timeframe.
4. Party B shall respect China's religious policies, and shall not conduct any religious activities incompatible with his/her status as a foreign expert.
5. Party B shall respect Chinese people's ethics and customs.

VII. Revision, Cancellation and Termination of the Contract: Both parties shall abide by the contract and shall refrain from revising, canceling or terminating the contract without mutual consent.

1. Revision of the contract. This contract can be revised with mutual consent. Before both parties have reached an agreement, the contract shall be strictly observed.
2. Cancellation of the contract. This contract can be canceled with mutual consent. Before both parties have reached an agreement, the contract shall be strictly observed.

(1) Under the following conditions, Party A shall have the right to inform Party B in writing of the cancellation of this contract:

a. Party B fails to fulfill this contract or the obligations and agreed conditions as herein stipulated, and fails to amend his/her actions after Party A has pointed it out;

b. On the basis of the physician's diagnosis, Party B fails to resume normal work after a sick leave for a period of successive 30 days.

(2) Party B has the right to inform Party A in writing of the cancellation of this contract under the following conditions:

a. Party A fails to provide Party B with necessary working and living conditions as stipulated in this contract;

b. Party A fails to pay Party B as scheduled.

(3) In case either party asks to terminate this contract, it shall give a 30 day notice to the other party in writing, and the contract shall only be terminated after 30 days.

(4) This contract can be terminated upon mutual agreement by both parties.

3. Termination of the contract.

(1) This contract shall be terminated once it expires.

(2) This contract may be terminated with the mutual consent of both parties, and it shall be strictly observed until both parties reach an agreement otherwise.

VIII. Breach Penalty

When either party fails to fulfill any part or all of the obligations as stipulated in this contract, that is, in the event of breach of the

contract, the said party shall pay a breach penalty of US$ 800 to 3000 or equivalent to 3 to10 times Party B's monthly salary in RMB. If both parties consider it necessary to determine an exact sum of the breach penalty, or to determine a breach penalty higher or lower than the above-mentioned amount, it shall be explicated in the appendix of this contract.

When Party B claims to cancel this contract due to force majeure, it shall produce certifying documents issued by competent authorities; after the contract is cancelled with Party A's consent, Party B shall bear the traveling expenses thus incurred; and when Party B fails to provide any valid reason to cancel this contract, it shall bear the traveling expenses thus incurred and pay the breach penalty to Party A as stipulated in this contract.

When Party A claims to cancel this contract due to force majeure, and the contract is thus cancelled with Party B consent, it shall bear Party B's traveling expenses thus incurred; and when Party A fails to provide any valid reason to cancel this contract, it shall bear the traveling expenses thus incurred to Party B and pay the breach penalty to Party B as stipulated in this contract.

IX. The appendix of this contract forms an indispensable part of this contract and shall have the same legal effect with the text of this contract.

X. This contract shall take effect upon being signed by both parties and shall be automatically terminated upon expiration. When either party requires signing a renewed contract, it shall forward

its request to the other party 30 days prior to the expiration of this contract, and both parties shall sign the new contract through consultations and mutual consent.
Upon the expiration of this contract, Party B shall bear all the expenses incurred during his own stay in China.

XI. Settlement to Dispute
Any dispute in connection with this contract shall be first shall settled between both parties concerned through friendly consultation. In case no settlement can be reached through consultations or intermediation, both parties shall submit the said dispute for arbitration with local personnel committee or the local labor arbitration system. In case either party refuses to accept the arbitration award, it may bring an action before the people's court.
This contract is signed by both parties at Fujian (location) on this 20th, 6, 15 (date). It is contracts in duplicate, each in both Chinese and English version and both shall take effect upon being signed at the same time.

Party A:
(Signature)

Party B:

Appendix:

Contract 1

Work Permit No.: _____

Tsinghua University
TENURE CONTRACT

Party A's authorized unit: School of Medicine

Party B: [redacted]

Prepared by the Human Resources Department of Tsinghua University

Contract 1

INSTRUCTIONS

1. Fill out this contract with a fountain pen. Write legibly and concisely.
2. This contract may not be altered after signing.
3. When there is not enough space, pages may be added.

Contract 1

PARTY A: Tsinghua University
Party A's authorized unit: School of Medicine

PARTY B (Tenured) [redacted]
Tel.: [redacted]
Identity card/passport no.:
Nationality/Registered household address: [redacted]

To ensure Party A's work is carried out as normal and its tasks are completed smoothly, as well as to protect Party B's legitimate rights and interest, both parties hereby enter into this contract after reaching consensus through equal discussion.

1) Contract type and term

1. This tenure contract is a fixed-term as well as open-ended contract.
2. All provisions herein are applicable to the first-term tenure contract and the contracts for subsequent terms.

2) Party A's obligations

3. Provide Party B an annual salary of RMB 800,000, which is paid by both the State and the University. For payment method, see Appendix "Remuneration Agreement" of this contract.
4. Provide a scientific research launch fund of RMB 10,000,000. This scientific research launch fund shall be managed according to Party A's Project 985 Fund Management Measures.
5. Set up a research team. Assign 1 assistant from the School (Department, Center) and hire 0 assistant through Party A's recruitment procedure.
6. Allow Party B to recruit 2 PhD students per year for three consecutive years.
7. Provide one apartment for the period Party B is working at Party A.
8. A laboratory shall be provided by the School (Department, Center).
9. An office shall be provided by the School (Department, Center).

3) Party B's obligations

10. As an academic leader in physiology, Party B shall carry out work related to [redacted] at Party A to achieve world's leading standard.
11. Party B guarantees that:
    - ☐ Party B shall work at Party A for no less than ____ month(s) per year from _____ (month/year) to _____ (month/year).
    - ☐ Starting in June 2014, Party B shall work at Party A full-time and may not take on any substantive part-time work in other organizations or institutions.
12. During the tenure period, Party B shall complete the teaching and scientific research tasks specified by Party A and continuously seek academic progress to obtain world's leading academic achievements. Party B shall abide by laws and disciplinary rules as well as the code of conduct for teaching staff and Party A's rules and regulations.
13. Party B shall act with honesty and integrity and fulfill his or her obligations to protect Party A's intellectual property rights and the secrets specified in the confidentiality regulations (including not disclosing the contents of this contract to unrelated personnel).
14. Party B shall use and manage the fund reasonably strictly according to the State's and Party A's relevant financial rules and regulations. Party B shall agree to be subject to the supervision and guidance of the relevant departments.

4) Contract modification, cancellation, termination, and renewal

15. Where there are changes to the laws, administrative regulations, and rules and regulations based on which this contract is entered into, corresponding modifications shall be made to this contract accordingly.
16. Where this contract can no longer be performed due to significant changes in the objective circumstances based on which it is entered into, with consensus reached between both parties through discussion, corresponding modifications shall be made to this contract accordingly. If both parties are unable to reach consensus on the modification of this contract, either party may cancel the contract and notify the other party in writing thirty (30) days in advance.
17. This contract may be cancelled with consensus reached between both parties through discussion.
18. This contract terminates automatically:
    (1) upon expiration;
    (2) when Party B reaches retirement age; or
    (3) when Party B dies or is declared missing or dead by a people's court.
19. Following termination or cancellation of this contract, Party B shall carry out work handover conscientiously, return the office equipment, and calculate and return to Party A the balance of the disbursed scientific research fund that is unused.

5) Liability for breach and economic compensation

20. Party A and Party B shall bear liability for breach of contract when they violate any of the provisions herein.
21. In the event Party A breaches this contract, Party A's authorized unit shall pay Party B corresponding economic compensation or damages according to relevant State regulations.
22. In the event Party B breaches this contract or Party A's regulations on intellectual property rights, confidentiality, etc., and causes Party A to incur losses, it shall compensate Party A economic losses according to relevant regulations.

6) Others

23. The following provisions are added with consensus reached between Party A and Party B through discussion:
    (1) Party A and Party B shall keep the contents of this contract confidential. Neither party may disclose the contents to unrelated parties without consent from the other party.
    (2)
    (3)
24. This contract is prepared in triplicate. Party A's authorized unit, Party B, and the University's human resources department shall hold one copy each.

Contract 1

TENURE CONTRACT TERM

The first-term contract is a fixed-term contract.

The tenure is from _____, 2014, to ☐ January 31 ☑ July 31, 2017.

Tenure position: Tenure Professor

Party A's authorized unit (Seal)
Person-in-charge (Signature)
[Seal] *School of Medicine, Tsinghua University*
[Signature] [redacted]

Party B (Signature) [redacted]

Date: April 1, 2014

Date: April 1, 2014

Tsinghua University Human Resources Department (Seal)
[Seal] *Human Resources Department, Tsinghua University*

Date: _____

TENURE CONTRACT TERM

The _____-term contract is a fixed-term contract.

The tenure is from _____, _____, to (January 31, July 31), _____.

Tenure position: _____

Party A's authorized unit (Seal)
Person-in-charge (Signature)

Party B (Signature)

Date: _____

Date: _____

Tsinghua University Human Resources Department (Seal)

Date: _____

TENURE CONTRACT TERM

The _____-term contract is an open-ended contract.

Tenure position: _____

Party A's authorized unit (Seal)
Person-in-charge (Signature)

Party B (Signature)

Date: _____

Date: _____

Tsinghua University Human Resources Department (Seal)

Date: _____

Contract 2

[redacted]

April 8th, 2016

[redacted]

Dear [redacted]

The ShanghaiTech University (the "University") is pleased to offer you the position of Professor-in-Residence of the Shanghai Institute for Advanced Immunochemical Studies (the "Institute" or the "SIAIS"), ShanghaiTech University, commencing as of the 1st day of June, 2016 for a term to 31st, December, 2018.

You will be entitled to receive a salary of 600,000 RMB per annum. This salary is paid monthly in equal installments after applicable payroll tax deductions.

This offer is contingent on your successful completion of your submission of satisfactory proof of your identity and your legal authorization to work in the People's Republic of China. China's law stipulates that we obtain this information. In addition, as a condition of your employment, you will be required to sign our standard Employment, Confidential Information and Invention Assignment Agreement.

The University maintains an employment-at-will relationship with its employees. You retain your normal right to terminate this employment relationship at any time and for any reason. The University also retains the same right. In the event your employment with the University is terminated prior to the end of the Term for any reason, then concurrent with such termination, you shall be entitled to receive all compensation accrued, but unpaid, up to the date of termination.

Contract 2

We look forward to working with you.

Sincerely,

[redacted]

ShanghaiTech University

Accepted and agreed:

[redacted]

Date: 1/17/18

Contract 2

聘用协议

EMPLOYMENT AGREEMENT

甲方：上海科技大学

Party A ShanghaiTech University

地址 上海市浦东新区华夏中路 393 号

Address: No. 393 Huaxia Middle Road, Shanghai

电话

Tel: [redacted]

乙方（Party B）[redacted]

证件号码（Passport No.）[redacted]

双方本着合法、公平、平等自愿、协商一致、诚实信用的原则和友好合作的精神，自愿签订本协议并保证认真履行协议约定的各项义务。

Both parties, in accordance with the principles of legality, fairness, equality, mutual agreement, honesty, and trustworthiness, on a voluntary basis, and in the spirit of friendly cooperation, agree to sign this agreement and pledge to fulfill all the obligations stipulated hereinafter.

第一条、协议期限

1. 本协议为固定期限劳务合同 有效期限自 2019 年 1 月 1 日至 2024 年 12 月 31 日止（以下简称"本协议"）。

Article 1 Term of Agreement & Extension

The term of this agreement is fixed, which shall commence retrospectively from January 1st, 2019 and end on December 31, 2024 (hereinafter referred to as the "Term"); however either party may terminate this agreement for any reason with 30 days written notice.

第二条、岗位工作内容和目标

1. 乙方同意根据甲方所设科研教学方向 在上海科技大学生命科学与技术学院 担任特聘教授 一职 工作地点在上海科技大学。乙方应承担以下工作目标中所

列的职责以及甲方不时为其指派的其他职责。乙方在此同意将善意地并尽最大努力履行其在该工作岗位上所有可能被合理要求履行地职责，且将按照甲方可能不时给予地合理指示和要求，在任何合理的时间和地点提供服务。乙方应当在协议期内实质性的投入其时间、能力、精力及技能以履行本协议规定的职责。

2. 乙方在协议期内应完成的工作目标：

Article 2 Job Description and Objectives

1. Party B agrees to take the position of **Distinguished Adjunct Professor** according to Party A's research and education plan. The location of Party B is at **ShanghaiTech University**. Party B shall assume the responsibilities and duties as set forth in the Job Objectives (as below) as well as any other tasks assigned by Party A and agreed by party B from time to time. Party B hereby agrees to make the best efforts to perform all the responsibilities and duties that may be reasonably required for the position that Party B undertakes in good faith, and work at any reasonable time and place under reasonable directions and requirements that may be given by Party A and agreed by Party B from time to time. Party B shall substantially invest his/ her time, ability, energy, and skills to perform the responsibilities and duties provided in this agreement during the Term.

2. Party B's Job Objectives during the Term: To provide periodic advice and guidance concerning research projects in cell biology conducted under the supervision of Associate Professor [redacted] (or his successor) in the School of Life Science. This research will not overlap with [redacted] NIH-funded projects. Advice and guidance to projects at [redacted] will be provided during 2 - 4 visits (up to one week each, including travel time) and on the phone and by email as needed in [redacted] judgement.

第三条、薪酬待遇

1. 年基本薪酬 **税前 75 万元（人民币）** 按月发放。

Contract 2

2. 乙方应当承担所有对其适用的所得税和法律要求的扣减。甲方应当依照相关法律法规的要求替乙方代扣相应的税款。

Article 3 Remuneration

1. Party B will be entitled to receive a base salary of ￥750,000.00 yuan (RMB, pre-tax) per annum, which will be paid monthly.
2. Party B shall be responsible for all the income taxes applicable to him/her and such other deductions as required by Chinese law. Party A shall be responsible for withholding such taxes and deductions for Party B in accordance with the requirement of relevant laws and regulations.

第四条、甲方责任、义务和权利

1. 甲方在本协议期间应当协助乙方依法办理出入境、留居、工作许可等手续。
2. 根据甲方的相关规定 为乙方顺利完成岗位工作目标和任务 提供相应的工作条件，并协助办理其他事宜。

Article 4 The Duties, Obligations and Rights of Party A

1. Party A shall, during the Term of this Agreement, assist Party B in securing permits and approvals required by Chinese law that are necessary for Party B's entry into, exit from, living and working in China.
2. According to the Party A's regulations, Party A shall provide Party B with necessary working conditions and assist with other matters to complete the goals and tasks.

第五条、乙方责任和权利

1. 遵守中国的法律法规。
2. 聘期内，乙方须遵守甲方的工作制度和管理规定 接受甲方工作评估。
3. 乙方在甲方工作期间所取得的教学 科研等成果均属职务成果，其发表有关论文、著作或申报有关奖励、专利和科研项目及经费等 均须同时署乙方本人及甲方名（即必须同时署作者及作者单位，作者第一单位应署上科大名）
4. 乙方为执行甲方及其所属单位任务 或利用甲方及其所属单位物质技术条件完成的发明创造、作品、软件、集成电路布图设计以及其他技术成果等

均属职务技术成果，职务技术成果所有权属于甲方　职务技术成果完成后，除非另有协议约定，相关知识产权的所有权利属于甲方　乙方科研、经营、管理等工作中形成的具有经济价值，不为公众所知悉的技术信息、经营信息等采取保密措施的信息均属于商业秘密　归甲方所有。

Article 5 The Duties and Rights of Party B

1. Party B shall observe laws and regulations of the People's Republic of China.
2. During the Term, Party B shall observe any institutions and administrative stipulations concerned with its employment, and shall be subject to Party A's review of his/her working performance.
3. Any copyrightable or patentable materials, and other related or similar intellectual properties, such as software, prototype, paper, patent and other inventions, which are created or developed by Party B (and collaborators) in the course of work at Party A and during the Agreement period, and shall be applied and publicized in the names of both Party B and Party A (Party A shall be the first author affiliation).
4. To the extent that it is consistent with the policies of Party B's primary employer [redacted] Party A shall have the right to own inventions, works, software, layout-design of integrated circuits and other technological achievements accomplished by Party B in the course of performing the duties, or mainly by using Party A's resources. If Party A has concluded a contract with Party B on the ownership of intellectual property of such kind, such provision shall prevail. Trade secret concerning Party B's work (e.g., actual and proposed terms of research agreements, financial arrangements, or confidential business information) shall be owned by Party A.

第六条、其他

1. 双方应相互协商并友好解决由本协议产生的任何争议。
2. 本协议一式二份，自甲乙双方签字之日起生效　甲方执二份，乙方执一份，具有相同效力。本协议用中英文书写，但中英文文本不一致时，以中文文本为准。

Article 6 Other Items

1. Party A acknowledges that [redacted] is the primary employer of Party B, and that in case of conflict, the policies of [redacted] will prevail. The two parties shall consult with each other and mediate any disputes friendly which may arise about the agreement.
2. The Agreement is in triplicate, and all shall take effect upon being signed at the same time. Party A holds two, Party B holds one, and all have equal legal effect. The Agreement is written in both Chinese and English, but has been modified by Party B in the English text only. Therefore, the English version shall prevail.

Contract 2

甲方 (Party A)

上海科技大学签章

Shanghai Tech University

法定代表人/指定签字人签字:

Authorized signature:

日期 (Date) :

乙方 (Party B)

[redacted]

日期 (Date) : March 31, 2019

Contract 4

National "Thousand Talents Plan" Employment Contract

Final
12/6/13

Party A: Zhejiang University
Address: 866 Yuhangtang Road, Hangzhou
Contact telephone number: [redacted]
Party B: [redacted] Gender: [redacted] Date of birth: [redacted]
Nationality: [redacted] Passport number: [redacted]
Contact address: [redacted]
Contact telephone number: [redacted]
Party C: Medical School (Department)
Contact telephone number: [redacted]

Upon the equal negotiation among the three parties, Party A, Party B, and Party C, the following agreement was reached regarding the employment of Party B to work at Zhejiang University. The specific terms are as follows:

Article 1 Employment period

1. The term of employment is a non-fixed period, from the time when Party B reports to Party A to when the conditions of the statutory rescission or termination of the contract arise. The first stage of the non-fixed-term contract is for 5 years, from January 2014 to December 2018, and Party B shall work at Party A for 9 months or more each year.

2. Party B shall resign from his original position and work for Party A full time by January 2019.

Article 2 Party B's job objectives and tasks

1. The job objectives and tasks that Party B should complete in the first phase of the contract are: leading the development of the school's translational medicine discipline, advancing the building of the discipline and the talent team, undertaking tasks of teaching undergraduate and postgraduate courses and talents training work, and vigorously introducing outstanding talents, improving teaching and research skills, expanding international exchanges and cooperation, enhancing the international influence of the discipline, achieving innovative research results, and promoting the pace of building our university into a first-class university.

2. The job objectives and tasks of Party B's work after the first stage of the non-fixed-term contract shall be separately negotiated and agreed by Party A, Party B, and Party C.

Article 3 Rights and obligations

(1) Rights and obligations of Party A and Party C

1. Assess, evaluate, reward, and punish Party B in accordance with the laws and regulations of the People's Republic of China and the rules and regulations of Party A and Party C.

2. Safeguard the rights that Party B is entitled to in accordance with the law.

3. Provide Party B with the necessary workplace and material and technical conditions for performing his duties.

4. If Party B makes significant achievements during the term of his employment, Party A and Party C actively recommend Party B to apply for various awards.

5. Pay Party B's remuneration package on time.

Contract 4

(2) Rights of Party B

1. Remuneration package: Party A provides Party B with wages of RMB 500,000 yuan/year and allowance of RMB 300,000 yuan/year, in a total of RMB 800,000 yuan/year (this income is pre-tax income, including but not limited to payments to Party B for various social insurance premiums and welfare benefits payable by organizations or individuals as required by the government, such as housing subsidies and medical insurance and, subsidies for the spouse living in China. Other than the one-time subsidy from the central government and the science and technology talent incentive awards provided by the Zhejiang provincial government in accordance with relevant rules, Party A will not pay Party B any additional wages or fees. In accordance with the relevant rules of the state and localities, Party A will pay social insurance premiums such as medical insurance for Party B on time, and the relevant fees shall be withheld and paid by Party A on behalf of Party B) on a monthly basis.

Remuneration payment method: Party B's remuneration will be paid according to the actual hours Party B works at the university. At the end of the 12th month of each appointment year, Party B shall settle the specific amount to be paid for the current year according to the actual working hours of Party B. If payable amount based on Party B's actual hours of work after conversion is less than the amount actually paid by Party A, the excess will be deducted one-time by Party A from Party B's annual salary in the following year or Party B will make a one-time refund to Party A.

After the first phase of the contract, Party B's remuneration package and payment method will be negotiated and agreed upon in accordance with the relevant documents.

In addition, after Party B comes to work at the university, Party B will enjoy a one-time subsidy from the central government and the provincial government scientific and technical talent awards provided by Zhejiang Province according to the relevant regulations of the state and Zhejiang Province.

2. Housing arrangements: Party B can rent a teacher's apartment from Party A, and the rent and other corresponding expenses shall be borne by Party B. If Party B meets the application criteria for the reserved housing for high-level talents in Zhejiang University, Party B can apply and purchase a corresponding house.

3. Working conditions: Party A shall provide Party B with a research start-up fund of RMB 10 million (including support funds provided by the state, relevant ministries and commissions, and provinces and municipalities for the selection of the national "Thousand Talents Plan").

4. Offices and laboratories: Party C shall arrange offices and laboratories for Party B. Party B shall pay a certain amount of resources usage fees according to the relevant regulations of the university. Depending upon the needs of Party B's work, Party B can share some instruments, equipment, and facilities of Party A and Party C according to the relevant regulations of the university.

5. Team building: Party A and Party C support Party B's team building, and Party A shall provide remuneration to Party B's team members who meet Party A's employment criteria for the teaching-and-research teacher position. Otherwise, the remuneration packages of all other personnel shall be included in Party B's research fund, and the employment procedures shall be handled in accordance with Party A's relevant personnel rules.

6. Student admission criteria (including supervising doctors, postgraduates and post-doctoral staff, senior visiting scholars, etc.): The university first arranges and recommends outstanding doctoral and master students, and supervises post-doctoral staff and senior visiting scholars.

(3) Obligations of Party B

1. Working hours at the university: 9 months or more every year beginning January 2014. Party B plans to report to the university in January 2014. After the official registration is completed, the salary will be calculated.

2. Conscientiously abide by the laws and regulations of the People's Republic of China and the rules and regulations of Party A and Party C.

3. Perform job duties, achieve the job objectives and tasks as agreed in Article 2 of the contract, and ensure the quality of work. Accept the work arrangement, business guidance, inspection, evaluation, rewards and punishments by Party A and Party C.

Contract 4

4. During the term of Party B's employment, if Party B publishes papers and works, or applies for relevant awards, patents and scientific research projects and funds, Party B shall sign the names of Party B, Party A and Party C at the same time (i.e., the author and the author's organization must be both listed at the same time, and the author's organization must be in the name of Party A and C only).

5. Party B shall make the total fund use plan and annual use budget for the research funds provided by Party A and Party C. Party A shall retrieve the part of the annual budget that has not been used according to the rules on the use of funds. Party A will retrieve any unused research funding at the end of the employment term or when the contract is rescinded.

6. During the period of employment, Party B will not interfere with China's internal affairs, will abide by China's religious policies, will not engage in activities that are incompatible with the expert status, and will abide by the moral standards and customs of the Chinese people.

Article 4 Modification, Rescission and Termination of Contract

(1) Modification of the contract

Upon agreement of the parties to the contract, the changes may be made, but any change opinions shall be subject to the written opinions reached by the three parties.

(2) Rescission of the contract

1. If Party B has one of the following circumstances during the term of employment, Party A has the right to notify Party B to rescind the contract 30 days in advance in writing. If Party A rescinds the contract due to any of the circumstances, Party A shall not assume any responsibility for Party B:

(1) Party B fails to perform the main obligations of the contract or when fulfilling his contractual obligations he fails to comply with the agreed-upon conditions, and fails to make the corrections within a reasonable period after being pointed out by Party A and Party C;

(2) [Party B] fails to pass evaluation after being evaluated by Party A and Party C.

2. If Party B has one of the following circumstances, Party A may unilaterally rescind this contract at any time:

(1) Serious violations of the rules and regulations of Party A and Party C;

(2) Commission of a criminal act.

3. If Party A fails to pay Party B's remuneration package on time 30 days after the deadline, Party B has the right to notify Party A in writing to rescind the contract.

4. If the parties to the contract agree by consensus, the contract may be rescinded. Any party that proposes to rescind the contract by negotiation shall proceed in accordance with the following procedures:

(1) If Party B proposes to terminate the contract for special reasons during the term of employment, Party B shall submit a written application to Party A and Party C 3 months in advance, and upon Party A and Party C's consent, the contract may be rescinded.

(2) If Party A or Party C proposes to rescind the contract for special reasons during Party B's employment period, either party shall notify Party B in writing 3 months in advance and fully communicate with Party B.

5. If the contract cannot be performed normally due to force majeure during the period of employment, and the contract needs to be modified or rescinded, the three parties shall properly handle such situation in accordance with relevant state regulations.

6. Party B promises to resign from his original employer by January 2019. If Party B cannot resign from his position at his original employer within the stipulated timeframe, Party A and Party C have the right to change or cancel the contract.

(3) Termination of the contract:

The contract is terminated when the contract term expires or the conditions for the statutory rescission or termination of the contract arise.

Contract 4

Article 5 Supplementary Provisions

1. Party B confirms that the contact address at the beginning of the contract is the address where Party A and Party C send written notices to Party B. If there is any change in the delivery address of Party B during the performance of the contract, Party B shall notify Party A and Party C in writing. If the address provided by Party B is inaccurate or Party B does not promptly notify Party A and Party C of such change of address, such that Party A's or Party C's written notifications are not delivered or not delivered in time, Party B shall bear the legal consequences arising therefrom.

2. If the terms of the "Thousand Talents" employment contract signed in June 2012 conflict with this contract, the terms of this contract shall prevail.

The conclusion, interpretation and dispute resolution of this contract shall be governed by the laws of the People's Republic of China.

3. When a dispute arises between Party A, Party C and Party B, it shall be settled through friendly negotiation or mediation. If the negotiation or mediation fails, a party may apply to the Zhejiang Personnel Dispute Arbitration Court for arbitration. If any party is dissatisfied with the outcome of the arbitration, it may file a lawsuit with the local people's court at the domicile of Party A.

4. If there are any unfinished matters in this contract, the three parties shall negotiate and make a written supplementary agreement. The written supplementary agreement and this contract have equivalent legal effect.

5. This contract is signed in Hangzhou, Zhejiang, China, with three copies of the same format. Each of Party A, Party B and Party C retains one copy. And the contract takes effect when Party A, B, and C have signed and affixed seals to this contract.

Signature of Party A's Representative:	Signature of Party B:	Signature of Party C's Representative:
[illegible] [signature]	[illegible] [signature]	[signature]
[seal] Zhejiang University		[seal] Zhejiang University School of Medicine
December 6, 2013	December 6, 2013	December 6, 2013

Qingdao University introduces high-level talent employment contract

Appointment unit: Qingdao University (hereinafter referred to as Party A)
Appointed expert: [redacted] (hereinafter referred to as Party B)
ID card (passport):

In order to protect the legitimate rights and interests of both parties, in accordance with the relevant national laws, regulations, rules and the personnel and personnel policies of Shandong Province and Qingdao Municipality, this contract was concluded through negotiation between the two parties.

Article 1 Appointment position and term of appointment
Party A shall appoint Party B to work full-time at the Institute of Cancer Precision Medicine (Qingdao Cancer Research Institute) of Qingdao University. The first appointment period is five years, counting from the date of signing the contract. After the expiration of the first appointment, if Party B fulfills the contractual target, it will automatically renew its employment.
Article 2 Party B's job tasks and objectives
(1) Team building and talent training
A total of 8-10 post-doctoral and doctoral students are trained.
(2) Research and innovation transformation
1. Obtain 2-3 major national or other national major issues and 1-2 national natural youth projects;
2. Published 5-8 SCI papers, including 2-4 articles with 10 or more points;
3. Efforts to achieve a new target for cancer prevention and treatment were first reported in the world and used for the development of new anti-tumor drugs. Actively cooperate with the research institute to screen and discover lead compounds with anti-tumor activity.
4. The scientific research results are reported to the provincial and ministerial level results of the first and second prizes or 1-2 national-level achievements;
5. Apply for more than 2 invention patents;
(3) Disciplinary construction and academic exchanges
Initiate academic reports or lectures 3 times; attend academic conferences and report 3-5 times. According to the development needs of the institute, it is involved in the construction of related disciplines.
(4) Public services
According to the needs of the institute, it undertakes or cooperates with the management and service of the research institute's personnel training, talent introduction, laboratory preparation, discipline development, scientific research and transformation, and publicity.
Article 3 Rights and obligations
I. Party A’s rights
(1) To manage Party B in accordance with national laws, regulations and relevant regulations of the school.
(2) To assess Party B in accordance with the relevant provisions of the State and the agreed tasks and objectives of the post.
Second, Party A’s obligations
(1) Protecting and maintaining the rights that Party B shall enjoy in accordance with the law and supporting Party B's work.

(2) Providing necessary living and working conditions for Party B to carry out work
1. Salary, insurance and other welfare benefits: the salary structure implements the national policy wages + special post allowance 200,000 / year + research grants + research awards (a total of about 500,000 yuan / year, of which 100,000 yuan for performance pay, annual Pay after passing the examination). The payment method is issued on a monthly basis. Party B shall enjoy the welfare benefits of Party A in the preparation of formal employees. Party A shall pay various insurance premiums and provident funds for Party B. Party B's personal burden shall be deducted by Party A on the basis of the formal staff standard.
2. Housing subsidy: RMB 600,000, which is paid once when Party B purchases a house.
3. Research start-up funds: Provide Party B with RMB 2 million for research start-up funds (including 500,000 yuan for schools and the rest will be provided by the Institute) for Party B's research work expenses. After Party B arrives at the post, it will be allocated according to Party B's work needs.
Third, Party B rights
(1) During the work of Party A, Party B shall implement the relevant provisions of the relevant working hours and work holidays of the State.
(2) Enjoying the working and living conditions provided by Party A.
Fourth, Party B's obligations
(1) Party B shall abide by the laws and regulations of the State and the rules and regulations of the employer.
(2) Party B shall work full-time in Party A. Party A shall not work part-time in the foreign unit without the consent of Party A, earnestly perform the duties of the post, complete the post work tasks and work objectives, and accept the assessment of Party A.
(3) The intellectual property rights obtained by Party B during the work of Party A, including copyright, patent rights, trademark rights, etc., are owned by Party A. According to the definition of intellectual property rights between the two parties, Party B has certain sharing rights within the defined scope.
(4) Party B shall abide by Party A's relevant confidentiality regulations and keep confidentiality of Party A's trade secrets and other intellectual property-related confidential matters.
Article 4 Assessment
1. Annual assessment: Party B accepts Party A's annual work assessment during the employment period and submits the "Working Progress Report of the Year".
2. Mid-term assessment: During the term of employment, Party B will accept the mid-term assessment of Party A's work for three years and submit the "Medium-term Work Progress Report".
3. Appointment assessment: Party B will accept Party A's assessment of the appointment period after the expiration of the appointment period. The evaluation of the employment period is based on the tasks and objectives of the employment of the contract, and Party B submits the "Summary Report on the Employment Period".
Article 5 Change, Termination and Dissolution of the Contract
(1) Both parties may agree to change the relevant content of this contract or terminate or terminate this contract.
(2) If Party B fails to pass the examination during the employment period, has a major direct liability accident or has a violation of law or discipline, Party A has the right to dismiss the employee and terminate the contract. At the same time, Party B shall pay the remaining amount of research funds paid by Party A. Return Party A and return the housing subsidy for the remaining years of less than 5 years to Party A.

(3) If Party B proposes to resign within 5 years, it shall submit a written application to Party A 6 months in advance. After Party A's consent, Party B may apply for resignation and refund the remaining research funds paid by Party A [redacted] and return the housing subsidy for the remaining years of less than 5 years to Party A.
Party B shall submit a written application to Party A 6 months in advance after resigning after 5 years of work.
(4) In the event of any unforeseen circumstances that cannot be prevented by the parties during the appointment period, the contract may not be properly performed. If the contract needs to be changed or terminated or terminated, the two parties shall properly handle the contract in accordance with relevant regulations.

Article 6 Supplementary Provisions
(1) This contract is made in two copies, and Party A and Party B each hold one copy. This contract shall take effect on the date of signature and seal.
(2) Except for the occurrence of force majeure factors, the parties may strictly perform the terms of the contract. The parties shall strictly perform the terms and conditions of the contract.
(3) After the signing of this contract, both parties shall have confidentiality obligations for their contents and shall not disclose it to third parties.
(4) If there are any outstanding matters in this contract, it shall be negotiated by both parties to make supplementary provisions. Supplementary provisions have the same effect as this contract

Subcommittee Translation of State Administration of Foreign Experts Affairs' Contract of Employment Template

The State Administration of Foreign Experts Affairs ("SAFEA") created a Chinese-language and English-language version of its Contract of Employment Template. However, the SAFEA English-language version does not include SAFEA guidance found in the Chinese-language version. The Subcommittee has provided a provisional translation of this SAFEA guidance in blue text below.

说 明

各有关用人单位需在申报“高端外国专家项目”（文教类）时提供工作合同（工作意向书），工作合同或意向书是国家外国专家局评审和资助的重要依据。

所附工作合同（工作意向书）文本仅供参考，各相关用人单位应根据本单位情况自行拟定工作合同（工作意向书），相关法律责任由用人单位承担。

Explanation

All employers are required to provide a contract of employment (letter of intent to work) in applications for “High-End Foreign Experts Program.” The contract of employment or letter of intent to work is an important foundation for evaluating and funding by the State Administration of Foreign Experts Affairs.

The attached contract of employment (letter of intent to work) text is for reference only. Each employer shall prepare its own work contract (letter of intent to work) according to the employer’s circumstances and be responsible for any related legal issues.

附件五

工作合同文本（工作意向书）

（仅供参考）

甲方（用人单位）

乙方（受聘专家）

根据中华人民共和国法律法规，双方在平等、自愿、协商一致的基础上签订本合同（工作意向书）。

甲方_____（用人单位，以下简称“甲方”）

法定代表人：

联系人：_____职务：

办公电话：_____手机：

乙方(中文)____（外文）_____（受聘专家，以下简称“乙方”）

国籍：_____性别：_____出生日期____年__月__日

护照号码：

居住国通讯地址：_____

电话：_____ 传真：

电子邮箱：

第一条 工作时间

本合同/意向书约定：2013 年乙方在甲方 _____部门工作__个月（或自 2013 年起乙方在甲方 _____部门连续工作 _____年，其中 2013 年工作_个月，2014 年工作_个月，2015 年工作_个月）。

第二条 劳动报酬

本合同/意向书约定：

2.1、乙方完成约定的工作量（包括工作时间），2013 年甲方将支付乙方劳动报酬_____元人民币（税前），2014 年支付 _____元人民币（税前），2015 年支付 _____元人民币（税前）。

2.2、甲方应按照中华人民共和国有关规定为乙方代缴个人所得税。

第三条 岗位职责（请用人单位根据情况自行约定）

3.1 甲方聘用乙方在____部门担任_____岗位的工作。

3.2 乙方的主要工作任务是：

_____。

第四条 福利待遇（请用人单位根据情况自行约定）

4.1 乙方在甲方工作期间，除双方另有约定，甲方应按照中国《劳动法》有关规定，安排乙方执行标准工时制度，即乙方每日工作 8 小时，每周工作 40 小时。

4.2 甲方安排或者同意乙方加班的，应按照法律规定安排乙方补休或支付

加班工资。

4.3 乙方享受中国公民法定带薪节日休假。

第五条 权利和义务（请用人单位根据情况自行约定）

5.1 知识产权保护

乙方在甲方工作期间，在项目工作中所取得的知识产权，包括著作权、专利权、商标权等，其所有权归_____。

（建议甲乙双方根据工作范围和事项另行签订知识产权保护协议）

5.2 保密义务

乙方须遵守甲方相关保密规定，对甲方商业秘密及其他与知识产权相关的涉密事项进行保密。

若乙方违反保密义务，除赔偿甲方因此造成的损失外，应按照相关法律法规承担相应的法律责任。

（建议甲乙双方根据工作性质及实际需要商定保密范围和事项，另行签订保密义务协议）

5.3 竞业限制

竞业限制的约定不得违反法律、法规的规定。

（建议甲乙双方商定竞业限制的范围、地域、期限以及经济补偿和违约赔偿金额及相关责任，另行签订竞业限制协议）

5.4 侵害第三方权利的责任

本合同/意向书执行期间，如发生侵害第三方权利情形的，要按照甲乙双方的过错确定责任，并由过错方依法进行赔付。因乙方过错侵害第三方权利，而甲方为此先行赔付的，甲方可向乙方追偿。

5.5 其他义务

（1）甲方应按照有关规定协助乙方办理出入境、居留等相关手续，为乙方开展工作提供必要的条件，按时支付乙方劳动报酬，保障乙方的福利待

遇和正当权益，同时对乙方的工作进行考核评价和成果评估。

（2）乙方应遵守中国法律、法规和用人单位的规章制度，按照合同约定的时间在岗工作，认真履行岗位职责，完成岗位工作任务，接受甲方的考核和监督。

（3）*建议甲乙双方明确约定甲方是否为乙方提供国际交通或国际交通补贴）*

本合同/意向书一式两份，由甲方和乙方分别留存。合同/意向书分别用中、英文书就，两种文本内容完全一致，具有同等的效力。

甲方：　　乙方：

法定代表人

（单位公章）

时间：　年　月　日　　时间：　年　月　日

Contract of Employment/Letter of Intent

(For Reference Only)

Party A (Employer)

Party B (Employee)

According to the relevant laws and regulations of the PRC, both Parties, in line with the principles of equality, mutual agreement, and on a voluntary basis, agree to sign this Contract/Letter of Intent.

Party A

(Employer, hereafter referred to as "Party A")

Legal Representative:

Contact Person: _____ Position:

Telephone: _____ Cell Phone:

Party B (in Chinese)_____**(**in native language)

(Employee, hereafter referred to as "Party B")

Nationality: _____ Gender:

Date of Birth: ___（year）__（month）__(date)

Passport Number：

Address (outside of China):

Telephone：_____ Fax：

Email Address：

Article 1. Term of Employment

Party B ensures to work in Party A ___(Unit) for___months in 2013 (or from year 2013, Party B ensures to work for ____ years continuously in Party A, months in 2013, ___months in 2014, _____ months in 2015)

Article 2. Compensation or Salary

2.1 If Party B accomplishes his/her responsibilities (including the working time), Party A should pay_____RMB (before tax) to Party B as compensation or salary in 2013, pay_____RMB (before tax) to Party B in 2014 and pay_____RMB (before tax) to Party B in 2015.

2.2 Party A should help Party B go through tax-related procedures in accordance with the related regulations and policies of the PRC.

Article 3. Job Responsibilities (optional)
(Employers should agree based upon their circumstances.)

3.1 Party A employs Party B as _____ in _____.

3.2 Party B's job responsibilities are:

_____.

Article 4. Benefits (optional)
(Employers should agree according to their circumstances.)

4.1 Unless the two Parties agree otherwise, Party A will adopt standard working time for Party B in accordance with the Labor Law of PRC. That is to say, Party B will work 8 hours a day, 40 total hours each week.

4.2 If Party A asks Party B to work overtime or endorses Party B’s application for overtime work, Party A shall give Party B overtime payment according to the relevant laws and regulations.

4.3 Party B is entitled to have paid public holidays of China.

Article 5. Rights and Obligations (optional)
(Employers should agree according to their circumstances.)

5.1 Intellectual Property Protection

_____owns the copyrights of the works, inventions, patents and other intellectual properties produced by Party B during the Contract period.

(It is recommended that both parties sign an intellectual property protection agreement in accordance with the scope and content of the work.)

5.2 Confidentiality

Party B should obey the rules concerning confidentiality formulated by Party A. Party B is obliged to maintain confidentiality of Party A’s secrecy, including but not limited to trade secrets, issues related to intellectual properties, etc.

If Party B disobeys the confidentiality obligations, he or she shall not only compensate Party A for the loss but also bear the relevant legal liability in accordance with relevant laws and regulations.

(It is recommended that Party A and Party B agree on the scope and content of what should be confidential based on the necessity and nature of the work and sign a separate confidentiality agreement.)

5.3 Non-Competition Restriction

The non-competition restriction shall be determined according to the relevant

laws and regulations.

(It is recommended that Party A and Party B agree on the scope, geographical scope, time limit, and the amount of economic compensation and breach of contract compensation and related responsibilities, and sign a separate non-competition agreement.)

5.4 Liability for Violation of the Third Party's Rights

Should any rights of the third Party be violated during the Contract period, both Parties shall determine the responsible Party who will be liable for reimbursement. In the event that Party A pays for Party B's misbehavior, Party A shall be compensated by Party B.

5.5 Other Obligations

(1) Party A shall help Party B manage issues such as residence, entry and exit, etc. Party A should provide essential conditions to Party B in order to carry out joint programs, pay compensation or salary to Party B on time, ensure the benefits and rights of Party B when he/she works for Party A, and evaluate the work performances and contributions of Party B.

(2) Party B shall observe all relevant laws and regulations of the PRC, follow the rules and employment discipline formulated by Party A, start work on the prescribed date according to this Contract/Letter of Intent，fulfill the tasks assigned to him/her with high standards within the prescribed timeframe, and be subject to Party A's supervision and review of his or her working performance.

((3) It is recommended that Party A and Party B clearly agree whether Party A will provide Party B with international transportation or international transportation subsidies.)

There are two original copies of the Contract/Letter of Intent, which to be preserved separately by Party A and Party B. Each copy will be signed in duplicate in both English and Chinese with both texts being equally authentic.

Party A: Party B:

Legal Representative

Date:

（Official Seal）

APPENDIX B

CHINA'S TALENT RECRUITMENT PLAN CASE STUDIES

PERMANENT SUBCOMMITTEE ON
INVESTIGATIONS

UNITED STATES SENATE

Chinese Talent Recruitment Case Examples

Individual M

A National Lab employee, Individual M, who accepted a joint appointment at a Chinese university as part of the TTP likely took National Lab intellectual property and patent information without consent of other laboratory scientists, in order to file a similar patent with Chinese collaborators. Individual M subsequently filed for a U.S. patent that overlapped with the design and claims of the patent held by the National Lab.

Individual N

Energy's Office of Intelligence and Counterintelligence conducted an investigation of Individual N that applied to the TTP while working at a National Lab. The investigation determined that Individual N was a supervisor at the National Lab and oversaw other TTP applicants who worked on sensitive but unclassified national security topics.

While employed at the National Lab, Individual N hosted dozens of other Chinese nationals, worked on numerous Energy funded projects, and visited multiple Energy labs. The individual hired at least four Chinese nationals and TTP participants, while at least eight others were known to be no-pay appointments paid for by other Chinese organizations. The investigation revealed a disproportionate collaboration with Chinese institutions, and the individual attempted to initiate official sharing agreements between the laboratory and a Chinese organization. Additionally, the investigation found that monitoring the group's work was complicated by the language barrier, the revolving door of personnel, and the somewhat insular nature of the group. A later review identified at least six projects designated as sensitive.

Individual O

Energy's Office of Intelligence and Counterintelligence investigated a post-doctoral researcher, Individual O, whom China selected for the TTP. The investigation determined that Individual O removed multiple gigabytes of unclassified data totaling over 30,000 electronic files from the National Lab prior to departing for China.

While employed at the National Lab, Individual O was selected for China's TTP. In support of the TTP application, the researcher obtained recommendation letters from U.S. colleagues and detailed some ongoing projects. Shortly after being selected for the TTP, the researcher took a professorial position in China. After Individual O departed for China, Energy discovered that the researcher uploaded multiple gigabytes of information including presentations, technical papers, research, and charts, from the National Lab network to a personal cloud storage account. Individual O told his or her prospective Chinese employer that his or her research area in the United States would play a critical role in advanced defense

applications. Individual O furthermore planned to leverage the Chinese university's strength in national defense and military research to support the modernization of the People's Republic of China's national defense. After returning to China, Individual O committed to keeping a close and collaborative relationship with several named research teams at the National Lab.

Individual Z

In early 2019, NIH contacted a medical school concerning three principal investigators with potential affiliations with the TTP, Chinese universities, and other Chinese government funded grant programs. The institution conducted an internal review and initially indicated that it did not identify any financial conflicts of interests. The internal review involved phone interviews and written questions and answers with the principal investigators at issue.

NIH, however, submitted additional questions concerning one of the principal investigators who told the institution that he or she never worked at Peking University and did not receive any funds from any talent recruitment plans. NIH sent the institution a screenshot of Peking University's website that identified the principal investigator as a "Professor" since 2012. NIH also sent the institution information indicating that the principal investigator was likely a TTP member. The institution later provided NIH with an affidavit from the principal investigator stating he or she never held a position at Peking. The principal investigator also told the institution that Peking University's web site must be an oversight as he or she never actually accepted the position. NIH then informed the institution that the principal investigator likely had a potential conflict as he or she maintained an active, unreported Natural Science Foundation of China ("NSFC") grant. The institution's representative wrote back to NIH: "Obviously concerning to us." Despite these violations of NIH grant policy, the institution allowed the individual to continue as a principal investigator on the NIH grant and NIH has yet to take any further action.

Individual X

In early 2019, NIH contacted a medical research institution concerning a principal investigator, Individual X. That individual also was publicly listed as serving in several positions at Huazhong University of Science and Technology. Additionally, NIH alleged that the principal investigator also worked on two active NSFC grants that Individual X did not disclose.

Subsequently, the institution conducted an internal investigation and stated that it

> may have failed to completely disclose [Individual X's] affiliation at Huazhong University of Science and Technology, funding from the National Natural Science Foundation of China, and the Chinese Thousand Talents Program, and foreign components of the awarded

> projects in applications and progress reports which designate [Individual X] as the [principal investigator] or Key Personnel.

After the institution's inquiry into the individual's foreign associations, Huazhong University deleted the individual's online resume. The institution, however, asserted that the work did not overlap with past or existing NIH grants. Despite these violations of NIH grant policy, the institution allowed the individual to continue as a principal investigator on the NIH grant and NIH has yet to take any further action.

Individual Y

In early 2019, NIH contacted a hospital institution regarding alleged foreign support for an NIH-sponsored medical researcher, Individual Y. Individual Y worked at the institutions' Biomedical Informatics and Division of Biostatistics. The institution conducted an internal investigation and located a TTP contract signed by Individual Y. The TTP contract required Individual Y to "recruit three undergraduate students each year … focus on recruiting 1-2 post-doctoral students each year … [and] publish 12 papers in mainstream international journals."

The institution's internal investigation also discovered that in addition to being a member of the TTP on contract through 2020, Individual Y had faculty appointments at two universities in China: Jianghun and Wuhan. Individual Y also received a 2018 award from the National Natural Science Foundation of China. Individual Y also proposed using a U.S. data set for the NSFC-funded project. The institution did not disclose any of the sources of foreign support to NIH. The institution subsequently counseled Individual Y on the "importance of full and accurate disclosure."

NIH also identified potential conflicts of commitment. For example, NIH asked if the institution was aware that Individual Y "was spending 6 months a year in China working on this project?" The institution reported that it was not aware. As a corrective measure, the institution refunded to NIH Individual Y's salary draws for time periods where there was "most likely potential for effort overlap." NIH continues to investigate the alleged violations.

Individual 1

Individual 1 was a professor and researcher working in cellular and molecular physiology. Individual 1 is also a principal investigator who worked on an NIH Exploratory/Developmental Research Grant Award. On April 11, 2014, Individual 1 requested and received a one-year unpaid leave of absence starting in July 2014 to work at Tsinghua University.

Individual 1 joined Tsinghua Medical School as a recipient of a TTP award in July 2014. While working at Tsinghua Medical School, Individual 1 worked on developing special antibodies. Tsinghua provided Individual 1 with other special

opportunities, such as the ability to work with a distinguished Nobel Prize winner, the use of first-class technology and facilities, and access to the institution's renowned structural biology center. Individual 1 even received an award from the Chinese government that fully supported his or her research and salary at Tsinghua University from July 2014 to June 2017.

On April 6, 2015 Individual 1 requested and received extended leave permitting the individual to maintain a 50 percent appointment at the institution while working at Tsinghua University. The institution also granted permission for Individual 1 to continue to conduct research at the institution.

While Individual 1 was supposed to conduct all the work at the U.S. institution's facilities, Individual 1 directed some of the work to be done in China at Tsinghua University. Individual 1 did not submit a financial disclosure form to the U.S. institution in 2014 as required by the U.S. institution. The individual also did not disclose to the U.S. institution the salaries received from Tsinghua University in subsequent disclosure forms.

"The institution's internal investigation determined that it should have reported to NIH the possibility of collaboration with investigators at a foreign site that could result in co-authorship and should have provided a Foreign Justification attachment to Individual 1's award application." In addition, the institution failed to include Individual 1's Tsinghua University's position on supplementary reports and failed to report the continuing arrangement with Tsinghua. In response to repeated violations of NIH policies and TTP membership, the institution's only actions was to develop a remediation plan that required Individual 1 to file annual conflict of interest disclosures.

Individual 3

A medical school reported that a pharmacology and dermatology professor, Individual 3, potentially failed to comply with NIH policies requiring disclosure of outside research support and foreign affiliations or research components. Individual 3 has an NIH grant from the National Cancer Institute. On several publications, Individual 3 listed foreign support, in addition to his or her NIH support, and held affiliations with at least five Chinese institutions. None of the foreign support or foreign affiliations, however, were disclosed on Individual 3's NIH grant documents.

When questioned by the institution, Individual 3 said his or her publications included reference to support from the NSFC because he or she considered it an honor. Individual 3, however, also claimed that he or she received no financial support from the NSFC award for his or her NIH-funded, or any other, research. He or she also claimed that the aim of the project was different than the subject of his or her NIH award.

During its internal investigation, the institution found online reports suggesting Individual 3 was a Dean at Jiangsu University, participated in the Jinshan Scholars Program, and in the TTP. Individual 3 said he or she rejected the position and never participated in the alleged programs. Individual 3 also worked with three post-doctoral students on an NIH grant who held concurrent positions at Chinese institutions. Though these post-doctoral researchers did not list their foreign government support in co-authoring publications with Individual 3, these post-doctoral researchers' co-authors at their affiliated Chinese institutions listed Chinese government support.

As part of its response to this matter, the institution convened a Committee on Research Security and Conflicts of Commitment to make recommendations about how to secure research on its campuses and ensure that researchers' commitments supporting their research are not compromised by external relationships. The institution told NIH that it will also review all of Individual 3's grant applications for the next two years.

Individual 4

NIH contacted a medical research institution after identifying issues of potential willful non-disclosure of outside research support and relevant affiliations or foreign components. NIH found that Individual 4, who serves as the Principal Investigator on an NIH grant from the National Cancer Institute, may have willfully failed to disclose the following affiliations:

1. A distinguished professorship Zhejiang University;
2. Selection for the Chinese Talents Program;
3. At least two NSFC grants;
4. One National Key R&D Program of China grant;
5. One Shanghai Education Development Foundation "Shuguang Program" grant;
6. One Chinese Minister of Science and Technology grant; and
7. Two Department of Education of Jiangxi grants.

The institution did express concern that the Thousand Talents contract required Individual 4 to work "at least 9 months" in China from January 2014 to December 2018 while the individual was a faculty member at the institution. Further, the Chinese Talents Program contract required awards, patents, and projects during the contract period would be under the Chinese Institutions name. The contract also required the individual to resign from the institution by January 2019 and work full-time for the Chinese institution.

As part of its response to this matter, the institution prepared several communications to raise awareness across the university research community on the importance of fully reporting foreign components and relationship with foreign

collaborators as required by NIH police and other sponsors. The institution also revised help guides and business processes and outside interest disclosure forms to better identify the need for faculty to disclose outside relationships with foreign entities.

The institution, after conducting a preliminary investigation, told NIH that the only failure to disclose concerned was the affiliation with Zhejiang University. The other awards did not overlap with the NIH award. The institution did express concern that the Thousand Talents contract required Individual 4 to work "at least 9 months" in China. NIH continues to investigate the matter.

Individual 5

NIH contacted Individual 5's institution after identifying issues of potential noncompliance regarding disclosure of outside research support and relevant affiliations or foreign support. Individual 5 serves as a principal investigator on a current NIH award from the National Institute on Mental Health. While working on the NIH award, Individual 5 also has a position at Guangzhou Medical University in China and holds at least two NSFC grants. Several of Individual 5's NIH-supported publications were also supported by foreign awards, suggesting foreign collaborations. The grants and affiliations were not disclosed in applications to NIH. The institution, however, stated that research activities conducted in China as part of the consulting agreement did not overlap with the NIH application.

Circumvention of Export Controls

One other federal agency provided the Subcommittee with two additional case studies that are detailed below.

Case Study 1

Federal agencies discovered a previously unknown Chinese state-sponsored talent recruitment program co-sponsored by a Chinese government organization that conducts military research and development. The talent recruitment program appears to specifically target US academics who are experts in critical science, technology, engineering, and math ("STEM") fields, as well as individuals with direct placement and access to federally-funded research in US academic institutions. Some identified US selectees of this talent recruitment program served as grant managers at a federal agency, making decisions on research grant awards, while simultaneously being employed and tasked by the Chinese government. These talent recruitment selectees allocated federal research funds to other US academics who were themselves selectees of the same and other Chinese talent recruitment programs. After several years another generation of talent program selectees were appointed to the same grant management positions with decision authority over federally-funded research grants. Based on this information, we assess that this state-sponsored talent program represents part of a coordinated effort on the part of the Chinese government to target critical STEM fields.

Talent program selectees have sponsored masters, doctoral, and post-doctoral students from Chinese universities with which the selectees themselves are associated, including People's Liberation Army ("PLA")-affiliated schools. Talent program selectees have accepted positions in Chinese universities, including adjunct or visiting professorships, advisors to research programs, and visiting lecturers. In some cases these talent program selectees may have contractual obligations to Chinese institutions and are being directed to sponsor or hire Chinese students from specific Chinese programs to work with them in their US-based labs on federally-funded research.

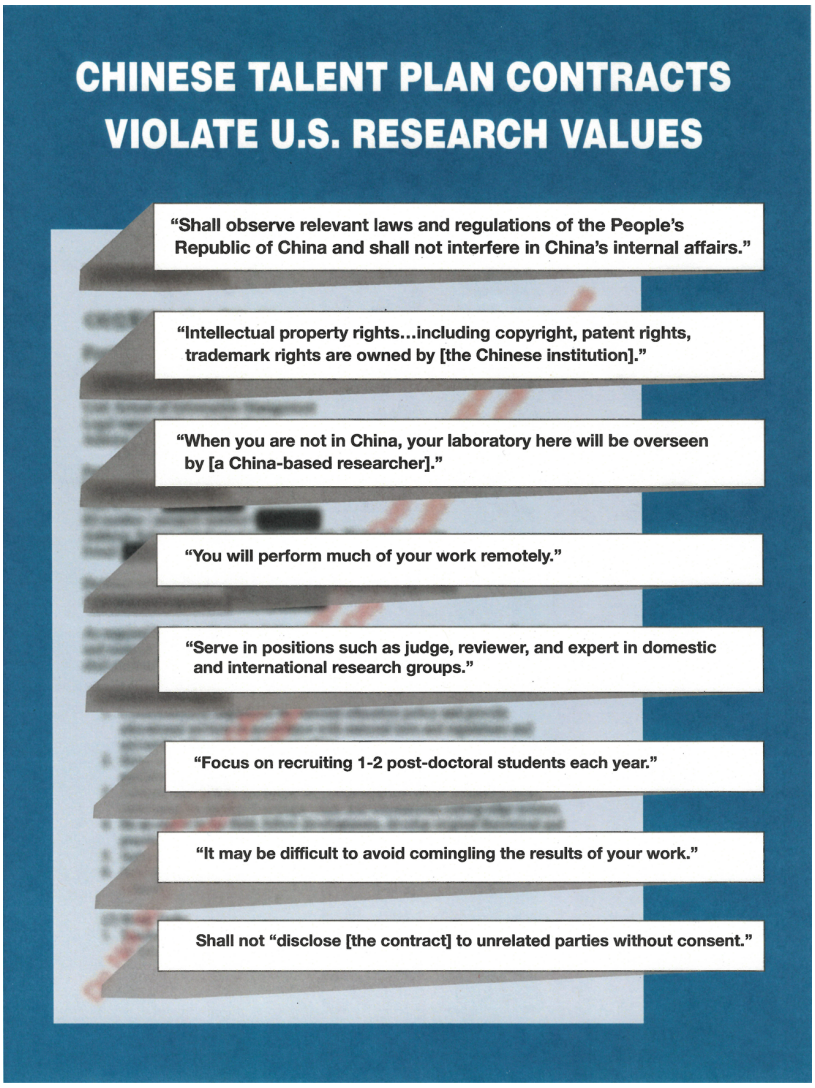
A review of Chinese students sponsored or hired by the talent program selectees found that many of these students come from labs and research programs that perform research with defense applications, including PLA-affiliated schools and research institutes, and civilian universities and programs that conduct extensive defense-related research. Many of these students have also received funding from state-run programs such as the China Scholarship Council that require researchers to return to China after the completion of their studies to facilitate the transfer of sensitive scientific know-how.

This trend also represents significant economic security concerns. A selectee of multiple talent recruitment programs sponsored Chinese graduate students to work in a federally-funded laboratory at a US university. The selectee then co-founded a China-based medical technology business together with the entrepreneurial component of another talent recruitment program and hired their former students. The Chinese business now competes with major U.S. companies.

Case Study 2

A Professor at a U.S. University who specialized in a critical, dual-use STEM field and was the recipient of numerous US government research grants was also a selectee of multiple Chinese talent recruitment programs and an "overseas professor" of a Chinese university. The professor directed a China-based laboratory performing applied military research and development. Instead of traveling directly to China to work at this laboratory, the Professor stayed in the United States and sponsored visiting Chinese students and scholars from the laboratory to study under the professor's guidance in the United States. This technique, commonly seen throughout the United States with talent recruitment program selectees, allowed the professor to pass dual-use research, and potentially export-controlled research, to China via the visiting students and scholars without having to physically leave the United States. Many of these visiting students and scholars were not only affiliated with the Professor's Chinese laboratory but they were directly affiliated with research and development organizations involved in China's military modernization efforts.

Conclusion: The cases described above are just two examples of identified talent program selectees and their activities that undermine US national and economic security. Some of this activity may violate U.S. law in areas such as grant fraud, computer fraud, misuse of public resources for personal financial gain, or illegal supplementation of a federal salary. Additionally, some of the activity may not be illicit in nature, but involve conflicts of interest or commitments and/or violations of federal research grant terms and ethical or research integrity codes of conduct. Lastly, it is unknown the extent or scale of China's efforts to incentivize, employ, or task individuals in the U.S. through these talent recruitment programs or similar state-sponsored mechanisms.


CHINESE TALENT PLAN CONTRACTS VIOLATE U.S. RESEARCH VALUES
"Shall observe relevant laws and regulations of the People's Republic of China and shall not interfere in China's internal affairs."
"Intellectual property rights...including copyright, patent rights, trademark rights are owned by [the Chinese institution]."
"When you are not in China, your laboratory here will be overseen by [a China-based researcher]."
"You will perform much of your work remotely."
"Serve in positions such as judge, reviewer, and expert in domestic and international research groups."
"Focus on recruiting 1-2 post-doctoral students each year."
"It may be difficult to avoid comingling the results of your work."
Shall not "disclose [the contract] to unrelated parties without consent."

○