

**CHINA'S MILITARY MODERNIZATION AND U.S. EXPORT  
CONTROLS**

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**HEARING**

BEFORE THE

**U.S.-CHINA ECONOMIC AND SECURITY  
REVIEW COMMISSION**

**ONE HUNDRED NINTH CONGRESS**

SECOND SESSION

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*March 16-17, 2006*

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UNITED STATES-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION

WASHINGTON : May 2006

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# U.S.-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION

May 22, 2006

The Honorable TED STEVENS  
*President Pro Tempore of the U.S. Senate, Washington, D.C. 20510*  
The Honorable J. DENNIS HASTERT  
*Speaker of the House of Representatives, Washington, D.C. 20515*

DEAR SENATOR STEVENS AND SPEAKER HASTERT:

We are pleased to transmit the record of our March 16-17, 2006 hearing on “*China’s Military Modernization and U.S. Export Controls.*” The Floyd D. Spence National Defense Authorization Act (amended by Pub. L. No. 109-108, sect. 635(a)) provides the basis for our hearing, as it requires the Commission to study China’s military modernization. During the hearing, the Commission heard from Senator Lindsey Graham and Congressmen Earl Blumenauer, Jim Kolbe, Donald Manzullo, and Thaddeus McCotter and received a written statement from Senator Michael Enzi. Administration officials and experts from outside government also appeared.<sup>1</sup>

The hearing was timely. The Pentagon’s February 6, 2006 Quadrennial Defense Review cited China as the emerging power with the greatest potential to compete militarily with the United States and offset traditional U.S. military advantages.

## *China’s Military Modernization*

China’s growing military capacity casts a shadow on its self-described “peaceful rise.” From 1994 to 2004 China’s publicly acknowledged defense budget grew at an average annual rate of 15.8 percent. This March, Beijing announced that its 2006 defense budget will rise 14.7 percent from the previous year. Beijing puts its 2006 military spending at \$35 billion, but the Pentagon believes it could be \$70-105 billion.

Assistant Secretary of Defense Peter Rodman explained that China’s military-related acquisitions suggest that Beijing is building capacities to go beyond a Taiwan scenario and “are intended to address other potential regional contingencies, such as a conflict over resources or territory.” According to Assistant Secretary Rodman, China is at the very beginning stages of acquiring power projection capability. Unfortunately, as China’s military capacity grows, transparency surrounding its military motives diminishes.

## *Airpower*

According to Cortez Cooper, China’s air force is a “defensive force...with offensive aspirations.” Beijing wants a force capable of muscling opponents further away from its

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<sup>1</sup> An electronic copy of the full hearing record is posted to the Commission’s Web Site [www.uscc.gov](http://www.uscc.gov).  
[http://www.uscc.gov/hearings/2006hearings/transcripts/march16\\_17/March\\_16-17\\_FINAL.pdf](http://www.uscc.gov/hearings/2006hearings/transcripts/march16_17/March_16-17_FINAL.pdf).

shore and the vicinity of Taiwan. To achieve this, Mr. Cooper explained, China is acquiring or developing its aerial refueling abilities, airborne targeting capabilities, helicopters, and over-the-horizon radars. Additionally, according to Richard Fisher, China is developing a fifth-generation twin-engine fighter with stealth design. Mr. Cooper indicated that if China's reported interest in Russian Backfire bombers were realized, these bombers would have the range to target U.S. forces on Guam.

#### Naval Forces

Mr. Cooper, Dr. Bernard Cole, and Assistant Secretary Rodman opined that China has a short-term goal of building a navy to frustrate an adversary such as the U.S. Navy seeking to operate in areas vital to its interests such as the Taiwan Strait. Modernizing its destroyer, frigate, and submarine fleets is key to achieving this capability. China is producing Song-class submarines, and the Pentagon states that China's development of two new types of nuclear submarines is nearly complete. China will take delivery of more advanced Russian submarines and Mr. Cooper expects China to have more than 15 modern frigates by 2007, equipped with upgraded air defense systems.

Looking into the future, China could seek to extend its naval reach westward to protect its energy-related interests in the Middle East or Africa. This would require a reliable blue-water fleet, possibly including aircraft carriers.

#### Missiles

China has over 700 short-range ballistic missiles (SRBMs) stationed opposite Taiwan; the numbers have been increasing by roughly 100 missiles a year. According to Mark Stokes, these SRBMs are used to deter or coerce neighbors such as Taiwan. They could also reach U.S. bases in the region and interrupt U.S. naval operations.

China continues to upgrade its intercontinental ballistic missiles. According to Assistant Secretary Rodman, "these longer-range [missile] systems will reach many areas of the world beyond the Pacific, including virtually the entire continental United States."

#### Information Warfare and Space

China is also improving its high-technology military capabilities. The People's Liberation Army (PLA) is focusing on cyber-warfare. Assistant Secretary Rodman explained how the PLA's strategy in this area has evolved from defending its networks to attacking the networks of its adversaries.

China's manned space mission last October confirms its strides in developing space power. According to Assistant Secretary Rodman, "evidence suggests [China] is developing the capacity to deny [space] access to others with at least one ground-based laser anti-satellite research and development program underway."

#### Foreign Acquisitions and Domestic Capabilities

China has relied heavily on foreign countries for its military capabilities. According to a European study, China was the world's largest weapons importer from 1999-2004. Dr. Cole noted that China obtains the majority of its military supplies from Russia, particularly naval and air weaponry.

Beijing has also sought defense-related technologies and systems from EU countries, Israel, and the United States. Assistant Secretary Rodman and Acting Principal Deputy Assistant Secretary of State Francis Record stressed the importance of the EU retaining its arms embargo against China. But Deputy Assistant Secretary Record noted that despite the embargo, “EU nations have approved significant non-lethal military exports to China.” These include:

- Military helicopters;
- Fire control radars;
- Aircraft engines;
- Submarine technology; and
- Airborne early warning systems

Both Deputy Assistant Secretary Record and Dr. Takis Tridimas noted that in 2004, EU members issued over 200 military-related export licenses for sales to China, worth over \$400 million.

The past record of Israel’s sales of advanced military technology to China is also of great concern. According to Acting Deputy Under Secretary of Defense Beth McCormick, Israel has begun to “improve governmental oversight of military and dual-use exports to China ...” Assistant Secretary of Defense Rodman generally agreed with McCormick’s statement.

Beijing is working to improve the efficiency, profitability, and overall effectiveness of some of its state-owned defense companies. For example, Dr. Adam Segal explained that Chinese “policy makers are working to ensure that the civilian economy makes a more direct contribution to defense modernization...[and] creating new institutions to promote cooperation between the defense S&T establishment and its civil counterparts.” However, the state-owned defense companies as a group remain inefficient and lethargic, lacking managers who take responsibility or innovate.

### **U.S. Export Controls**

China’s military covets American equipment and technology. To protect our security, U.S. export controls must be effective, but must not unduly burden American exporters.

The Export Administration Act of 1979 (EAA) expired and efforts to reauthorize it have been unsuccessful. During the hiatus, the Executive Branch maintains export controls based on authority in the International Emergency Economic Powers Act, but the United States requires new legislation to protect national security and take into account advances in technology since 1979.

Currently, the Department of Commerce is working with the Departments of Defense and State on a new regulation that “will require a license to export otherwise uncontrolled items to China when the exporter knows at the time of the export that the items are destined for a military end-use.” The Commission welcomes this review but is concerned

about verifying the end-use/end-users of licensed dual-use technology exported to China. For example, Assistant Secretary of Commerce Darryl Jackson noted that one full-time Export Control Officer is stationed in Beijing to conduct verification visits.

Stronger multilateral export control cooperation must complement U.S. controls. According to Senator Michael Enzi, “If the United States remains committed to stopping China’s military modernization, we have a long way to go to convince our allies to stop trading with China.” U.S. export controls will have little impact on China’s capabilities if it can acquire similar technology from other nations.

### **Recommendations**

Based on the information presented at the hearing, we offer the following five preliminary recommendations to the Congress:

- 1) The lack of transparency related to China’s military modernization raises the possibility for miscalculation and conflict. The United States needs to understand China’s strategic intentions and their connections to China’s military modernization. The Commission recommends that Congress urge the Administration to press Beijing to reveal those intentions and connections. To facilitate this, the Commission recommends that Congress work with the Administration to encourage effective confidence building measures between the U.S. Department of Defense and China’s Ministry of Defense. Such actions will reduce the possibility for conflict borne from misunderstanding.
- 2) The Commission recommends that Congress enact a new Export Administration Act (EAA) to clarify U.S. export control policy and the U.S. approach to multilateral export control regimes. The EAA should take into account new national security threats, unique U.S. technological advances, and global trade developments since the expired EAA was enacted in 1979. It also should establish strengthened penalties against violators.
- 3) In order to achieve their objectives, U.S. export controls must be part of a multilateral system in which U.S. allies are participating and to whose standards and requirements the allies are adhering. The Commission recommends that Congress urge the Administration to engage in more vigorous diplomatic activity at high levels in order to obtain the multilateral cooperation that is a prerequisite for effective global export controls.
- 4) The Commission recommends that Congress encourage the Administration, as it reviews U.S. export controls aimed at China, to engage in serious discussions with U.S. companies and business groups with the objective of avoiding the imposition of unnecessary export burdens that do not appreciably enhance U.S. security interests.
- 5) The Commission recommends that Congress provide adequate funding to support an increase in the number of initial and periodic follow-up end-use/end-user verification visits for exports licensed to China. This should

include increasing the number of Export Control Officers stationed in China. Congress should also encourage the Administration to discuss with key allies the establishment of a multilateral arrangement to ensure post-shipment verification of certain sensitive technologies exported to China.

The transcript, witness statements, and supporting documents for this hearing can be found on the Commission's website at [www.uscc.gov](http://www.uscc.gov). We hope these will be helpful as the Congress continues its assessment of China's military modernization and U.S. export controls.

Sincerely,



Larry M. Wortzel  
*Chairman*



Carolyn Bartholomew  
*Vice Chairman*

*Cc:*  
*Congressional members and staff*

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# CHINA'S MILITARY MODERNIZATION AND U.S. EXPORT CONTROLS

THURSDAY, MARCH 16, 2006

U.S. CHINA-ECONOMIC AND SECURITY REVIEW COMMISSION  
*Washington, DC*

The Commission met in Room 385, Russell Senate Office Building, Washington, D.C. at 8:35 a.m., Chairman Larry M. Wortzel and Vice Chairman Carolyn Bartholomew and Commissioners Thomas Donnelly, William A. Reinsch and Fred Thompson (Hearing Cochairs), presiding.

## OPENING STATEMENT OF CHAIRMAN LARRY M. WORTZEL

CHAIRMAN WORTZEL: Good morning, ladies and gentlemen, and welcome to the U.S.-China Economic and Security Review Commission hearing on China's Military Modernization and U.S. Export Controls.

At today's hearing, we're going to address China's rapidly modernizing military. Today's hearing will be cochaired by the Vice Chairman Carolyn Bartholomew and Commissioner Tom Donnelly.

Tomorrow, we have another set of hearings that will address export controls and those will be cochaired by Commissioners Bill Reinsch and Fred Thompson.

I'd also like to begin by welcoming Peter Brookes, a new commissioner, appointed by Dennis Hastert to succeed Dr. Steve Bryen. He brings a real wealth of experience addressing national security issues, not only in northeast Asia and China, but around the world.

Today's hearing is will examine some key elements of China's defense modernization programs. We want to review developments in China's defense industrial sector. We want to assess China's acquisition of foreign military hardware and technologies and consider the implications of these actions for the United States and its allies.

To help us understand the issues, we'll be joined by, first of all, Congressman Thaddeus McCotter, as well as Senator Lindsey Graham, Congressmen Earl Blumenauer, Jim Kolbe and Don Manzullo.

We'll follow them with a number of expert witnesses from the government and the private sector. I'll turn the microphone over to Cochairman, Vice Chairman Bartholomew, for today's hearing.

[The statement follows:]

## Prepared Statement of Chairman Larry M. Wortzel

Good morning and welcome to the U.S.-China Commission's hearing on *China's Military Modernization and U.S. Export Controls*. Today's hearing will address China's rapidly modernizing military and will be cochaired by Commissioner and Vice Chairman Carolyn Bartholomew and Commissioner Tom Donnelly. Tomorrow's hearing will address export controls and will be cochaired by Commissioners Bill Reinsch and Fred Thompson.

I would like to begin by welcoming two new commissioners seated here today to their first hearing as commissioners. In January 2006, Speaker of the House Dennis Hastert appointed Commissioner Peter Brookes to the Commission to succeed Dr. Stephen Bryen. Last month, Senate Majority Leader Bill Frist appointed Dan Blumenthal to succeed the Commission's outgoing Vice Chairman Roger Robinson. Both of these commissioners bring with them a wealth of experience addressing U.S. national security interests in China and Northeast Asia.

Today's hearing will examine the key elements of China's defense modernization programs, review developments in China's defense industrial sector, assess China's acquisition of foreign military hardware and technologies, and consider the implications for the United States and its allies in the region.

To help us understand these issues we will be joined today by Senator Lindsey Graham and Congressmen Earl Blumenauer, Jim Kolbe, Donald Manzullo, and Thaddeus McCotter. They will be followed by a number of expert witnesses from Government and the private sector.

I will now turn the microphone over to the Commission's Vice Chairman and Cochair for today's hearing, Commissioner Carolyn Bartholomew.

**VICE CHAIRMAN BARTHOLOMEW:** Welcome. I have a short opening statement, but out of respect to Mr. McCotter's time, we'll go ahead and let you get started. I just want to welcome everyone to our hearing, and welcome our new commissioner. Congressman McCotter, I understand you're an avid guitarist on top of your expertise on all of these issues.

So, welcome, and we look forward to your testimony.

## **PANEL I: CONGRESSIONAL PERSPECTIVES**

### **STATEMENT OF THADDEUS G. McCOTTER A U.S. CONGRESSMAN FROM THE STATE OF MICHIGAN**

**MR. McCOTTER:** Thank you. First, as a sophomore member of Congress, I have probably far more time than you do. Secondly, I appreciate the description of an "avid guitarist" because I'm certainly not a talented guitarist.

It's an honor to be here. I want to thank you for your service to our country by serving on this commission. I would like to just give a brief overview of my impressions regarding Communist China and then take questions from you.

My background. I come from a district in southeast Michigan. My district borders the city of Detroit. We're very automotive intensive, very manufacturing intensive. Unfortunately, it has become less so over time.

Strategically, my view of the relationship between the United States and Communist China is quite simple. I relate it back to what was once termed the rise of a different form of governance, when the Soviet Union in the 1950s was going to, quote, "bury us," when their economy was going and ours was not. There was a certain question as to whether the democratic, liberal democratic capitalist model would be superseded by the Soviet superstate.

Now, we have seen history repeat itself with the Chinese Communist, quote-unquote, "superstate," with the rising militarism and with the rising economy that is fueling it.

The one distinction that we've seen between the two eras is the approach of our government towards dealing with the rise of these nations. Whereas, past administrations and past members of Congress united to make sure that the rise of the Soviet superstate was stunted, that it was not allowed to continue because of the inherent respect that we had for the human rights of individuals and their desire to breathe free, now we have taken a different approach where we believe that somehow, in my mind, a very unfair trading relationship that has occurred because of the duplicity of the Communist Chinese government will somehow magically make them less totalitarian and less Communist.

I disagree with that fundamental premise. I still believe that Communism is an inherently evil system. I believe it is antithetical to Western democratic capitalism, and that unless we recognize that fundamental distinction and the antagonism between the two systems, the trade in and of itself can be a counterproductive act on the part of capitalist democracies.

I think that this plays into the purpose as to why we're here today because much of the trade, much of the hard currency that they receive, then goes into the militarization of China. It also then allows them to compete for energy resources throughout the world which have immense strategic value, especially in places such as Iran. We can debate Iranian sanctions all we want, but if the Chinese government is going to spend billions upon billions upon billions to invest in oil fields in Iran, it tends to make the sanctions look a little less daunting to the mullahs in Iran.

My concern is that in many ways the practices that we are encountering with Communist China are very similar to those that were adopted by many of the Eastern bloc countries throughout the Cold War. And particularly perhaps Romania with Ceausescu's regime, where under the pretense of being a different type of communist government, they would do everything they could to get more favored nation status at the time. They would invite Western companies to come in. They would then manipulate and steal technologies. They would counterfeit it and they would replicate it in their countries for use there or for export abroad.

I think we're seeing the same thing with China. I think that the currency manipulation, the intellectual property theft, the counterfeiting and the dumping all constitute a deliberate strategy on their part to try to erode critical sectors in the United States, many of which, such as manufacturing in my district, have direct military application.

I think that we have to realize that we are engaged in this struggle and pursue whatever means we can to rectify the situation while we still have the capacity to do so.

I'd like to take questions.

VICE CHAIRMAN BARTHOLOMEW: Thank you, Congressman McCotter. I think Chairman Wortzel has a question for you.

CHAIRMAN WORTZEL: Congressman, thank you very much for that testimony. I have some experience with the products of your district, and I'd like to ask you about what has to be a point of tension. The companies in China for the Chinese military manufacture tanks, armor vehicles, antipersonnel carriers. The very vehicles that we saw murdering people during the Tiananmen massacre and driving over them, really covet your drive trains and the ability and the equipment to make those drive trains.

If you go to the Northern Industrial Group plant south of Beijing, they're turning out buses on one line and they're turning out armored personnel carriers on another, and the tanks are made elsewhere.

But to this day, the Chinese military seems unable to manufacture a diesel or gas turbine engine and transmission system. So I'd be very interested in the tension that you have to feel in a district that probably would love to export engines and drive trains, if not sell whole systems. Yet, if you sell production lines, you're going to lose the ability to produce those things to sell to China.

MR. McCOTTER: That's a very good question and several points. The first is I come from what was once known as "the Arsenal of Democracy" in World War II because the Rouge plant and the Ford plant and the Willow Run plants and all the manufacturing that went into the auto industry was then put into keeping America free from Naziism and Imperial Japan.

So the dual use of the technology is not lost upon me. I do think that when we talk about how we'd love to export items over there, we have to remember that currently you have 50/50 relationships between the government or their fronts and the companies that come in.

What then happens is over time, as we've seen--I think it was this year for the first time--the domestic Chinese auto industry has a larger share plurality than any individual company that has been sent over there.

We also have a situation where many of the American companies--now I'm 40 years old--I grew up in a time when we made it here and sold it there. We then entered a phase where we made it there and sold it there. Now some of the Big Three, one in particular, is talking about making it there and selling it here.

Fundamentally, I don't believe that we can compete with a country that does not respect human rights or have indigenous democratic institutions with which to represent those rights. I know that the Big Three are having labor problems, but no one is advocating that they shoot their workers here. There is no command and control economy.

You cannot compete with a totalitarian system, however effective it is, because the rights of the individual are not allowed to go forward.

In terms of their use of these technologies, there was a very interesting example, again, out of Romania, where to get their hands on West German tank engines, what they then did was buy the civilian application of it, minus one part, they then managed to steal the plans for the part, adapted it, and they began to make tanks for export.

At the end of the day, anything that we send over there is going to be counterfeited, it is going to be put to whatever use for the military rise of that country.

CHAIRMAN WORTZEL: Thank you very much.

VICE CHAIRMAN BARTHOLOMEW: Congressman McCotter, how is your time? I have a question. I know Chairman Wortzel has another question, and I think some of our other commissioners might have questions too.

MR. McCOTTER: No, believe me, I'm salaried, it's okay.

VICE CHAIRMAN BARTHOLOMEW: A comment and then a question, and then Chairman Wortzel will do his follow-up. The comment is we've been talking about doing some hearing or panel on what's going on with the auto parts and our auto industry.

So we hope that we can turn to you as a resource if we move forward with that and help get some suggestions to us as to from whom we should hear.

I'm very interested in your comments and we have a debate amongst ourselves. There's a bigger debate going on about the nature of the relationship between economic security and national security, and there are a number of people who believe that the decline of our manufacturing base does not have any consequences for our national security. I'm interested in getting more of your thoughts on that interim relationship and what does it mean for us as we move forward if we don't have a sound manufacturing base?

MR. McCOTTER: I have diverse interests, but I read a book by Barry Lynn called "End of the Line," and whatever you think of that book, he had a very interesting footnote that many people probably don't realize--that World War I was referred to by Winston Churchill as the "steel war."

What had happened prior to the onset of the Great War, World War I, was that England had increasingly relied upon German steel production and German manufacturing production to the point that when World War I started, they had a dearth of tool and die shops, they had a problem creating steel, and they had a very difficult time transforming themselves back up to a war economy.

One of the things that then became necessary, which eventually in World War II led to the Lend-Lease program, was the fact that the United States had to ship many of these materials to them.

You cannot create, if you do not have the means to defend yourself, to create them indigenously. It's going to be very tenuous for the United States to get those parts. I've always been a firm believer, as Hamilton and others before me have been, that the United States has to have domestic manufacturing, domestic industrial capacity, by which they can produce the armaments to defend liberty against a dangerous world.

We seem to have forgotten that. In fact, the earlier sayings--I remember when the Soviet Union went in the ash bin of history--is that when people said it was the end of history, people said we had defeated Communism, I can think of a billion people in China that would disagree with that statement.

We tend to have a very short-term view, not only of the world but of ourselves and of the trials that we faced, and if you cannot produce the armaments domestically, God help you.

VICE CHAIRMAN BARTHOLOMEW: Thank you very much. Commissioner Mulloy.

COMMISSIONER MULLOY: Congressman, thank you very much for being here. We held a hearing last May up in New York to look at China as part of the globalization phenomenon. We had some very interesting testimony from a Dr. Ralph Gomory, who is the head of the Sloan Foundation. He said that the multinational corporations and the American multinationals are operating within a system that they have to make a profit for their shareholders and that's the system they're operating in.

He made the point that we cannot look at what they're doing as necessarily good for the national interests but the national interest has to be a broader look at the whole society. Of course, my view is that comes from the elected representatives of the people.

I'm reading that book that you just mentioned by Barry Lynn, do you--

MR. McCOTTER: I've never met him. I wasn't plugging his book. I just happened to read it.

COMMISSIONER MULLOY: He's over at the New America Foundation here in Washington. But do you sense that there is this separation between what the interests of the multinationals are and the broader national interest of the United States in this economic and trade picture?

MR. McCOTTER: When you talk about American multinationals, I think that I'm an American citizen wherever I am and whatever capacity I'm performing my duties. I would think, therefore, I owe a virtuous responsibility to my own nation to act in its best interests while maximizing the interests of my corporation or the shareholders. I believe that you have to view them as one and the same.

When you talk about globalization, if you're talking about somehow that you can step through a door at a multinational corporation or at an international labor union or wherever, and suddenly your American citizenship is somehow vitiated to some grander or in my mind baser motivation of simple profit, I think you're doing your country damage in the long run.

One of the things that we hear about shareholders and corporations these days is much what we hear about people in Congress, is that you're very short-sighted, that you don't look down the road far enough, and that in the pursuit for monetary profit, when you sacrifice moral principle, you will lose in the long run.

I think that it's absolutely accurate--when you think about some of the tenets of Marxism--material determinism, dialectical--what you're seeing now is they believe the capitalists will cut their own throats. They believe that every consumer is a budding capitalist, that we will then do everything we can to get more money, more money, even at our own national security expense, even at our own individual moral expense, and right now when you look at the size of the trade deficit and some of the things that we're doing, it's very difficult to disagree with their current strategy which is premised upon their fundamental antithetical philosophy.

COMMISSIONER MULLOY: Thank you very much.

VICE CHAIRMAN BARTHOLOMEW: Wonderful. We've also been joined by Senator Graham, who's testifying next.

HEARING COCHAIR DONNELLY: Right. So if you want to move along, that's acceptable to me.

VICE CHAIRMAN BARTHOLOMEW: Okay. Chairman Wortzel, we'll move on?

CHAIRMAN WORTZEL: I'll move on. Thank you very much.

VICE CHAIRMAN BARTHOLOMEW: Congressman McCotter, we might have some questions for you for the record. Thank you so much for your testimony.

MR. McCOTTER: I understand.

VICE CHAIRMAN BARTHOLOMEW: Welcome, Senator Graham. It is always a pleasure for us to hear from you. Thank you so much for your leadership on these issues and so many issues in the United States Senate. We know you are a phenomenally busy man, so we really appreciate you taking the time to come to testify before us today.



**STATEMENT OF LINDSEY GRAHAM  
A U.S. SENATOR FROM THE STATE OF SOUTH CAROLINA**

SENATOR GRAHAM: Well, what can you say about a commission that meets at 8:45? You are dedicated to your cause and you're adding a lot of value to the debate. I've enjoyed being here the last couple of years and I read your reports. I think a lot of people do. It's driving the debate. You're really helping us in the Congress figure out where we need to go and how we need to get there, and I've got a prepared statement, but I'll just talk to you for a few minutes here.

I'm leaving to go to China on Sunday. It's my first trip. I'm excited about it. I guess the question we have to ask ourselves every year: is China going backward or forward? If I look at the last year, I would say there has been maybe one step forward and two steps backwards, and this idea that the Chinese don't like being pressured, well, I don't like being pressured, but it's part of my job.

Come and answer my phone for a day and you'll understand that people have all kind of views about what I should be doing and what I am doing and that's just part of democracy.

So one of the underlying dynamics that I think needs to change between China and the United States and China and the world is the idea that criticism is part of constructive business relationships, and that if you fail to address problems or you threaten not to address a problem because you're being criticized, you can never really be a viable member of the family of nations because in democracies we accept the idea of constructive criticism.

The criticism that's been levied against China by this commission I think is very fact-based. I don't believe anyone here desires to ignore a billion people. I don't believe anyone here would like to have adverse relationships with the Chinese government or the Chinese people, but they make it exceedingly difficult.

As we fight the war on terror, we're standing for a value set that we believe is good for the world, and people in Iraq are literally dying for, and part of that value set is that people wherever they may live or whatever region of the world they may occupy or their religious background, they have certain basic rights.

We have it in our Declaration of Independence, our Constitution. We talk about that a lot, and the Chinese government has taken a tactic that I think is a backward looking tactic when it comes to their own citizens. And the idea of having 33,000 people monitor the Internet to make sure that someone doesn't say anything wrong that would alienate the government or that would threaten the government by just speaking or having an expression about freedom and democracy says more about our trading partner than I could say in hours here.

How can you have a constructive, productive relationship with a government who fears its own people, and that is willing, if necessary, to monitor the communications of its own people, not to find out about enemy activity, but they consider thought within their country enemy activity.

We're dealing with a country of very bright, talented, brilliant people with a rich culture and a government with no conscience. The basic fundamental disconnect between us and China is that we have a conscience and they don't. It doesn't bother them governmentally for them to have no property rights available to foreign investors.

I don't think they lose any sleep at night that pirating and counterfeiting of goods within their border of some third party is rampant. It does bother them when a Chinese movie is pirated. They stop it. I don't think it bothers them much that their currency is manipulated to the point that all their trading partners are put in an unfair position.

So I think as a nation we need to understand that this Communist dictatorship is a government really without a conscience and it only responds to pressure. I believe within that apparatus, there is a new emerging leadership that is trying to change China, and as I go to China I want to reach out and make these business deals better for China and the United States. If Ronald Reagan had taken the position with the former Soviet Union that we have taken with China, it would never have collapsed.

He stood in front of the Berlin Wall and he challenged the Soviet Union to tear the Wall down and said it was an "Evil Empire."

We look at China that is building a wall of oppression around its people, and our approach is can we sell you some bricks? We need to change. We need to have an open honest dialogue with the Chinese government and let them know without any doubt that our relationship in the future will be defined by certain expectations, and if you're going to be in the WTO, you can't be in to your benefit and to the detriment of everyone else.

We have problems, and the Chinese will tell me about where we've gone wrong and I will listen, and I'm sure I may be right in certain circumstances, but it's just not Lindsey Graham or this commission claiming they abuse the currency, they manipulate the currency; it's really the world.

It's not just this commission and Lindsey Graham saying there is no rule of law protecting intellectual property; it's the world. China needs to be pushed in a constructive way, and to the members of this commission, you're providing a third-party look, an independent review, of the relationship between China and the United States that is invaluable.

As far as I know, none of you have major business interests in China and you're not colored by the economics of this relationship. You don't have a business enterprise to protect, and we need people who are detached from the money being made in China to tell us where to go and how to get there.

America is schizophrenic about China. We love to shop and get reduced consumer goods, and that's a good thing, that China is helping our economy in that regard. But China is making it exceedingly difficult for our country to have a meaningful, long-lasting relationship because they're not adhering to international norms when it comes to business practices or human rights treatment of their own citizens.

In this century, we need to make a decision early on how we will deal with China and I have read every report you have issued, and I think you're on the right track. When I go to China, I will tell them that the 67 votes that were garnered against tabling our amendment that would have created a tariff on Chinese products if they don't reform their currency practices is a sign of things to come.

It's a sea change in the relationship between the Congress and the Chinese government, and Senator Inhofe has taken your report and your recommendations and made a bill out of it. So we are watching and we are listening to what you say and do.

The question is are the Chinese? If they're not watching and they're not listening, and if they're not getting the message, they're going to do so at their own economic peril because the relationship between the United States Congress and China is at a tenuous

point, and with some further reevaluation of currency, some modernization of their banking system, I think we can let this moment pass and come out the other end stronger.

The only thing I know for sure is that the status quo cannot be accepted or tolerated by this country any more than the Soviet Union's practices were accepted or tolerated by Ronald Reagan.

So I look forward to reading your next report. I'll look forward to coming back from China more optimistic than I left, and I hope by the end of this year, that we have some currency reevaluation and business practice changes that will make them a better trading partner, a better member of the international community, and if that happens, I would argue that this commission has helped make that happen because your reports empower people like me who are trying to send a message that's not protectionism; it's realism.

Every nation or every culture that built a wall around itself eventually collapsed. We're not going to build a wall around America. But every nation or every culture that allowed itself to be cheated out of market share has got no one to blame but itself.

Thank you for what you're doing and I look forward to reporting back to you about my trip.

VICE CHAIRMAN BARTHOLOMEW: Thank you, Senator Graham. We look forward to hearing about your trip.

SENATOR GRAHAM: All right.

VICE CHAIRMAN BARTHOLOMEW: Thank you very much for coming to testify.

SENATOR GRAHAM: God bless.

## **OPENING STATEMENT OF VICE CHAIRMAN CAROLYN BARTHOLOMEW HEARING COCHAIR**

VICE CHAIRMAN BARTHOLOMEW: Good morning, again. Thank you, Chairman Wortzel. On behalf of the U.S.-China Economic and Security Review Commission, welcome to today's public hearing. Tomorrow, we will be discussing U.S. export controls and the need to balance our real national security interests and the competitiveness of our businesses.

As the chairman mentioned, our focus today is on the modernization of China's military and its impact on U.S. and allied security interests in the Pacific.

This is a serious national security issue and one that is not getting the attention it needs as the administration is focusing on other issues.

As we described in our 2005 Annual Report, China is in the midst of an extensive military modernization program. The equipment China is acquiring is aimed at building its force projection capabilities to enable it to confront U.S. and allied forces in the region.

A major goal is to be able to deter, delay or complicate a timely U.S. and allied intervention in an armed conflict over Taiwan so China can overwhelm Taiwan and force a quick capitulation by Taiwan's government. We do not know what other intentions the Chinese government may have.

As noted in our 2005 report, China's official defense budget has experienced double-digit annual growth for over 15 years. Lack of transparency means we also do not

know just how much China's government is spending on military modernization. This growth raises concerns, not only for us, but also for regional allies such as Japan and South Korea.

Since our report was issued, the Pentagon's 2006 Quadrennial Defense Review has concluded that, and I quote:

"Of the major and emerging powers, China has the greatest potential to compete militarily with the United States and field disruptive military technologies that could over time offset traditional U.S. military advantages absent U.S. counter strategies."

China continues to upgrade its military command and control systems, information warfare capabilities, offensive strike capabilities, as well as sea control platforms and weapons.

Chinese missile forces are one specific area of concern. I won't go into that.

A final point I do want to make relates to the E.U. arms embargo that was put in place after the 1989 Tiananmen Square crackdown. Human rights improvements are still desperately needed in China and it is important to global stability for Europe to refrain from lifting the embargo. The embargo must remain in place until China takes major steps to improve its human rights record and gives evidence of its responsible participation in the community of nations.

Moreover, given our historic alliance with Europe, American servicemen and women should not be faced with having to confront a China wielding European weaponry. We will go on to our witnesses afterwards.

[The statement follows]

### **Prepared Statement of Vice Chairman Carolyn Bartholomew, Hearing Cochair**

Good morning and thank you Chairman Wortzel. On behalf of the U.S.-China Economic and Security Review Commission, welcome to today's public hearing. Tomorrow we will be discussing U.S. export controls and the need to balance our real national security interests and the competitiveness of our businesses. As the Chairman mentioned, our focus today is on the modernization of China's military and its impact on U.S. and allied security interests in the Pacific. This is a serious national security issue and one that is not getting the attention it needs as the Administration is focusing on other issues.

As we described in our 2005 Annual Report, China is in the midst of an extensive military modernization program. The equipment China is acquiring is aimed at building its force projection capabilities to enable it to confront U.S. and allied forces in the region. A major goal is to be able to deter, delay, or complicate a timely U.S. and allied intervention in an armed conflict over Taiwan so China can overwhelm Taiwan and force a quick capitulation by Taiwan's government. We do not know what other intentions the Chinese government may have.

As noted in our 2005 report, China's official defense budget has experienced double-digit annual growth for over 15 years. Lack of transparency means we also do not know just how much China's government is spending on military modernization. This growth raises concerns, not only for us but also for regional allies such as Japan and South Korea.

Since our report was issued, the Pentagon's 2006 Quadrennial Defense Review has concluded that, "Of the major and emerging powers, China has the greatest potential to compete militarily with the United States and field disruptive military technologies that could over time offset traditional U.S. military advantages absent U.S. counter strategies."

China continues to upgrade its military command and control systems, information warfare capabilities, offensive strike capabilities, as well as sea control platforms and weapons. Chinese missile forces are one specific area of concern. For example, China's ballistic missiles are a threat to Taiwan and several western Pacific nations. It is believed that China has roughly 800 short-range ballistic missiles and adds 75 to 120 more a year, with the great majority stationed so they are well within range of Taiwan. They are a direct threat to regional peace and stability.

A final point I want to make relates to the EU arms embargo that was put in place after the 1989 Tiananmen Square crackdown. Human rights improvements are still desperately needed in China, and it is important to global stability for Europe to refrain from lifting the embargo. The embargo must remain in place until China takes major steps to improve its human rights record and gives evidence of responsible participation in the community of nations. Moreover, given our historic alliance with Europe, American servicemen and women should not be faced with having to confront a China wielding European weaponry.

Finally, let me remind all of our witnesses that opening remarks should be limited to eight minutes but that their entire prepared remarks, which can be as long as ten pages, will be posted on the Commission's website, [www.uscc.gov](http://www.uscc.gov). We have timing lights to help you monitor your remaining time: when the green light turns yellow, two minutes remain. When the light turns red, please conclude your remarks as rapidly as you can do so.

Chairman Kolbe, it's always a pleasure to see you. Welcome. Thank you so much for coming to testify and we really look forward to hearing from you.

**STATEMENT OF JIM KOLBE  
A U.S. CONGRESSMAN FROM THE STATE OF ARIZONA**

MR. KOLBE: Thank you very much, Madam Vice Chairman, Mr. Chairman. Thank you, and members of the commission. I'm delighted to be here this morning and have this opportunity to talk with you. I'm aware of the work that this commission is doing. I think it's very important for the understanding of Congress and for the American people, for the public, about what I think is a very complicated subject, not one that lends itself to easy solutions.

I know looking at your list of people testifying today, you have a number of very important people that have, I think, some very diverse ideas. So I think hopefully during the course of the day you're going to hear some very different kinds of ideas and I hope you can sort through those and make some sense out of them as you make your report to Congress.

Like most of the members of this commission and the people that have been speaking before you, most of us have traveled to China at one point or the other. My most recent visit was last spring, just a little less than a year ago.

I'm aware, as you are, of course, of the up and downs in the history of the U.S.-China relationship. We had a rocky moment at the beginning of the Bush administration with the forced landing of the Navy aircraft. We then saw substantial improvement after 9/11 and the efforts to work together on counterterrorism, those, which I might add, those efforts which are ongoing.

But, of course, the current relationship is really characterized by tension over economic issues far more than anything that is regional security issues. Although those still remain as a major issue in the background, what really dominates the U.S.-China relationship today are clearly economic ones.

For many in the United States, China is viewed as an economic and security threat. A nation that has over a billion people, that has a rapacious appetite for consumption, particularly of energy, it has great ability to produce enormous amounts of goods and the United States has a rapacious appetite to consume those goods.

So, in addition to that, I think that the military modernization that is taking place in China makes many in the United States feel very uncomfortable as we look to the future and see what might be coming down the road.

Recent events in our own country here have exacerbated the rhetoric for protectionist and isolationist policies, the "Buy America" stuff which we see in legislation all the time. Most recently in the last few days, we've seen the Dubai Ports World issue. A couple months before that, the aborted purchase by CNOOC of Unocal. So there is an economic protectionism here in the United States, the likes of which I don't think we have seen in quite awhile.

I'm also aware that the commission has made recommendations in the past to reform CFIUS and I encourage you to continue those efforts because I think that some real changes and the Dubai ports issue certainly suggests that there is a need to do that.

The looming question, I think, for policymakers is do we engage China or do we attempt to try to distance ourselves from China or to isolate China from the rest of the world? I happen to be one of those that believe firmly that China is here to stay, and China is going to be a world power, and engagement is by far the best policy.

But I don't think it's clear yet as to which course the United States is going to take. It is up, I think, to Congress to lead and that's why we're looking to this commission to help us in that direction.

But I have some real concerns about the directions that I see emerging in Congress. I have concerns about our trade policy in general. I am known in Congress as being one of more strong advocates of free and open trade in the world. But I have particular concerns as it relates to China.

Recent trade policy choices by members of Congress appear to be more reflective, it seems to me, of political opportunism than of genuine reflections on the pros and cons of reducing trade barriers or of the currency devaluation issue with China.

Certainly, the Dubai port issue, the Unocal, potential Unocal sale, the vote on CAFTA, the Central American Free Trade Agreement, last year, all of these, I think, are reflective of this kind of growing tension and protectionism that I see in the United States.

I'd like to make seven points to you very briefly, Mr. Chairman. First, economic interdependence fosters better security. While security is a precondition of commerce, trade and business ties can also create a more favorable security environment.

There are no guarantees in international security, but surely the growing economic ties that we're seeing across the Taiwan Strait is one of the reasons that political tensions there have not been worsened, and you can go to Taiwan today and hardly find anybody there that isn't doing business one way or the other in China.

I think all of these are leading inexorably to a growing economic dependence of China and Taiwan on each other and I think help to mitigate the problem that we see there.

We know, for example, of the closed economic system that characterized the Soviet Union led very directly and swiftly to its demise.

Second, economic interdependence is a fact; it's not a preference. As the 1997 Asian financial crisis clearly demonstrated, economic meltdown in Asia in general and China in particular did then have devastating effects on the global economy and on the American economy, and another one with like consequences of similar depth would have even worse consequences for us because our interdependence today is far greater than it was then.

Third point, China will increase its economic and its military power whether we trade with it or not. China's rising power is not debatable. It is becoming a global power. The question is what we do with that power; how we interact with that? What rules will China abide by and what incentives it will have to cooperate internationally while managing its own complex domestic challenges?

One of the difficult tasks it seems to me of this commission is to try to understand those internal difficulties that face China because without understanding those, you really cannot make policy for the United States that is going to be effective policy.

Economic interaction gives us far more an opportunity to influence a rising China than it is a point of friction or something detrimental to the United States. So we need to, if we're going to have an impact on China, we're going to have much more opportunity to do so if we're interacting with them.

Fourth point, some country is going to be China's largest trading partner. As China spreads its influence around the world, some country is going to continue to be its largest trading partner. The question is which country is that going to be?

We would be concerned if others were overly drawn in by China's economic power because of the diminished influence that we would have on China or its policies. The United States has a free market relative to Europe and Asia, and it's poised to become and to be a major trading partner, if not the major trading partner, of China, and I think that is one of the things we should keep in mind.

Fifth, China's assertiveness and military might will be no easier to deal with if China and the United States lack strong trade relations. If we're going to clash over energy or Sino-Japanese relations, the future of North Korea, of proliferation issues, of Taiwan or approaches to fundamental human rights, none of these are going to be easier if we have an exacerbated or bad economic relations with China.

As China's power gradually challenges U.S. power over future decades, hot war could become increasingly costly to contemplate. None of us want to think about that and I'm not suggesting that is likely to happen, but certainly as we have found, continued engagement is one of the easiest ways, the best ways, to reduce those tensions.

The better strategy, it seems to me, is to embrace China, not to necessarily endorse its policies, but to embrace the concept of engagement with it, to help it make intelligent choices about how it should and it can contribute to international security.

Let us remember that the League of Nations failed because major powers were left outside of its deliberations and there was no mechanism for enforcement. If future security is going to be attained, then Chinese power, even military power, will have to be harnessed to help contribute to the peace.

As its economic prosperity grows and its middle class widens, it will have a growing stake in a stable world order.

A sixth point, other policies ensure that there are counterweights to rising Chinese power. For example, our increasingly close relations with India and the strong

relationship we've always had with Japan, and as Japan's economic power reasserts itself, those for starters are going to be natural counterweights that will help to maintain a balance of power among the Asian powers.

Our close community of free market democracies provides another bulwark with which to influence a growing China. You have such organizations as ASEAN, which has increasing influence and which China is a major player in. We can't be blind to the potential of Chinese challenges which could arise indirectly out of growing internal troubles or simply poor leadership choices that might be made in China in the years ahead.

But we're better dealing with those difficulties if and when they arise by being engaged with them and by having the counterweights of other influences in China.

Finally, Mr. Chairman, seventh point, a free trade and China trade policy does not obviate the need for the United States to invest in defense modernization of our own and our own human capital, our own people as the best guarantors that the United States will be in a position to protect its interest in future generations.

In other words, I think it's very important that the United States not cede its role in the world, its global role. I don't think we're going to do that, but we will inevitably do that if we do not make our own investments in human capital that are so important to maintaining the competitive posture of the United States.

So, as China and the other Asian powers rise, we'll be better poised to retain our influence if we continue to have close economic ties to those major powers.

Mr. Chairman, once again I want to thank the commission for this opportunity to make these brief remarks and for the work that you are doing, the time that you are giving to this I think very important issue, and I look forward to the report that you will be making to Congress and the recommendations that you will make, and I would be happy to try to answer any questions, Mr. Chairman.

### **Panel Discussion, Questions and Answers**

VICE CHAIRMAN BARTHOLOMEW: Thank you, Chairman Kolbe, and thank you very much for your thoughtful comments. I would like to take the prerogative as vice chair to also thank you for all of your work and your leadership on both trade promotion and on poverty alleviation and humanitarian assistance.

MR. KOLBE: Thank you very much.

VICE CHAIRMAN BARTHOLOMEW: You have been a true star on that and you will be really missed.

MR. KOLBE: Thank you very much.

VICE CHAIRMAN BARTHOLOMEW: Thank you. Commissioner Reinsch.

COMMISSIONER REINSCH: Well, I'm just going to join the parade of compliments and thank Mr. Kolbe for consistently being a voice of sanity. My organization is honoring him at lunch today for precisely that, so I'm looking forward to seeing you again today.

Let me also thank you on behalf of my other organization for your vote on the Lewis amendment. Its lonely at the top or the bottom, depending on how you look at it.

MR. KOLBE: I think it was at the bottom of the numbers at least.



COMMISSIONER REINSCH: Well, knowing my position here, I know how you feel, but it was a good vote, a wise vote, and I appreciate your standing up on that issue.

MR. KOLBE: Well, I appreciate your comments, and I do think it illustrates the problems that we face in this country. I was struck by an article that appeared in the Washington Post by I think it was Pearlstein, who said, we act as though we had unlimited economic power; we don't. And we are the largest debtor nation in the world and we better keep that in mind when we go off and make these kinds of decisions that we make.

I would say that I would take whatever steps were necessary with regard to Dubai if I believed the national security was involved, but I don't believe there was any threat to national security with the ownership of that management company.

VICE CHAIRMAN BARTHOLOMEW: Commissioner Donnelly.

HEARING COCHAIR DONNELLY: Thank you very much, and as a measure of my respect for you, Mr. Kolbe, I'd like to try to draw you on one issue that you mentioned.

MR. KOLBE: Thank you.

HEARING COCHAIR DONNELLY: Where I think the policy of engagement in my mind comes most into question, and you mentioned the issue of energy, which it does seem to me that the Chinese have a different approach to than we do.

MR. KOLBE: Yes.

HEARING COCHAIR DONNELLY: And in particular, to those very troubled parts of the world where most of the world's energy is produced. So if I could just give you a platform to elaborate a bit on your views as to whether in places like the Middle East or in Africa, and not just in regard to energy resources, but natural resources more broadly, do you see whether the Chinese posture and American policy, which I think have been reasonably well integrated in regard to broader trade measures, may becoming more into conflict and what your views are on that?

MR. KOLBE: Well, thank you very much, Commissioner, for that opportunity to speak and for your opening. You are absolutely correct. China does have a different approach to the issue of energy. Let's start with this. We're both in the same boat in that we are huge consumers of energy.

China is going to become a greater and greater consumer of energy and a greater competitor for that energy around the world and that's going to exacerbate some of the problems that we face, and certainly suggests that what President Bush has talked about, energy independence, should be something that we accelerate in this country because the rest of the world and India, but China most notably, is going to be after those same supplies of energy.

They are not constrained by the same kind of principled approach to the world that the United States is. We have values that we hold very dearly to, and we often are willing to sacrifice some of our friends, not our friends, but some of our access to energy sources because we believe very strongly in the principles we hold.

Those generally do not deter China at all. As chairman of the Foreign Operations Subcommittee, I have an opportunity to travel a great deal, a requirement to travel in connection with my job, and most recently in January, I was in Africa. I was really struck in Africa by the movement of China into that region, in that continent.

They are moving in a very direct way and very aggressively on all fronts, cultural, trade, political, diplomatic. They're engaging in every way. It seems everyday some member of the Chinese leadership is landing in some country in Africa and signing some new agreement with them, maybe something as simple as a cultural exchange agreement, but more likely it's something that is leading to having access to more of their natural resources.

And you correctly point out it's not just energy, but it's the other natural resources. Africa is rich in mineral resources and China is aggressively pursuing those. So I think it's another thing that we need to keep very much in mind as we engage the rest of the world, that our role in this, it's very important. So I appreciate that, your comments on that.

HEARING COCHAIR DONNELLY: Thank you very much.

VICE CHAIRMAN BARTHOLOMEW: Congressman Kolbe, how is your time? We have a couple more people who are interested.

MR. KOLBE: Please.

VICE CHAIRMAN BARTHOLOMEW: I know Congressman Blumenauer is here also. Commissioner D'Amato.

COMMISSIONER D'AMATO: Thank you, Madam Chairman, and thank you, Mr. Chairman, for coming. We really appreciate your testimony this morning. I was struck by your reference to the League of Nations. One of the recommendations that this Commission has been making has to do with China's role in WTO. The U.S., of course, was were very instrumental in bringing her in, so we're all under that tent.

The question is up until now enforcement mechanisms in the WTO have not been used with regard to Chinese behavior. In certain areas, there seem to be persistent problems. So it's our view, I think, over the last couple of years that this is one of the few tools that we have to try and bring the Chinese more into compliance with the obligations that they have entered into in the WTO.

I was wondering about your views on that. Do you think the time has come to start being more assertive in terms of putting together IPR, subsidies, the other kinds of persistent problems, which are susceptible to perhaps solving more easily through this organization than bilaterally?

MR. KOLBE: Yes, I do. You have raised a very good point. There is no question that the enforcement mechanisms in the WTO are not the best. They're cumbersome. They're slow. They're generally fairly weak. They are infinitely better than what we had prior to WTO under GATT where there was no enforcement mechanisms. At least we have some enforcement mechanisms and, of course, we've seen them work against us--unfortunately to some people at least in the United States. But I think they've worked in a fair manner.

We need to be more aggressive in using those enforcement mechanisms with China and we need to be more aggressive in trying to, during the Doha Round in my opinion, and I don't think this is shared I think by a lot of people, but I think we need to be more aggressive in trying to strengthen those enforcement mechanisms.

But certainly, as you mentioned, in intellectual property, it's one of the areas we need to be very aggressive with China, and I note the comments of Secretary Gutierrez, who suggested that we won't go forward with the next round of discussions with China if

there isn't going to be some progress in that area. That's a pretty dramatic and direct statement.

There is no question China needs to do a great deal more. I'm not defending China--you cannot go to China and not realize the complexity of doing so when you see the vastness of this country, and you can step out of your hotel and buy virtually any kind of DVD on the street right in front of you there, and you can't imagine how many police it would take to police all of that kind of thing--pirated DVDs right in front of you there.

So it's a tough problem they've got there, but they do need to do a great deal more, and I think they understand that their trading relationships with the United States and other countries is going to depend on their willingness to show better behavior in that area.

COMMISSIONER D'AMATO: Thank you.

VICE CHAIRMAN BARTHOLOMEW: Commissioner Mulloy, a brief question.

COMMISSIONER MULLOY: Congressman, thank you very much for your service to our country over your career. I read the Pearlstein article as well. The United States, of course, is running this current account deficit of close to \$800 billion.

Foreign acquisitions are the other side because when your dollars are out there, people have them; they can come back and make acquisitions. So it seems to me that if you're worried about the acquisitions, you got to begin to think about how to deal with the current account deficit.

What I would urge, since you're a strong leader on free trade, that a group somewhere has to start saying this is a real problem and people who have been associated with the free trade view offer a remedy because I don't think we can go on this way. It's very damaging to our long-term interests in the world.

I just think that a group led by you could play a key role in helping us think without being protectionist how to grasp this \$800 billion and growing current account deficit.

MR. KOLBE: Thank you, Commissioner Mulloy, for those comments and your suggestion. I agree with you. Those of us that are free traders need to be much more up front and aggressive in talking about this issue and this problem because you are absolutely correct.

In the long run, it's like a merry-go-round; at some point it has to stop. It can't on forever and ever, but as I'm sure you are aware, it's a very interrelated problem. It's not as though you can see the trade current account deficit as something totally separate from our own private deficit and public deficit here in the United States.

We have the lowest savings rate of any major country in the world. We have a negative savings rate this last year. We have this massive deficit, public deficit, because we have this incredible appetite to keep consuming. We have the private deficit because we keep consuming goods and the rest of the world is willing to loan us the dollars back to buy those goods because the dollar of the United States still looks stable economically.

At the public level, we have this political lack of will to deal with the underlying problems, which are the entitlement programs in this country, which now consume over 60 percent of our total federal spending. You add into that defense and homeland security and interest on the debt, and you have 85 percent of the budget consumed by that.

So we're not making the investments in the human capital that I was talking about earlier. We're not making the investments in the infrastructure, but politically we're unwilling to deal with the entitlement program. I would just say only in my defense that 12 years ago, Congressman Stenholm and I initiated the idea of Social Security reform.

I said that's the easy one. Medicare is the tough one. Let's see if we can deal with Social Security. Well, we've shown we have no will to deal with Social Security, so I wouldn't hold your breath about our dealing with Medicare or the other entitlements. But all of those things come together. We have this big deficit. We want to consume those goods.

The rest of the world gets our dollars. They loan them back to us in these deficits, and it just keeps on going, but at some point you're right, the rest of the world is going to say we're not willing to hold all those dollars any longer, and that's when interest rates start to rise, that's when the economy starts to decline, not just ours, but the Chinese and the Japanese and the rest of the world's economy goes down because we are the engine of that economy here. So it behooves all of us to get it right sooner rather than later.

COMMISSIONER MULLOY: Thank you, Congressman, very much.

VICE CHAIRMAN BARTHOLOMEW: Thank you very much, Chairman Kolbe, for your leadership and for your time.

MR. KOLBE: Thank you very much. I appreciate the chance to be with the commission. Thank you.

VICE CHAIRMAN BARTHOLOMEW: All right. Next we're very pleased to welcome Congressman Blumenauer, actually a dear friend and a leader in Congress. He represents Portland, a district that has been built on trade.

We're always interested to hear what he has to say. Welcome.

### **STATEMENT OF EARL BLUMENAUER A U.S. CONGRESSMAN FROM THE STATE OF OREGON**

MR. BLUMENAUER: Thank you very much and it's a pleasure for me to follow my friend Jim Kolbe and I appreciate the opportunity to continue the conversation with you to share some of my biases, in particular dealing with export control regimes and China's military modernization.

Export controls, economic sanctions and some of our trade debates are only a small part of the greater challenges we face making smart choices at the intersection of economic, political and security interests where our actions will impact all three.

The last nine months on Capitol Hill have produced some of the most unsettling moments for me in my ten years in Congress. One thinks about the furor surrounding the attempted purchase of Unocal by the Chinese government which elicited a fury of anti-Chinese sentiment and sent, I think, absolutely the wrong message about United States energy policy, our fiscal predicament and our priorities at home and abroad.

I was one of the lonely 15 people who voted against the condemnation of the deal. I must say that I would much rather the Chinese access their petroleum supplies through the free market than drive them into shady deals with regimes like Iran and Sudan or flex their muscles in the South China Sea over disputed oil and gas fields.

Last month before the International Relations Committee, we had a public flogging of four of our significant technology giants, Yahoo, Google, Microsoft and

Cisco, surrounding their operations in China. There was little attention to the fact that the four companies have different products, different services, different business models and they all have an array of competitors, both in China and around the world, who would be more than happy to step in if United States companies were forced out and we would actually then lose leverage to push back against Chinese government policies that we find repressive and inappropriate.

It's not to say that we have no interest in providing guidelines to U.S. companies or having our government play a role in protecting our companies from undemocratic demands. The hearing, though, did not elicit much information about how best to advance our aims of freedom of information and expression as well as legitimate protection of U.S. commercial interests.

Two weeks ago, we had the imbroglio regarding the Dubai Ports World deal, where a relatively modest change in port operations from a foreign company from one U.S. ally, Britain, to a company owned by another U.S. ally, Dubai. To be sure, there are some legitimate questions with this agreement about our homeland security, but in the main they are relatively minor compared to the serious problems in our homeland security and preparedness that have been documented by the nonpartisan 9/11 Commission.

The Dubai issue is much smaller question of port security as a whole, but sadly too easy to turn into sound bites. When we're not doing the real legislative work necessary in any of these areas, we find things that are seized upon by the politicians and the media--which brings us to the discussion before us today on dual use technology and export controls.

Export controls are an example of something that can be symbolic of much larger and legitimate concerns. But they've been a vehicle, I fear, for people's apprehensions about losing control and other rapid changes amidst an increasingly high tech world, the rise of potential military and economic rivals such as China, and the problems of defining "sovereignty" and "adversary" in an increasingly interdependent global economy.

I appreciate those who have taken a serious look at export control regimes including the Defense Science Board Task Force on Globalization and Security, House Select Committee on U.S. National Security, and Military/Commercial Concerns with the People's Republic of China (the Cox/Dicks Committee), and the Study Group on Enhancing Multilateral Export Controls for U. S. National Security.

They've all concluded that we need a new paradigm for export controls. I fear that our current system is based on a Cold War template that predates the technological revolution and the global integration of the last 20 years.

It certainly doesn't reflect the reality today of how much dual use technology is already widely available and available from foreign companies. In this way, unilateral controls are often ineffective and reward foreign competitors at the expense of U.S. companies. Intel has the largest concentration of its employees in the world in our community, and I've had examples from executives there who talk about some of the bizarre things that have been required to comply with export controls.

Now, my community, as referenced, is one that relates to international trade. We depend on high tech exports for jobs and I think no one that I've discussed this with in the local tech community is unwilling to be involved with effective and necessary controls. But I think they are deeply concerned with ways that we improve the regime to keep pace

with changing technological developments so that the control list doesn't pretend to control items that are no longer controllable.

What we should be even more concerned about with is the conclusion of the Defense Science Board Task Force that, because the military increasingly depends on commercial technology sector to develop next generation military systems, any significant restrictions on U.S. high tech exports could actually end up having a stifling effect on the U.S.'s military's rate of technological advancement.

And because some of these products have costs spread more widely, too narrow a regime could end up driving up the costs for our military and not being successful in the ultimate scheme of affairs.

These concerns are also advanced by the scientific and higher education communities. We benefit dramatically by having interaction in higher education with people from around the world. Their concern that "deemed export" restrictions threaten the involvement of foreign students and scientists in research that itself is critical to United States economic and national security while adding to the academic vitality of our institutions.

Now, I'll be the last to say that there aren't legitimate issues with regards to Chinese military, its modernization, its aims and its capabilities. However, to the extent to which export controls are meant to prevent Chinese military modernization, the evidence is strong that the current unilateral export regimes are not going to be wildly effective in preventing Chinese access to much technology and likely will not in the future.

Tightening export controls won't affect their build up unless we're able to identify specific items they need that they can only get from us and which are not now controlled. We need you as an independent informed credible voice to help us in policymaking, to cut through the political clutter.

Yes, our relationship with China poses real challenges, and I would suggest we ought to spend more time dealing with the real challenges with China and its environment, and obviously the geopolitical ones. But I'm involved with things in our International Relations Committee that deal with immediate threats in this decade--not some far distant future with uncertainties surrounding China--where we need the Chinese relationship right now with immediate threats from North Korea, with controlling nuclear proliferation with Iran, and so working with you to thread this needle with dual use technology and export controls is critical. By all means, let's take a serious look at the ways in which China poses challenges. Let's figure out where our interests diverge, but also where they converge, and nurturing the shared interests to help reduce the tensions between our two countries, to nurture the intellectual, the economic and the political partnerships.

We need to figure out where the real threats might be and focus more of our attention on specific issues and capability. I agree with the Defense Science Board conclusion that the United States must put up higher walls around a much smaller group of capabilities and technologies.

China is an ancient huge and complex nation. They've been practicing diplomacy for about 4,000 years. Maybe if we stretch the point we can claim we've been in the game for 400 years. In my limited travels to China over the years and working with Chinese government officials, academics, both here and in China, I think you can justify

almost anything. You can find an example of almost anything in China given the vast nature of it.

I think we have tended as a country over the last century to often make decisions about China that were on the wrong side of history. I think as we look back at World War II, there are real questions of our relationship with the Kuomintang, Nationalist China. I think any honest appraisal of General Marshall and our work after World War II leading up to the Korean War and dealing with the Chinese Communists was not the most artful period of our diplomacy and our strategic thinking.

I think the United States and General MacArthur misplayed the situation in the Korean War and led to the prolonging of that. And I, for one, salute the actions of then President Nixon to end the isolation which really I think retarded the relationship between these two great countries.

We are going to be sharing the world stage for years to come, and we look forward to your thoughts and insights in our discussion to make sure that the next period is as constructive as it can be.

Thank you very much.

VICE CHAIRMAN BARTHOLOMEW: Thank you, Congressman Blumenauer.

Chairman Manzullo, it's always a pleasure to welcome you here. We welcome the small business perspective and the perspective from your district and your wisdom on these issues, too.

**STATEMENT OF DONALD MANZULLO  
A U.S. CONGRESSMAN FROM THE STATE OF ILLINOIS**

MR. MANZULLO: Thank you very much. Earl and I, in fact, were in China—some two years ago, and Earl had something to say there about the environmental controls or lack thereof.

Thank you for the opportunity to come here and speak. I come from an interesting background, Chairman of the Small Business Committee, but am also cofounder of the three manufacturing caucuses that we set up on machine tools, manufacturing and on precious metals. I spend about 70-75 percent of my time working on manufacturing issues. Our congressional district, Winnebago County, has the second-highest concentration of manufacturing jobs per capita. It is one out of four jobs in Winnebago County, Illinois is directly related to the manufacturing sector, and at the same time, we also have a lot of foreign direct investment.

We have Germans. We have the Swedes that came in and bought Haldex that makes pistons, hydraulic cylinders. The Italians, the Camozzi's, bought Ingersoll Machine Tool division when that company, when the giant company, went under.

The Israelis bought Ingersoll Cutting Tool division and saved 600 jobs. The Italians, Camozzi, bought the Ingersoll Machine Tool division, and the Chinese, a wholly owned, a wholly state-owned Chinese company, Dalian, bought Ingersoll Production Line Systems, saved several hundred jobs in Rockford. This is a non-sensitive production line system. They make machines that make things that go on our production line system.

The reason I mention that background is the fact that we're talking balance here, that if we cut ourselves out from dealing with China, we're just going to open up the

markets for everybody else, and right now the present export controls won't let us export anything for access without a validated license to Tier 3 countries which includes China and India, the two most highly industrialized countries besides the United States.

That's unfortunate for us because our machine tool presence around the world, at one time we had 80 percent of the market. Now, we're down to two percent of the market. So while there's an increasing demand for machine tools around the world, in the United States we're making less and less, and there is a reason for that.

That's because of our export controls. It's much easier to be able to buy a similar machine from the Swiss or the Italians or the Swedes or the Canadians than it is to try to get an export license from the United States.

The other problem is with regard to visas. It is downright stupid the policy that this government has that treats every Chinese as if they were some type of a terrorist. We have to work very, very hard to bring in Chinese engineers and Chinese who want to buy our products that are not controlled.

Now that has alleviated itself quite a bit. Our committee was instrumental in brokering a multi-visit yearly visa with the Chinese government and the United States government. There are a lot of things that we have done on our own part, that it impeded us in selling legitimate items, uncontrolled items to the Chinese.

In export controls, again, there has to be a balance with export competitiveness. There was a remarkable scenario that took place on the House floor on July 14 this past year, 2005. It was the East Asia Security Act, H.R. 3100.

Unless a member comes from a district that is heavy in manufacturing, and only about 50 of us do out of 435 House members, it's very difficult to understand these export controls and the ramifications of them. If this bill had passed, it would have led to this anomaly, that Dalian, the wholly-owned Chinese state-owned enterprise, that bought a business in Rockford, Illinois that nobody else wanted to buy--it would have gone bankrupt--and which manufactures machine tools for production line, would not have been allowed to export to China the very machine that they're manufacturing in Rockford, Illinois.

That's how absurd that act would have been and when you represent the district, the commercial district that led the nation in unemployment in 1980 at 25 percent, at which today is still at seven percent, with a tremendous loss of manufacturing jobs, the last thing you need is another impediment to take the marvelous machines that we make and make it impossible to sell overseas.

So I went nuts on the floor. The Hill Magazine, I don't even put my picture in, which I thought was pretty flattering. It was before I lost some weight. It talked about the fact that at one time this thing was passing on suspension by 300 and something to 60. I turned to Jim Kolbe and I said this doesn't look too good, Jim. What was at stake was hundreds of jobs in my congressional district because the bill would have controlled items that are now not controlled if the items could have had some relationship to China's military capacity and also what was at stake--there was a company called Gleason-Pfauter. Now, Gleason-Pfauter, the Gleason is in Rockford, Illinois. The Pfauter is in the state of New York, but they also have a division in Germany.

They make the best machine tool in the world for making transmissions. If this act had passed and the Senate had agreed to it, that means that this company would have closed down shop in the United States, moved everything to its relatively small



subsidiary in Germany, and then exported from Germany back to the United States and then to China because someone said, in all the thinking going on, we cannot in the United States sell China a machine tool that could make a transmission that would go on a Chinese military truck.

Now, you could take this to absurdity because obviously most things could have an application. God forbid we should sell a toilet to the Chinese that they may be able to use in some type of military application over there because everybody uses toilets.

But the thinking that goes on here results from the fact that we have to spend more time in Congress educating our colleagues on how important is the manufacturing sector. Now let me tell you who gets it, and gets it big time, is Carlos Gutierrez. This man not only understands international trade and manufacturing but machine tools.

In fact, we were talking about the last company in America to make the cold form and machine tool which is National Machinery in Tiffin, Ohio. And I said, Secretary, that's important for us to keep that facility because it makes bullets. He said, yes, it also makes Fruit Loops. Now, the significance of this led to the Secretary sending me a letter dated July 27 of 2005, where he talks very specifically about the United States unilaterally agreeing to more export controls.<sup>1</sup>

It's very easy to get caught and say we can't do this, we can't do that, and when we have excessive export controls it does several things.

Number one, obviously it hurts the balance of trade. Number two, it further diminishes our ability to manufacture high quality machine tools here. But number three, it hurts ingenuity, creativeness on the part of our American engineers, because they're stymied thinking we can make this thing and have it a marvelous product, but we can't sell it overseas. That's where the growing manufacturing market is for machine tools.

Let me just give you three things that we should consider with regard to export controls. They should be targeted and focused upon clearly defined national security priorities. If something is on the ITAR list, let it go over to State. Let it be considered a military or defensive weapon subject to controls there. You don't worry about licenses.

The rest of the stuff, take a good look at it. We're in the commercial satellite business, and there was a vote that took place on the floor several years ago that would ban the sale of U.S. satellites to China, commercial satellites, and just a handful of us voted against that proposal.

Why is that? Why do we come up with these restrictions all the time? Well, we have to follow them through. We need to know the importance of these votes. Broad sweeping rules that impose burdens and costs on U.S. industries without achieving a concrete target or protecting a key technological asset serve no useful purpose except to make U.S. companies go offshore because it's simply easier to do business.

Two, export controls must be effective. By that, they must be multilateral. Unilateral export controls simply don't work. Export controls cannot be an exercise in academics or a misguided attempt at establishing world leadership when no one else will follow them and will simply use them to gain competitive advantage for commodity technologies. That's what Secretary Gutierrez was talking about in this letter.

The thought is the United States should lead in the area of export controls. We're not talking about weapons. We're not talking about missiles. We're talking about

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<sup>1</sup> [Letter to The Honorable Donald Manzullo, July 27, 2005 from Carlos M. Gutierrez, Secretary of Commerce.](#)

machine tools mostly. Lead in what? In a race to the bottom. Lead in what? Giving other nations the ability to sell these almost commoditized items and we sit back and then we complain about the loss of manufacturing jobs.

Third, export controls must be transparent and impose clearly defined consequences than can be known by industry in advance. You can't have this gray area and it's still floating around. People are upset because--of course, we had a company that just went bankrupt, but they made brake drums and rotors, and some might say, well, you can't ship that to China, that may have application in a military truck.

We're in the fight for our life, to keep what we can involved in manufacturing in this country. I travel all over the world. I visited hundreds of facilities. I just came back from Japan, spoke at a manufacturing seminar over there. What the United States has yet to adopt is a firm statement that manufacturing is important. I got in a big fight with the former White House Economic Advisor N. Gregory Mankiw, and called for his resignation, when he said he was delighted that all these jobs were being offshored, and I said this guy has got to go, and three hours later even the Speaker got involved in that.

We need to have a mind set in this country that if we don't have strong sectors in manufacturing, agriculture and mining, that we become a third world nation.

Let me conclude with this. As chairman of the American-Chinese Inter-Parliamentary Exchange, we meet with the Chinese almost on a weekly basis. It's very frustrating. Life is frustrating. Being a congressman is frustrating. If you don't like to be frustrated, do something else. I don't know what else I could do.

I raised beef cattle and practiced law in a small town. I was always frustrated and now I'm frustrated here in Washington. But we've seen some interesting things taking place with the Chinese, and follow me on this. Congresswoman Marsha Blackburn and I were in China in August. As you know, Marsha represents Nashville and her songwriters are being devastated by a lot of piracy going on in China.

We were in Kunming, and she peeled off with two of my staff, and they got some remarkable movies --you could buy three brand new American movies that hadn't even been released for two bucks. So we've been trying to work with the Chinese. We've been working with the Chinese as to the importance of them enforcing their own IP laws.

Now, as China becomes more sophisticated, they have more of a stake in this, and we struck up a relationship with Madam Gu, G-U. She is a member of the Chinese parliament, National Peoples Congress, and she's also a songwriter. And a lot of her friends in the songwriting business of China are now being subjected to piracy. So you have the Chinese pirate Chinese and Chinese pirate American, recognition of the fact that piracy carries across country lines, and you rip off whomever you can.

We met yesterday with somebody from the Chinese Embassy about four months ago here in the United States and the Embassy assigned somebody solely to work with Americans on intellectual property piracy. So we formed a working group with the Chinese in order to work with them to say there are some violations, and we'd like to report them, could you work with us on trying to remedy them?

I just want to thank you for the opportunity to be here. We can talk about China a long time, it's a big country, and if there are any questions, I'd be more than happy to respond to them.

[The statement follows:]

## **Prepared Statement of Donald Manzullo A U.S. Congressman from the state of Illinois**

### **Export Controls and America's Export Competitiveness**

Chairman D'Amato, hearing cochairs Thompson and Reinsch, other distinguished Commissioners, and ladies and gentlemen, thank you for this opportunity to discuss export controls and their impact upon American export competitiveness.

I want to extend a warm welcome to the two new Commissioners of this distinguished body, Peter Brookes and Kerri Houston, and wish them well during their tenure.

### **The Sad State of US Export Competitiveness**

Last Friday, March 10, 2006, the Washington Post ran a story about how the US trade deficit had reached another all-time high. The article reported how the "insatiable appetite" of Americans for foreign goods had pushed the deficit up to \$68.5 billion for the month of January, 5.3% bigger than in December. Analysts were reported as saying that unless demand for imported goods slows, the US could produce another record annual deficit "for the fifth year in a row, topping last year's imbalance of \$763.6 billion".

The trade deficit with China also jumped dramatically – by 9.9%, to \$17.9 billion. Something is fundamentally broken with this picture.

But the Chinese think they have the answer for the U.S.!

Chinese State Councilor Tang Jiaxuan said recently in a speech to the U.S.-China Business Council in Washington that the U.S. should "lift restrictions on commodity and technology exports" to China. "Increasing exports to China, instead of restricting imports from China, is the right course of action to solve trade imbalances," he said.

The Chinese answer is that the U.S. should abolish all forms of export control. But is this the correct answer? And how do economic trends play into this picture?

### **Compare with China**

Now compare the current U.S. trade deficit situation with the economic track currently being taken by China. At a recent national conference on science and education, China's President, Hu Jintao, was quite outspoken about the need for China to embark on a new path of economic development and innovation "with Chinese characteristics". These Chinese characteristics were focused upon driving innovation, leapfrogging development in key areas of the Chinese economy and making breakthroughs to reinforce the torrid rate of Chinese economic and social development.

I would submit that President Hu clearly gets it. He understands that innovation is core to a nation's export competitiveness and ability to succeed in the global economy. Rational export controls must acknowledge and support this basic principal. He understands that paradigm-shifting breakthroughs – such as the internet, gene sequencing and a host of emerging areas that will fundamentally reshape our lives, stem entirely from the environment a country nurtures in support of its ability to invent and to innovate, not from external controls that seek to "wall off" innovation. These attempts are usually futile and simply serve to impede the flow of commerce.

### **Who's Going to Lead?**

More fundamentally, the question we need to be asking ourselves on these issues is quite simply "who is going to lead"? That's really the ultimate question. No offense intended to my European friends here, but there are really only two options. It's either going to be us or the Chinese. While the Europeans spend their time developing a consensus, China is busy developing itself into a technology power, with a plan to become a world leader in research and development, with all the attendant social and military influence that it entails.

I'm here to tell you that we need to wake up and realize that our defense industrial and innovation capabilities are eroding. And that erosion is directly attributable loss in the U.S. in innovation leadership. Policies that ignore the increasingly dual use nature of global economies simply exacerbate this trend.

## **The Rise in Dual Use Economic Growth and the Ability to Innovate**

Any discussion regarding the best approach to export controls must acknowledge the increasing trend of world economies to increasingly dual-use approaches to national security and their interplay with economic growth and development. China has built its torrid economic growth upon a foundation of dual use industries since the late 1900's. This has not been an accident. China has carefully created a thorough convergence of civilian and military technology hardware and processes as a key industrial strategy to drive its ability to innovate and to underpin its aggressive economic and military growth.

Reports indicate that while overall standards lags behind world levels, there are emerging pockets of excellence, and the Wall Street Journal reported on Monday, March 13, 2006 that China is rapidly emerging as a global powerhouse in research and development.

This dual-use industrial base is a critical component of China's strategic high-tech economic plans. Currently, its leading dual use sectors include aviation, space, shipbuilding, nuclear, electronics and IT infrastructures.

Civilian and military integration has accelerated under a program targeting selective acquisitions of dual-use technologies, often at the "whole company" level. We saw and commented upon this trend in the context of the IBM-Lenovo transactions. As noted in this Mondays Wall Street Journal, the rate of sino-western joint ventures in manufacturing and R&D continues to accelerate, especially in semiconductors, computers and software development.

The Chinese are not alone in taking this approach. As with the Chinese, our own Defense Department is much more reliant on the private sector (off-the-shelf) technologies than it has ever been in its history. One example of this that I am personally familiar with is the Trusted foundry partnership of IBM at its East Fishkill, NY location. IBM's "trusted foundry" is guaranteed a certain amount of revenue by the DoD in return for maintaining a specialized semiconductor capacity deemed essential to national defense.

Therefore, the issue of export controls must be laid on top of larger trends in the defense industry over the past 15 years since the end of the Cold War. Even before the end of the Cold War, there was recognition that defense manufacturers were no longer the 800-pound gorilla when it came to procurement. Compared to the commercial market you had a smaller and smaller share of many key sectors like electronics.

As a result, defense manufacturers are more reliant on, and integrated with, commercial suppliers than at any time in the past. That is why it is critical to our national interest to have a strong commercial industrial base here in the U.S., and why any export control regime cannot be allowed to stifle our ability to innovate.

## **Innovation and the Role of Export Controls**

Technology is the key to the strength of our industrial base and our future as a superpower. We cannot compete on price; instead we have to be more innovative and productive than anyone else. Our military superiority depends on technological superiority. We still have that superiority now, but history should teach us that we have to work hard to maintain that lead. History shows that it can be relinquished in the bat of an eye. In 1946, we thought our lead in atomic capabilities could be measured in decades. Just three short years later, the USSR had the bomb. In 1957 the USSR launched, Sputnik, beating us to space and embarrassing us into the investments that we should have been making all along.

Many argue that as a result of these trends towards dual use economies technology has now become a commodity. "We're living in a world where technology has become a commodity," and Intel spokeswoman recently stated. "Restricting access to markets would have a pretty significant impact on the U.S. technology sector."

A good example of how this ties in with export controls is Rochester, New York-based Gleason. Gleason recently sold \$20 million of machine tools used to make gears to Chinese companies last year, roughly 15 percent of total sales. Export control regulations under consideration at that time might have forced it to abandon customers such as a Chinese transmission maker that sells supplies to both commercial and military companies, Gleason recently told us.

“We could look like a less reliable supplier,” the Gleason executive said to us. “And one lost sale is not an isolated event. It could lead to the loss of substantial follow-on business for years to come.”

### **Export Controls Must Balance Export Competitiveness**

Because of these and similar concerns, on Thursday, July 14, 2005, I rose on the House floor in opposition to the *East Asia Security Act of 2005* (HR 3100). That bill, which was placed on the suspension calendar in anticipation of easy passage, contained provisions that would have unintended consequences for our exporters, not just to Peoples Republic of China (PRC), but also for some of our largest export markets in Canada and Europe.

In a matter of minutes I was successful in orchestrating the turn around of 63 votes, sending the bill to defeat.

I have always strongly supported the efforts to strengthen our arms embargoes and making them more multilateral, particularly against China. Obviously, trying to strengthen the weakest link in the arms embargo against China with our friends in Europe will serve the cause of peace and freedom in the Pacific Rim region.

However, at the same time, we must be wise in our effort to achieve this important goal so that we do not weaken our overall global competitiveness and give more reasons to foreign customers as to why they should not buy American-made products.

I opposed HR 3100 in part because it would have required an export license for every transaction and a notification to Congress, including spare parts, regardless of dollar value. This could have added a huge costly and regulatory burden on U.S. companies specializing in the defense trade and no doubt could have persuaded some of our closest allies to withdraw from cooperating with us.

In addition, HR 3100 would have imposed a new export-licensing requirement for “dual use” products (primarily commercial goods that may have a military application) that currently do not require an export license if the item is intended for military end use by the PRC.

These deficiencies in HR 3100 highlighted basic considerations that must inform any debate or passage of export controls to avoid harming U.S. competitiveness and our ability to be successful as an exporting nation.

### **Things to Consider with Export Controls**

We should never forget that export controls cost about \$10 to \$20 billion in lost exports per year as well as roughly 200,000 jobs, according to studies performed by the Institute for International Economics. Most other nations do not have even the limitations we have now on our exports. So having HR 3100 add yet another burden on our overall ability to export and to be competitive struck me as a vain effort to make us “feel good” that we doing something against the Chinese.

The potential damage to U.S. industry, especially the defense and technology sectors, from such a broad approach to export controls is significant. In the aerospace sector alone, total U.S. aerospace sales to the European Union exceeded \$23 billion last year, accounting for 40 percent of U.S. aerospace exports and supporting more than 600,000 American aerospace jobs.

Based upon my experience with HR 3100, and the overarching need to focus upon and drive U.S. innovation growth, any approach to export controls must embody the following principals to encompass sound public policy:

- Export controls must be targeted and focused upon clearly defined national security priorities. Broad sweeping rules that impose burdens and costs on U.S. industries without achieving a concrete target or protecting a key technological asset serve no useful purpose.
- Export controls must be effective – and by that I mean they must be multilateral! Unilateral export controls do not work. Export controls cannot be an exercise in academics or a misguided attempt at establishing “world leadership” **when no one else will follow them and will simply use them to gain competitive advantage for commodity technologies**.
- Export controls must be transparent and impose clearly defined consequences that can be known by industry in advance. We can’t ask industry to be agile in the market place when the must constantly be looking over their shoulders at potential enforcement penalties!

Given the growing interdependence of our military capability and our core ability to innovate, following these basic principals is essential to continued economic growth and our ability to remain a world leader. In this regard, the insight of Frederic Bastiat, the brilliant 19th century French economist, is critical: “When goods cannot cross borders, armies will.”

Thank you.

VICE CHAIRMAN BARTHOLOMEW: Chairman Manzullo, thank you very much for coming to testify again. We always appreciate hearing from you. Your views are always very interesting. Your concern about our manufacturing base is very appreciated and your leadership is important.

MR. MANZULLO: Thank you.

VICE CHAIRMAN BARTHOLOMEW: We are actually running almost half an hour behind now, so I think we're going to take a five minute break, and then we'll come back and have an administration witness. Thank you very much.

[Whereupon, a short break was taken.]

## **PANEL II: ADMINISTRATION PERSPECTIVES**

VICE CHAIRMAN BARTHOLOMEW: Out of respect for the schedule of our important next witness, we apologize for running half an hour late already. We're going to get started.

At this point, I'm going to turn the gavel over to my hearing cochair, Commissioner Donnelly. I want to acknowledge that we have another new commissioner joining us, Commissioner Blumenthal, so welcome to him.

COMMISSIONER BLUMENTHAL: Thank you.

VICE CHAIRMAN BARTHOLOMEW: All yours, Tom.

### **OPENING STATEMENT OF COMMISSIONER THOMAS DONNELLY HEARING COCHAIR**

HEARING COCHAIR DONNELLY: Thank you, Madam Cochair. I want to thank the witnesses for appearing. I also would like to welcome the new commissioners as well, not only Dan Blumenthal, but Peter Brookes. I welcome them to our moveable feast.

I have a real brief opening statement and which I'll try to read as fast as Carolyn read hers. These hearings are a continuation really of our efforts to understand the nature of and possibly even more importantly the political implications of China's rapidly expanding military modernization. It's obviously appropriate that we do that. It's one of our core missions.

As Kurt Campbell testified here last year, China's military modernization is a process that constantly outpaces our expectations. So we need to continue to keep periodic tabs on what's going on.

This panel particularly is going to, I hope, concentrate on one of the really key topics and key events in this process of trying to make sense of China's military modernization, and that's the Quadrennial Defense Review, which was just released by the Pentagon last month, and is the most recent assessment by the government of China's military capabilities, and while the report tries to encourage Beijing to act like a stakeholder in the current international order and encourages China to choose a path of useful economic growth and political liberalization rather than military threat and intimidation, it also acknowledges that the pace and scope of China's build-up already puts the regional military balances at risk.

I think that's a very important phrase to say that the security of East Asia is already at risk, not five or ten years from now, but today.

The report also discusses the potential for Chinese provocations by unconventional means. I won't go into that in detail, but China's the very model of what the Pentagon has come to term a disruptive power or potentially disruptive power.

So it's no wonder that Americans increasingly regard Beijing with skepticism, as an emerging rival. It may be possible for China to become a stakeholder state because the current American peace, if you will, has been the framework for China's rise from poverty as well as its rise to power, but certainly shame on us if we repeat the mistakes of the past. We ought not to be surprised by the pace, by the scope, nor indeed by the purpose of China's military build up.

[The statement follows:]

### **Prepared Statement of Commissioner Thomas Donnelly Hearing Cochair**

Thank you, Madam Cochair. I want to thank the witnesses for their patience and for appearing. I also would like to welcome the newcomers as well, not only Dan Blumenthal, but Peter Brookes, who I think is hovering around someplace. I welcome them to our moveable feast.

I have a brief opening statement, which I'll try to read as fast as Carolyn read hers. These hearings are a continuation really of our efforts to understand the nature of and possibly even more importantly the political implications of China's rapidly expanding military modernization. It's obviously appropriate that we do that as it is one of our core missions.

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it also acknowledges that the pace and scope of China's build-up already puts the regional military balances at risk.

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HEARING COCHAIR DONNELLY: Before I turn it over to witnesses and for questions, I want to remind everybody of the ground rules. Mr. Rodman, we're going to try to limit you to seven to ten minutes of testimony. I understand you're covering for the both of you. Then commissioners will have five minutes apiece for their questions.

So, Peter, without further ado, the microphone is yours.

**STATEMENT OF PETER W. RODMAN  
ASSISTANT SECRETARY OF DEFENSE FOR INTERNATIONAL SECURITY  
AFFAIRS**

MR. RODMAN: Thank you, Mr. Donnelly and Ms. Bartholomew. I'm happy to be here once again. I see many friends around the table, and I commend the commission for the work it has done and which it is doing now. I'm accompanied by Jim Thomas who has played an important role in the QDR, and I thought it would be useful to you to have him here if the discussion turns in that direction, and he certainly can discuss the QDR.

This hearing comes against the backdrop of an overall U.S.-China relationship that has been improving, especially since the low point of April 2001, when we had the EP-3 incident. President Bush wants to have a constructive relationship with China. That's the policy of the U.S. government and the policy of the Department of Defense, and I think it's something that our country would like to have, but at the same time, China's rise, the growth of its military power, its overall comprehensive national power with global aspirations, is a defining feature of today's strategic environment, and it has enormous implications, not just for the region but also for the world.

So this balance in our policy, that is the desire for a constructive relationship and the need to hedge against other possibilities is one of the themes of our policy. You see that in the QDR, as you said, and you see similar language in the president's national security strategy report which is published today. There's a sentence, quote:

"Our strategy seeks to encourage China to make the right strategic choices for its people while we hedge against other possibilities."

So that is obviously a theme, a central theme in all of our pronouncements. You mentioned, Mr. Donnelly, the stakeholder idea. This is something that Deputy Secretary of State Bob Zoellick has introduced, and that is again a way to define what we see as a constructive evolution in Chinese policy. As China becomes a major power, we would



like to see it take some share of responsibility for the international system. In other words, to define its own national interest in terms that are, we would say, an enlightened concept that includes the well-being of the international system, a system which, of course, has benefited China enormously.

You'll see in my prepared statement, we list a couple of things, but we see some examples of good cooperation on the part of China. We also are seeing improvements in our military relationship, and let me say a little bit about that. I accompanied Secretary Rumsfeld to China in October, and we agreed to expand military-to-military contacts, high level visits, ship visits. Most importantly, from our point of view, exchanges of officers, personnel.

We think both sides would gain by having more interaction. We would learn more about them, and perhaps they would learn more about us. Younger officers' exchanges between educational institutions, military educational institutions on both sides. So that is improving. We think that's a good thing.

But I would say both sides approach this realistically, particularly the military on both sides understand very well that there is a potential for a conflict, particularly in the Taiwan Strait, and so on our part, we follow very carefully the guidelines laid down in the National Defense Authorization Act for 2004.

We do nothing in our contacts with China that would knowingly enhance the military capability of the People's Liberation Army. Those are good guidelines. Even if they were not in a statute, they would be good guidelines for us to observe.

As Secretary Rumsfeld said on his trip to China, we see mixed signals, to put it diplomatically on the Chinese side whether they are acting as a stakeholder or not.

On the one hand there are the constructive political and economic interactions with the Chinese that I referred to. On the other hand, most importantly is this vigorous military modernization that I'll discuss in a moment and the lack of transparency with respect to it.

There was a Sino-Russian military exercise last year which we wanted to be observers at, and the Chinese declined to invite us. There were some exercises with the Hong Kong police that we used to participate in that they're not letting us participate in, and there are some other items. Again, they're in my prepared statement.

Secretary Rumsfeld called attention to these when he was there. He listed a number of things that we were concerned about or had questions about or were puzzled by. So it's clear that the Chinese have some choices to make, and we would put a lot of the onus on them for the future of the overall relationship and the military relationship.

They have strategic choices ahead of them about their internal developments, their economic transition, the political reform and so forth, and again most importantly from our point of view, their military build-up.

There's a lesson, by the way, and one lesson in Secretary Rumsfeld's trip--he was very candid with the Chinese. He spoke at the Central Party School. He spoke at the Academy of Military Sciences and spoke very candidly about all these issues, the lack of transparency, issues of their political evolution. He spoke very candidly, and I think the lesson is that it's quite possible to have a candid discussion with the Chinese and be firm and honest in talking to them and yet still have a very constructive relationship.

Given the shortage of time, I won't go through all of the items in the paper about the Chinese military build-up. We have spelled this out in our military power report last

summer. We'll do the same in several weeks time when we get the next edition of that report out. But clearly it's a comprehensive, as you know, across the board modernization program.

China is no longer matching the stereotype people might have of a third world military power. In some areas, they're a first world military power.

The transparency issue, which we call attention to, refers to a number of things. In our QDR we are extraordinarily open about our assumptions, our planning, the purposes of our procurement, just about everything. We don't see that on their side without any doubt. We are caught by surprise by the appearance of new systems that suddenly appear fully developed.

Of course, the defense budget issue where their declared budget, by our estimate, leaves out a whole lot of things, and the true expenditure could be two to three times their declared figure. So we say to them, look, you have a right to have whatever military establishment you like, you're a sovereign country, but the rest of the world is going to react, first of all, to your growing power and all the more so if there's a lack of transparency about the purposes of it and so forth, and we're entitled to ask, as Secretary Rumsfeld did in Singapore last June, why this growing investment.

Where is the threat to China? What is the explanation? So this is the situation we face. Again, there is some more detail in my statement. I want to mention one thing that I'm sure I mentioned before, the importance of foreign technology and the EU arms embargo, which I never fail to mention. The Chinese, while a lot of their development is indigenous, clearly they relied on the Russians, of course, for their most high-end platforms, but they're eager to get technology, and there's a lot of advanced technology they may not be able to get from the Russians.

What they would seek in Europe, we believe, is not necessarily advanced weapon systems, but technology, dual use technologies of various kinds which they would use to improve the quality of systems, and they would be very sophisticated in shopping around in Europe, getting things which enhance their capability in ways that would be of enormous concern to us.

The good news, I suppose, is that the Europeans have put this off for awhile, and we have begun a strategic, what we call a strategic dialogue with Europe about Asia policy, which is, in other words, to have this discussion not in a vacuum, but to start with what are the premises of our respective attitudes to China? Do we have the same strategic perception of China and what the problem is?

I'm encouraged by that dialogue as it has proceeded, and this is, I think, a good foundation for having the Europeans and us on the same approach.

The QDR, of course, and Jim can speak to that, discusses the long-term issues of China's military build-up. In my statement, I mentioned that we had, as Mr. Donnelly said, it's not only a long-term problem, there's a here and now problem, given how much China has advanced since say ten years ago when there was a small crisis in the Taiwan Strait.

An American president facing a similar situation would have a different calculus given the extraordinary improvement in China's capabilities. Now we're paying attention and we can handle this, but it illustrates that there is a problem here and now, especially the 700 missiles aimed at Taiwan. This is something we need to deal with right now in addition to the long-term perspective.

But nothing is foreordained. To sum up, we don't believe any outcome is foreordained. Certainly not a negative outcome. We hope by our dialogue with China, we hope by prudent policies of our own and in collaboration with allies, we hope to be able to shape the future and to influence China's evolution in a constructive way.

As I said, that's President Bush's commitment, and I think it reflects a broad bipartisan consensus in this country as well. Thank you.<sup>2</sup>

## **Panel II: Discussion, Questions and Answers**

HEARING COCHAIR DONNELLY: Thank you very much, Mr. Secretary. I know that we are going to have a lot of questions. I appreciate your succinctness.

If I could perhaps draw the two of you out on one issue, to exercise the prerogative of the chair, real briefly. I wish you could sketch for me a bit what hedging means, in particular what it means obviously for the Department of Defense, what it means in terms of our alliances, what it means in terms of U.S. military posture, both today and in the future, and finally--I know this is a really open-ended question--what it means in terms of force modernization and future investment.

So if we're going to adopt a hedging posture against things going badly, what does that mean for us?

MR. RODMAN: Let me start. It means being realistic about the risks of a Taiwan contingency and being prepared for that. It means keeping an eye on what they're doing and being ready to deal with it if the worst case should happen. It means collaborating with allies, and I think one interesting thing is over the last several years, how our defense relations with a number of other countries in the region, those relations have improved, because other countries have the same reaction we do to China's rise.

So we see our defense relations with Japan tighter than ever. We see the new strategic relationship with India which is very positive. We see a relationship with Vietnam. I was in Hanoi last June and we have modest military cooperation beginning.

Australia relations, cooperation has developed. Singapore. We now have what we call the strategic framework agreement, formalizing our ties with Singapore. Mongolia, which is an extraordinary case of a country that was isolated for centuries and is now eager to have a good relationship with us for a variety of reasons. So there are a number of things going on that, again, not directed at anybody but are prudent things for us to do, and reflect perhaps the common geopolitical perception.

So in all these dimensions we are, and of course in our own military modernization that the QDR reflects we're being prepared.

HEARING COCHAIR DONNELLY: Secretary Thomas, would you mind taking on the questions of posture and modernization?

MR. THOMAS: Sure. Let me note up front the QDR obviously discussed China, but it was far broader than just thinking about China or shaping the choices of other countries that might be at strategic crossroads in the world.

On your question on hedging, I think it's instructive that hedging is not a new phenomenon in U.S. defense policy. It's something that we've done historically. A great example is the planning that went towards thinking about the British Navy up until really the eve of the World War II, and it had far less to do with the intentions of Great Britain

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<sup>2</sup> [Prepared statement of Peter W. Rodman, Assistant Secretary of Defense for International Security Affairs](#)

that was emerging obviously as our closest ally in the 20th century, but rather it had to do with the capabilities possessed by that nation.

It really was singularly the one nation that could threaten our strategy of hemispheric defense in the mid-20th century, and so as we think about China and other countries at strategic crossroads, we're trying to take a balanced approach. And it's one, as Mr. Rodman explained, that places emphasis on cooperation where cooperation is possible, but also wants to be prepared for the possibility that others could choose a more hostile path.

So in that sense, in addition to activities we're undertaking to strengthen alliances and partnerships, not only in the Asia Pacific region but around the world, we're also looking at measures we can take to reorient our global posture for the opportunities and the challenges of the 21st century. In this regard, we're doing a couple of things in the Asia Pacific theater that are of note.

One is making adjustments in our global posture, particularly with respect to Guam and as part of a hedging strategy. We're looking at the deployments of bomber elements to Guam on a more routine basis. We're also looking at making adjustments in our naval posture globally, shifting to six carriers, carrier battle groups in the Pacific region, given the shift in global transport and trade, as well as over the next several years, shifting approximately 60 percent of our attack submarine fleet to the Pacific.

HEARING COCHAIR DONNELLY: That's very useful information. Perhaps we could follow up with a question for the record to try to get as many details as we could.<sup>3</sup>

Let me just say that time is short. I've already got six commissioners on the question list. Perhaps if we could get an extra ten minutes or so out of the witnesses and if the commissioners could sacrifice maybe two minutes each of their allotted time, we can get everybody in. So without objection, that's what I'm going to attempt to do. Batting order is Pat, Larry, Dick, Michael, Dan and Carolyn, so just everybody knows where we are and where we're headed.

Patrick, you're first. Commissioner Mulloy.

COMMISSIONER MULLOY: Secretary Rodman, thank you, and Mr. Thomas, for both being here today. Secretary Rodman, I agree exactly with your phrase that we have to be firm and honest in this relationship and still have a constructive relationship.

You talk on page one of your testimony about that we're now working on trade issues on China's WTO compliance, and you talk about Zoellick's senior dialogue, which I think are very important. I heard Mr. Rodman speak recently in the Senate Finance Committee. He talked about a firmer trade approach with China.

I was at Secretary Gutierrez' speech the other day where he sent a very strong signal. Now, the one issue that's out there, and Senator Graham talked about it earlier this morning, is the exchange rate issue. I'm just wondering because this is the one area where I don't think we've been truthful either to ourselves or the Chinese in the Secretary of Treasury's report to the Congress on this issue.

This commission has said China is engaged in currency manipulation. I think if you read the last Treasury report, they said the same thing without using the term, but they don't, I think it's very important for us to be honest.

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<sup>3</sup> [Additional information submitted by James Thomas on shifts occurring in the Pacific due to global defense posture changes and our "hedging" approach to China.](#)

Now, I'm wondering in the Treasury's report due to the Congress on April 15, does that go through the National Security Council because there should be an integration of the concerns you have about the military and the economic because they are just other parts of the same equation?

Does the Treasury Secretary keep that within the Treasury Department or is this taken into broader councils of the administration such as the National Security Council? Will DoD have any input into that decision on what the Treasury Secretary tells the Congress on April 15?

MR. RODMAN: My understanding is that I'm sure it's coordinated in the White House and there may well be interagency meetings on the subject where DoD would have a seat, but it's not an issue in which DoD's voice would be directly relevant. It's not something that's in our lane as such; it's part of a comprehensive policy, and I would hope that the president and his associates would be looking at all of these things in a comprehensive way.

I'll correct the record if I'm wrong. I'll look into this, but I wouldn't say that something like that would be coordinated routinely with the Department of Defense. But I will look into that and correct that if that's a misstatement.

HEARING COCHAIR DONNELLY: Thank you.

COMMISSIONER MULLOY: Thank you.

HEARING COCHAIR DONNELLY: Commissioner Wortzel, Chairman Wortzel.

CHAIRMAN WORTZEL: Secretary Rodman, Deputy Assistant Secretary Thomas, thank you very much for being here. I appreciate your testimony very much. I would like to draw you out on the depth and form of strategic dialogue that you've achieved with the Chinese government or with their military. I think it's a very important thing that you're doing that, and I'm very pleased that the United States Department of Defense has moved forward in that.

But there are areas that I think we need to be concerned about that I don't see yet reflected in any dialogue. Secretary Rumsfeld visited the Second Artillery Headquarters. The Chinese, as best we can tell, have a fairly robust program that would seek to blind us in space, in the event of conflict, and disrupt American space surveillance. The Chinese Strategic Rocket Forces are mixing conventional and nuclear ballistic missiles in different deterrent and strike packages.

These are things that are potentially dangerous, particularly if we get blinded in space. Are there dialogues yet about these things, and do these moves on the part of the Chinese strategic forces concern either of you at all?

MR. RODMAN: I'd say a couple of things. These are issues which of course we deal with in our military power report, classified as well as unclassified version. So we don't hesitate to discuss publicly what we know and what our concerns are.

Secondly, the visit to the Second Artillery was interesting, but I would say it's only the beginning of a dialogue with these folks. It was interesting enough that I think we would want to pursue that contact, but we got an interesting PowerPoint briefing from them on their organization and structure and training regimen, but it didn't go deeply into issues of doctrine or procurement, but thirdly, I think these, since these are concerns of ours, this is the sort of thing we certainly should be willing to raise in a high level meeting.

There are a number of other things that we have raised, other things that you're familiar with, systems that they have that we find disturbing, and this should be on that list.

HEARING COCHAIR DONNELLY: Commissioner D'Amato.

COMMISSIONER D'AMATO: Thank you, Mr. Chairman. I just want to follow up a little on the references you made to Secretary Rumsfeld's question when he was in Singapore. I think it's still an open question. What is the purpose behind the large growth in the Chinese military? It's one thing to assess what they say; it's another thing to infer what systems that we see them putting into place, what operations and exercises they're conducting and so on.

What is, if you can be as precise as you can about it, Mr. Secretary, what is your assessment of what the data shows you in terms of their goals in this growth beyond a Taiwan scenario. Can you differentiate between Taiwan related and broader kinds of systems?

MR. RODMAN: Well, we have commented on that in the last military power report and we'll continue to address that. As you said, there's obviously the Taiwan contingency, and we know what they're doing in that regard, but beyond Taiwan, we think they do have--they're, well, at the very beginning stages of a power projection capability. It would be wrong to say that they have the ability to project power far out into the ocean, and we'll watch carefully for signs that they're moving out in that direction.

We've read statements that they've made, and some of these are quoted in last year's report, where they expressed the aspiration to move out into broader capability and one can foresee that there are territorial disputes they have with neighbors, there are energy, potential conflicts over energy resources, and so there's a variety of contingencies that they might well want to plan for in the future when they develop the capability.

HEARING COCHAIR DONNELLY: Commissioner Wessel.

COMMISSIONER WESSEL: Thank you for being here, Secretary Rodman, good to see you again. As you know, the title of our commission is the U.S.-China Economic and Security Review Commission, and the issue of--

HEARING COCHAIR DONNELLY: It's Economic and Security Review Commission.

COMMISSIONER WESSEL: Excuse me. We could put the accent where you want to.

I want to ask about the intersection of economic and military security, national security, from your perspective. There are some who want to treat these issues as separate inboxes on the president's desk.

From Department of Defense's perspective, how important is a strong manufacturing base, a defense industrial base, to national security? How important is a strong economy to projecting and supporting national security interests?

MR. RODMAN: Well, I have no doubt that the strength of our economy is the basis of our military strength, just as we see on the Chinese side. Their economic expansion is enabling this great military growth. The growth of technology applies, the same thing applies on both sides. So as a very abstract question, I'm in favor of having a strong economy.

On industrial base, I'm not an expert on that, and I can see maybe you're heading to some specific questions on that, which I may not be prepared to answer, but that's a whole category of other concerns, and I may not be the best one to deal with those.

COMMISSIONER WESSEL: From sourcing patterns, from the ability to develop and project power, and again one looks at export controls, as you look at the QDR, as you look at logistical needs as well as development over the future, don't you have to rely on strong manufacturing industrial base capabilities, tools and dies, the ability to have adequate training for our machinists to be able to, if we need to ramp up in certain areas, the ability to create the armaments and the ability to project power ultimately, true power in a national security sense? How do you look at that?

How much is done internally in DoD and what do your next, your ongoing plans contemplate in that area?

MR. RODMAN: Again, I'm not the expert. Maybe I can get you an answer. If Jim can help me out, I'll allow him to do that. But in the abstract, obviously we want to maximize our control over our own destiny, but there are always tradeoffs and complexities, and as I say, I would not want to venture into something more specific because I'm not as conversant as I should be on that.<sup>4</sup>

MR. THOMAS: I'm sorry. I don't have anything to add. I'd say it might be a good topic for a question for the record.

HEARING COCHAIR DONNELLY: I would just gild the lily a bit by saying that the commission could certainly use high level DoD policy input on this very question. It's a broad concern to the commission.

MR. RODMAN: With a Chinese focus? If you have some specific questions, I think that we should address them. Let us know.

HEARING COCHAIR DONNELLY: I'm sure we will try to frame the questions more specifically so stand by for communication.

MR. RODMAN: Okay. Let us know.

HEARING COCHAIR DONNELLY: Commissioner Blumenthal.

COMMISSIONER BLUMENTHAL: Yes. Thank you very much to both Secretary Rodman and Secretary Thomas. I'll ask a few questions just to press you a little bit on some of the statements you made with the framework in mind that it seems both from the DoD annual report and from the QDR that the U.S. government is now pointing to the fact that the Chinese military modernization is not just focused on Taiwan. It's actually being quite explicit about it.

When you say balance of military power already at risk, I think about, Japan, for example, and I personally look at the potential for a Japanese-Chinese skirmish. It used to be the case that Japan, of course, was always afraid that we would entrap them in some sort of conflict, but of course they are a treaty ally. There's no ambiguity as there is with Taiwan, and if you just look at already, the desire and the ability of the Chinese Navy to push out into the waters and the Japanese pushing back, I think here you have a situation that is in some ways more worrisome. I wonder if that's something that is of grave concern to the department and what you're doing about it?

The other, the QDR mentioned sustained, needing sustained, ability to contain sustained operations in denied areas, and you mentioned, Mr. Thomas, some things in

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<sup>4</sup> [Additional information submitted by Peter W. Rodman on the importance of a strong economy for ensuring national security.](#)

that regard, but in terms of capabilities, things like new generation of long-range bombers. Mr. Rodman, in terms of being able to project power from other places besides single points of failure such as Japan. I'm wondering if you could put a little more meat on that statement, because it seems from the QDR that the biggest challenge that China is posing is this one of denial, access denial and area denial.

A third quick question I had is this one of energy security that's on everyone's mind. You see a lot more of Chinese activities around the Indian Ocean and their own hedging strategy. I'm wondering how much we can do to actually shape China on that issue, on the issue of being more active in the Indian Ocean or with partners in the Indian Ocean? Is there anything that can be done on that?

The last question is a follow up to Chairman Wortzel's question about nuclear and strategic force modernization. You mentioned in your prepared testimony that China may be relooking its no first use policy, and I think that the question of nuclear modernization is oftentimes ignored. It's obviously a very important one.

If they are adding to their arsenal, I guess they'd be the only declared nuclear weapons state that is, in fact, adding to their arsenal, and that's something that I think is a large political issue and not just a military issue. So if you can answer those, I'd appreciate it.

VICE CHAIRMAN BARTHOLOMEW: In 17 seconds.

COMMISSIONER BLUMENTHAL: I think I was under five minutes though.

MR. RODMAN: Let me start. Military balance, the first question, the language you quote comes originally from the China Military Power Report of last year where we say that other modern militaries are already affected by the changes in the balance, and I think you correctly, you understand it correctly, but it also reflects the point I made about many other questions in the region have the same concerns that we do, and it is one of the things that is prompting good cooperation between us and these other countries and among us.

So we're paying attention as are other countries and it is, as I say to the Chinese, it's like a law or Newtonian physics at work; there's a reaction to what everyone sees, and one of the themes of our report last year was precisely that this is not an American issue; it's an issue for the region.

There are maps in the report of, the ranges of missiles. They could go west and south and north as well as east, so this is, again, the Chinese need to understand that people are paying attention and reacting.

Secondly, China-Japan conflict, this, of course, is taking on a little more dramatic quality in recent years. We're not eager to stimulate conflict in the region, but this is not a healthy development, but we'd like to see normal relations among all the key countries here, but again the Chinese, need to understand that the Japanese are to some degree reacting to the Chinese military build up.

The Japanese say this in their white papers. It used to be they would kind of fudge it. They would say, oh, we in Japan have to worry about the North Korean threat, and later as years went by, they would mention China explicitly and now China is the foremost concern that they express in their white papers on defense. So that I think is the way things are working, and as I say, we're not, politically we would be happy to see this, not break out into some more serious conflict.



Single point of failure. I might leave that to Jim. Indian Ocean, you see in the president's recent visit to India a joint statement about maritime security. One of the things we and the Indians naturally are talking about is the security of the Indian Ocean. Again, it's not directed at anybody in particular, but there's issues of piracy and terrorism and drug smuggling, but this is a logical thing for the United States and India to pay attention to.

It is worrisome that the Chinese have a very tight relationship with Burma which is giving them access to the Indian Ocean, but, there are certain dilemmas in our policy toward Burma. But I think again, it's something we should watch and prepare and respond in our own way to things that concern us.

On first use, you're right. The next edition of our Military Power Report will talk about some of the interesting statements made by Chinese generals, some Chinese officers several months ago about use of nuclear weapons.

Now, the Chinese repudiated or seemed to repudiate some of those exuberant statements, and when Secretary Rumsfeld was visiting the Second Artillery, they went out of their way to reassure him that the no first use doctrine is still Chinese policy, but I think as Jim said or as you said, as they develop the capability, the options may suggest themselves to them, and we obviously would like to see more transparency about this and hear more from them about it.

HEARING COCHAIR DONNELLY: I'm sorry. I'm going to have to intervene simply in the interest of time. It is pretty clear that the broad range of concerns of the commission suggest a potential set of follow-up questions, but I do want to try to squeeze in my cochair and in fact, Commissioner Brookes. I'd like to squeeze him as well. So why don't we take both questions sequentially and again if the witnesses can spare a few moments for a brief response, that would be very much appreciated.

VICE CHAIRMAN BARTHOLOMEW: Great. Thank you very much. Thank you to our witnesses, both for your service and for appearing before us today. It is pretty clear that we could spend several days of hearings just listening and talking to you all. It's a huge topic and so we're going to have to just pick and choose some of the issues here.

There have been problems in the past regarding Israel's sales of defense technology to China and there are reports indicating that Israel is about to start up doing some military sales again.

Given our defense research involvement with Israel, do you have any concerns about the transfer of cooperative advanced technology from Israel to China and if so, what are those concerns?

HEARING COCHAIR DONNELLY: Commissioner Brookes.

COMMISSIONER BROOKES: As we look at the China relationship and our bilateral relationship and where China is going, I'm also interested where the China-Russia relationship is going? It's obviously very significant for us in our alliance structure in Asia and maintaining peace and stability and the issue of Russia is of great interest beyond the arms sale element of that relationship.

MR. RODMAN: These are both good questions. With Israel, we have an understanding with Israel, which was confirmed a few months ago, that there's complete transparency with respect to their trade with China, so we found this new statement of understanding reassuring.

I was in Israel in January with John Hillen, and we got a fuller briefing on their plans for implementing these assurances. They are strengthening their export control regime and so forth, so they are doing a number of things which we are reassured by, and as long as there is this transparency and these assurances are pursued, then we're comfortable that this is not a concern, that we don't expect Israel to be selling dangerous things to China, and so we think that is moving clearly in the right direction.

With respect to Russia, this is one of the big questions of our time. There has been a debate in Russia for at least ten years about whether it's in their interest to be selling big stuff to China? Is this in Russia's own long-term interest? That's a question we asked the Russians ourselves.

Like China, Russia is one of the countries that we say is at a strategic crossroads. They have choices to make, and right now the Russians may be, their policy may be driven by a number of resentments they have towards us in the post-Cold War environment, but we talked to the Russians candidly about this, and as I say, they have some choices to make.

But they seem very tight with the Chinese now by most indicators. The joint exercise they conducted last year; they seem very solid with the Chinese on a number of issues. Central Asia, the Shanghai Cooperation Organization, which is trying to push us out. So they're tight with the Chinese, and that's their choice. I think in the long run, we hope Russia is always aware that it has a Western option, that we don't think it's inevitable that our relationship with Russia be competitive. But, again, the Russians have some choices to make.

HEARING COCHAIR DONNELLY: Thank you very much to both of you. I'd like to commend both of you and the Department particularly for the sections of the Quadrennial Defense Review dealing with China which are, I believe, quite excellent, so I'm very appreciative of the work you've done.

I would also say, as just an expression of one commissioner's interest, fully understanding or understanding in greater detail the hedging, the implications of the hedging policy are something I think we'd like to pursue through the coming year, so I hope that we can continue to receive information about that.

Thank you most of all for giving us an extra 15 minutes and for appearing before the commission. Thanks very much. There will be a brief five minute pause for a panel change, and then we'll be back at it.

[Whereupon, a short break was taken.]

**PANEL III: CHINESE MILITARY MODERNIZATION;  
INFORMATIONIZATION, CONVENTIONAL MISSILES, AND CHINA'S AIR  
AND NAVAL FORCES**

HEARING COCHAIR DONNELLY: The commission will come to order. We continue with our look at Chinese military modernization by delving a little bit more deeply into the question of the growing missile threat, China's air and naval forces, and whatever exactly informationization may mean. I'm sure we'll learn a lot about that because we have three very sagacious witnesses.

Mark Stokes, now known as "Mister," but perhaps better known to the commissioners as Major and then Colonel Mark Stokes; Cortez Cooper, Director of East Asia Studies at SAIC; and Dr. Jacqueline Newmyer, who is with The Long Term Strategy Project at Harvard.

Again, I would remind the witnesses and the commissioners that we're still in something of a time deficit, so we ask the witnesses to confine their remarks to about seven minutes and then we'll use the remaining time for questions and I will rule at that point on the duration of the question time.

So let's just go down the row beginning with Mr. Stokes.

**STATEMENT OF MARK A. STOKES  
DIRECTOR, THE U.S.-TAIWAN ENTERPRISE FOUNDATION**

MR. STOKES: Commissioner Donnelly, Chairman Wortzel, and others, I appreciate the opportunity to come here today to address a topic that I am very enthusiastic about and concerned about and something that I've been following for many years.

My name is Mark Stokes. I formerly served under Peter Brookes and others. I worked with Dan and others within the Office of Secretary of Defense for seven years where I was responsible for China and Taiwan defense policy and again I appreciate the opportunity to speak with you today.

I would like to do is start off briefly by discussing the evolving PRC ballistic and land-attack cruise missile threat to Taiwan and others in the region.

This is fairly well covered ground. What I'll do is review where we've been to date and spend more time on the effects that the PRC's growing arsenal of increasingly accurate and lethal ballistic and land attack cruise missiles are having on Taiwan, the United States and others in the region, and then also address some possible considerations in view of these trends.

First of all, conventionally armed, short-range ballistic missiles as well as a new generation of conventionally armed medium-range ballistic missiles and a new generation of land attack cruise missiles are an integral and important tool of PRC statecraft.

As widely addressed in the public record, the PRC's expanding SRBM inventory is intended to deter or coerce neighbors, such as Taiwan, into heeding Beijing's will. Should Beijing resort to use of force, conventionally armed ballistic missiles under the Second Artillery operating in conjunction, either independently or in conjunction with the PLA Air Force, special operations and other aspects of the People's Liberation Army could serve as critical enablers for the PRC to attain their strategic and military objectives vis-à-vis Taiwan.

The Second Artillery doctrine stresses surprise. It stresses disarming first strikes to gain the initiative in the initial stages of a conflict, to prepare the battle space, so to speak, for insertion of forces on the ground. But actually the more significant aspect of ballistic missiles is political, psychological and strategic in nature, and I'll talk about this in some detail.

What we're seeing now in terms of the PRC's build up of missiles opposite Taiwan is nothing new. This has been planned and programmed since at least 1996, if

not earlier. They are doing things that people like Rick Fisher and others have been saying that they've been doing for quite awhile. There's really no surprise.

They mentioned, as far back as 1998-1999, their intention to deploy at least seven brigades. Ken Allen has done a very, very good piece of work that looks at some of the breakdown of organizational structure. For example, each brigade, seven brigades under a unified command, peacetime, 52nd base, wartime chops over to a theater missile command, each brigade having three to four, actually four to six battalions, each battalion having somewhere between three and four companies, companies having a couple launchers each.

The number 700 in terms of ballistic missiles tends to get thrown around quite a bit. But what's actually more important is to look at the number of launchers because launchers actually gives you a more accurate reading of operational effectiveness in terms of raid size. In other words, in terms of being able to saturate or exhaust any type of missile defense architecture that it would be targeted against.

The organization of the Second Artillery's conventional missile force is just one thing. The Second Artillery's conventional forces, they have missiles that range from 700 kilometers out to about 1,700 kilometers. They have a mix of increasingly sophisticated warheads.

These warheads include things like, for example, submunitions, terminally guided submunitions for example, for runway cratering in order to pin down an air force on the ground or to disrupt naval operations. The modernization program includes, for example, ballistic missiles with terminal guidance systems with extended ranges -- the DF-15, CSS-6 missile, as well a DF-21C, 1,700 kilometer range missile terminal guidance that could be maneuverable as well. These could pose serious challenges, for example, to U.S. naval forces operating or attempting to intervene in a Taiwan Strait scenario.

There is reporting that the PRC deployment of its first generation surface-to-surface land attack cruise missile could be nearing. There are some projections of about 200 DH-10 land attack cruise missiles that could be deployed opposite Taiwan. In many ways, cruise missiles which tend to be about a third of the cost of ballistic missiles--they can carry about the same size warhead actually to a greater degree of accuracy. In some ways, it's actually more difficult to counter than ballistic missiles, but this is something to watch come on line in the years ahead.

There are indications that the other types of warheads, not only to include submunitions but, for example, either some type of nuclear or non-nuclear EMP, electromagnetic pulse, weapon that could be detonated above Taiwan, is something else to be watching. Non-nuclear or radio-frequency weapons, there's been investment into research and development into this area. This would be a very risky endeavor by the PRC to attempt some sort of a nuke burst above Taiwan, but it's still something to be able to watch in terms of their ability to knock out electricity or electronic forces throughout the island.

The doctrine includes a whole range of potential applications. Deterrence is number one. Deterrence and coercion, psychological and political effect. There's a symbolic value to the PRC missile force deployed opposite Taiwan.

Also, it adds a critical military effect in terms of being able to pin down air forces, to pin down naval forces operating out of Taiwan, prepare the battlefields, so to speak.

And the missile deployments pose significant implications for the United States forces attempting to intervene.

But more importantly is to look at the effects. Proceeding as scheduled, the growth of PLA Second Artillery's conventional forces, missile forces, should not be a surprise. What may be more useful is to look at the effects these deployments have had on the United States.

The PRC's, the missile's primary purpose is to intimidate Taiwan's population, to prevent them from taking actions deemed to be inimical to Beijing's interests. I would assert that this attempt to psychologically intimidate the people of Taiwan and their democratically elected leaders has been a dismal failure. Looking at this over the last ten years, I believe it has not been successful.

Beijing has also feared linkages between Taiwan and the United States in the form of early warning, sharing of early warning. They have complained that the United States provision of early warning to Taiwan would be tantamount to a resurrection of the U.S.-ROC mutual defense treaty and abrogation and assurances under the 1979 Communiqué.

This also has failed. Other aspects, they have in terms of economic, they may have been trying to draw Taiwan into some sort of a force-on-force competition, matching missile for missile with interceptors, or actually two interceptors for missile in terms of standard shot doctrine. Taiwan has not been drawn into this "arms race," quote-unquote.

However, Taiwan has still invested over \$1 billion into defending against a PRC missile threat, mostly in the form of early warning. For example, large UHF radar, tactical communications hardening, rapid runway repair. Taiwan has taken decisive measures to do this.

Its political system has yet to come to a consensus on investing into procurement of U.S. missile defenses. But having said that, they have invested in their own indigenous missile defense interceptor, the TK-3. They have also requested the United States work with Taiwan in actually in terms of technology sharing and things like this, and I'll talk about this later.

HEARING COCHAIR DONNELLY: May I ask you to sum up, please?

MR. STOKES: Sure. But in any case, the effects on the United States and Japan are also significant in terms of complicating U.S. ability to intervene. But the most significant effect is political symbolic in nature. The missile build-up tends to be quantifiable in terms of numbers, but Taiwan's investment in missile defenses has not been what many people believe to be event sufficient.

This has led, the most significant implication is a perception in the United States that Taiwan is not investing sufficient resources in their defense. This is a misperception. Taiwan's actual defense spending is 12 billion a year, not eight billion, about 3.6 percent of GDP.

There are other things the United States can do for your consideration. For example, working more with Taiwan, the defense industry, to help create jobs in Taiwan and as well in the United States, jobs and income, enhance Taiwan's economic security.

Along these lines one thing to consider is that U.S. government and defense industries are hesitant to invest in Taiwan along these lines unless Taiwan gets some effective export control system in place. There is a way to do this, and I would just

recommend that some people instead of complaining about possible leakages actually take action and work, for example, to work with, for example, Department of Commerce to work with Taiwan in developing this, and with that, I will close it off.

[The statement follows:]

**Prepared Statement of Mark A. Stokes  
Director, The U.S.-Taiwan Enterprise Foundation**

I first would like to express my appreciation for this opportunity to address an issue that is important to the safety and well-being of the United States, Taiwan, and other democracies in the Asia-Pacific region.

In my presentation today, I would like to address the People's Republic of China's growing arsenal of increasingly accurate and lethal conventional ballistic and land attack cruise missiles arrayed against the Republic of China (ROC), or Taiwan, whichever term one prefers to use. I will first address the perceived nature and intent of the PRC in fielding such a force opposite Taiwan. Perhaps most important, however, is to address the strategic, economic, and military effects that these deployments have had on Taiwan, the United States, and others within the region. I will wrap up my remarks with a few issues to consider as you address the PRC's growing political, economic, and military clout within the region.

**Nature of the Challenge**

Conventionally armed short range ballistic missiles (SRBMs) have become a key tool of PRC statecraft. As widely addressed in the public record, the PRC's expanding SRBM inventory is intended to deter or coerce neighbors such as Taiwan. Should Beijing resort to the use of force, conventionally armed ballistic missiles under the Second Artillery, operating jointly with the PLA Air Force and other branches of its armed services, could serve as critical enablers in gaining information dominance, and air and naval superiority in a crisis. Second Artillery conventional doctrine stresses surprise and disarming first strikes to gain the initiative in the opening phase of a conflict.

Planned and programmed a decade ago, the PLA is now believed to have at least 700 conventional surface-to-surface missiles allocated throughout at least seven brigades deployed in southeast China under a unified regional missile command. Each brigade is said to have between four and six battalions, each with three-four launch companies, each equipped with at least two launchers. With between 75 and 100 new missiles being deployed each year, these missiles are expected to have ranges extending from 300 to 1700 kilometers. The newest generation of conventional ballistic missile may include the DF-21C, a missile that has been under development since 1995. It may be equipped with a terminal guidance system that could preclude engagement by terminal missile defenses. It also could also range U.S. bases in the region, and, armed with a maneuvering payload, could complicate the U.S. carrier operations in the western Pacific. Reporting from Taiwan indicates that the PLA may be deploying about 200 land attack cruise missiles this year, with more coming on line in the years to come.

There are indications that the technical characteristics of these missiles are becoming increasingly sophisticated. Based on technical writings over the years, a number of warhead options may be available, including runway cratering submunitions, penetration warheads for hardened targets, and fuel air explosives. Observers in Taiwan have expressed concern over the possible outfitting of a ballistic missile with a low yield nuclear high altitude electro-magnetic pulse (EMP) warhead, and there are signs of PRC interest in weaponizing a non-nuclear EMP payload. If detonated at a precise location and altitude, both theoretically could have the potential to shut down electric power sources on the island. The precision of PRC conventional is improving as well. At least 10 years ago, PRC missile engineers had been tasked to meet an accuracy requirement of below 50 meters circular error probability (CEP).

PLA doctrine for use of ballistic and land attack cruise missiles against Taiwan highlights a range of potential applications. They could be used in a campaign to deter or coerce Taiwan's political leadership by raising the perceived costs of a policy action deemed inimical to Beijing's interests. These missiles also

could be a critical enabler for a PLA landing campaign, targeting command centers, airfields, naval facilities, logistics depots, and critical infrastructure on the island. The intent likely would be to disrupt Taiwan's political and military leaders' ability to control forces under their command, disrupt communications, and rapidly attain air superiority and sea control. PLA doctrinal writings stress surprise and pre-emption, multi-axis attacks, combining ballistic and airbreathing threats, and use of deception and concealment.

### **Strategic, Economic, and Military Effects on Taiwan**

Proceeding as scheduled, the growth of the PLA Second Artillery's conventional ballistic missile forces should not be a surprise. What may be more useful, however, is to take a closer look at the effects that these deployments have had on their potential targets – Taiwan, the United States, and Japan.

At least one purpose of deploying a sizable ballistic missile force opposite Taiwan has been to send a visible signal to the people on Taiwan that in the event an ill-defined red line is crossed, the PRC is prepared to use violence against them and their duly elected government representatives. Beijing has grasped an asymmetrical advantage it has over Taiwan, and has placed the leadership and other residents on the island within seven minutes of destruction. Political authorities in Beijing have threatened and cajoled officials in the Clinton and Bush Administrations not to assist Taiwan through provision of early warning or any other measure that could provide some relief from the psychological intimidation that these missiles are intended to pose. Beijing has feared that linking Taiwan into a U.S.-led missile defense network would in effect constitute a virtual alliance. From Beijing's perspective, such an act would not only violate the 1982 Communiqué, which was intended to curtail the provision defense articles and services to Taiwan, but also the 1979 Communiqué, which called for the abrogation of the 1979 US-ROC Mutual Defense Treaty.

Looking back over the last decade, however, Beijing's strategy has been a dismal failure. The ever-increasing deployment of conventional ballistic missiles has not succeeded in intimidating Taiwan's voters or their elected leaders. In fact, the deployments have only served to further alienate Taiwan's populace from, and raised the level of animosity toward, the PRC's political leadership. Based on media reporting, it also has not deterred the U.S. and Taiwan from establishing operational linkages associated with early warning of ballistic missile launches.

Looking back over the last decade, another intended effect of an expanding conventional ballistic missile force may have been to draw Taiwan into a force-on-force competition. If Beijing hoped to draw Taipei into an arms race as part of a competitive strategy, this also has not succeeded. Over the last four years, Taiwan's leadership has invested at least U.S. \$1 billion into defenses against PRC conventional missiles, including early warning sensors and associated tactical communications, and hardening and repair equipment. Taiwan's political system has yet to come to a consensus regarding upgrades to its existing air defense assets procured from the U.S. more than a decade ago, or acquisition of new U.S. missile defense assets. Local reporting, however, does indicate that Taiwan has invested in the development of its own indigenous active terminal missile defense interceptor, potentially in lieu of a PATRIOT PAC-3 procurement.

The military effects of the missile deployments opposite Taiwan could be significant but not insurmountable. PRC ballistic and land attack cruise missiles may be able to hold at risk unprotected, unhardened facilities, such mobile or unhardened command centers, airfields, naval facilities, and logistics centers. However, one unintended consequence is what seems to be a natural desire among Taiwan's leadership to seek an asymmetrical means of maintaining some form of a dynamic balance of power through mutually assured political, economic, and military destruction.

To maintain the ability to hold targets on the mainland at risk, Taiwan is said to be nearing completion of its own conventional missile force, including both land attack cruise missiles and a new generation short range ballistic missile. A core competency of Taiwan's is in the realm of computer network operations. With advanced air defenses deployed opposite Taiwan, conventional fixed wing strikes may prove too costly. Development of conventional surface-to-surface missiles may be viewed as a necessity in order to maintain a minimal retaliatory strike capability against mainland targets that has existed since the 1980s.

## **Effects on the United States and Japan**

The PRC's growing arsenal of conventional ballistic and land attack cruise missiles may have an effect on United States' ability to fulfill its legal obligation under the Taiwan Relations Act, which is to maintain the capacity to resist PRC use of force against Taiwan and forms of aggression. Use of ballistic missiles against Taiwan in a coercive or minimum warning invasion scenario complicates U.S. planning. Large scale, minimum warning raids against key facilities on Taiwan has the potential to paralyze its armed forces and could facilitate the insertion of a sizable PLA force onto the island before U.S. forces could be brought to bear in the area of operations. Assuming it has the means of tracking and targeting ships at sea, successful deployment of the DF-21C and extended range SRBMs with maneuvering re-entry vehicles could hold at risk U.S. carrier battle groups intervening in a crisis. They also could hamper U.S. air operations from Okinawa and other facilities on Japanese territory.

However, the most significant effect of the growing missile force is political and symbolic in nature. With the substantial conventional ballistic force opposite Taiwan, and the island's political leaders seeming inability to arrive at a consensus regarding the acquisition of missile defenses to counter that threat, many in the U.S. have perceived that Taiwan's elected officials are not sufficiently committed to the island's defense. The ballistic missile buildup, which is easily quantified in numbers of missiles arrayed against Taiwan, serves as the most tangible symbol of the PRC's broader military modernization program. And Taiwan's investment into missile defenses would serve as a symbolic response to PRC intimidation. However, as a political symbol, missile defense, along with the other two items contained in the Chen Shui-bian Administration's special budget submission to the Legislative Yuan, have been held hostage to a broader political and economic debate.

A limited procurement of U.S. missile defense assets likely would help undercut the coercive utility of PRC ballistic missiles and complicate Beijing's force planning for limited strikes. However, the fact is that Taiwan is committed to its defense. Anyone with homes and families in Taiwan is concerned about maintaining an ability to counter the growing PRC military threat, with ballistic missiles being its most visible manifestation. Since June 2004, the special budget has become one of several illusive symbolic issues in Taiwan's domestic political competition. U.S. frustration over the lack of spending on U.S. systems has fed a growing perception in Taiwan's society that the United States is valuating the ROC based on its defense expenditures rather than the democratic ideals and principles upon which America was founded.

What is often missed is that Taiwan's official defense budget does not reflect the actual amount of resources that are being spent. Taiwan allocates at least U.S. \$12 billion – about 3.6% of Taiwan's per capita GDP – to its defense. This amount is about U.S. \$4 billion over the official annual budget of just under U.S. \$8 billion, when one adds in military pensions covered by a different agency outside the Ministry of National Defense, R&D expenses covered under the National Science Council budget, and about U.S. \$1 billion a year over the last four years for a military housing project. This figure likely would rise even more if one applies the same scrutiny to Taiwan's defense spending as is dedicated to that the PRC's defense spending.

The debate over special budget, including a program for countering the growing missile build-up, should not symbolize a lack of commitment to Taiwan's defense. If anything, the defense budget debate is a manifestation of the vast complexities associated with a transitional democracy and potential structural problems associated with Taiwan's system of government. And, perhaps most important, the standoff has stemmed from fundamental differences over how to best manage limited economic resources to ensure the long term survival of Taiwan's democracy in an environment characterized by contradictory trends of globalization and localization, and increased interaction between the two sides of the Taiwan Strait.

## **Summary**

In summary, the PRC's growing arsenal of increasingly accurate and lethal conventional ballistic and land attack cruise missiles is a central aspect of Beijing's strategy against Taiwan and potential foreign



intervening forces. The intended strategic, economic, and military effects have proved ineffective in intimidating the people on Taiwan, or their democratically elected leaders. Linkages between Taiwan's own potential deployment of advanced surface-to-surface missiles and Beijing's growing deployment of offensive strike assets are clear.

While it seems appropriate to many in the U.S. that Taiwan should take decisive steps to undercut the coercive utility of the PRC's ballistic missiles, taxpayers and voters on the island have the right to determine how best to utilize their own resources in an increasingly constrained environment. They are the best qualified to judge what their requirements are, in an atmosphere free from outside coercion. When able to transcend the irrationality that often accompanies a democratic form of government, there is a basic consensus regarding what Taiwan's requires for adequate self-defense within the context of Taiwan's broader national interests.

In addressing the U.S.' role in providing Taiwan with the necessary defense articles and services, including the ability to counter the growing missile threat, I offer one consideration. Like Japan and other advanced economies, Taiwan may be endowed with competitive advantages that could contribute to U.S. missile defense development and other defense industrial programs. Greater defense industrial defense cooperation between U.S. and Taiwan industry on defense programs, thus creating jobs and income for domestic constituencies on both sides of the Pacific, may encourage greater expenditures on defense. Faced with the downturn in its economic situation in 2001, the ROC has decided to shore up its defense industry as a means to sustain economic growth while also ensuring a sufficient self-defense capability.

In order to create a more favorable environment for greater defense industrial cooperation, one measure for your consideration is for U.S. government entities, such as the Department of Commerce, to assist Taiwan's government to further enhance its already existing export control system to better prevent unauthorized third party transfers of the U.S. technology. Taiwan's economic health may be as important, if not more so, than its defense in ensuring the long term survival of its democracy.

HEARING COCHAIR DONNELLY: I appreciate it, and I again apologize to all the witnesses for the time constraints. It's just the nature of the beast I'm afraid.

Mr. Cooper, please continue.

**STATEMENT OF CORTEZ A. COOPER, III  
DIRECTOR, EAST ASIA STUDIES, HICKS AND ASSOCIATES, INC.**

MR. COOPER: Mr. Commissioner, thank you, and Mr. Chairman and other distinguished members of the commission, thanks very much for giving me the opportunity and the honor to participate on the panel today. I'm going to briefly examine three issue areas that I think are of significant concern to U.S. decision-makers.

Firstly, the People's Republic of China naval and air force modernization strategies; then the likely deployment of these air and naval forces between now and roughly 2020; and then the implications of Chinese air and naval modernization and force deployment strategies for the U.S.

Chinese force modernization and deployment plans and programs I don't think can really be understood unless they're looked at in the light of Beijing's overarching national security framework, and the military capabilities, they perceive that they need to develop in order to ensure that they can counter any threats to their security and to their interests.

Chinese strategists don't envision a need for global power projection capabilities, at least through the first half of this century, and they believe that only the U.S. or the

U.S. and a treaty ally like Japan can pose a viable military threat to their strategic interests in the near to mid-term.

These interests primarily include resolution of the Taiwan issue in China's favor, as we have already talked about; security of energy resources and economic life lines, particularly the key maritime chokepoints and sea lanes that move their energy resources and market access move across; and the increasing Chinese leadership in Asian economic and diplomatic decision-making forums.

The Chinese thus, in looking at all these interests view their near periphery--although that periphery is growing-- they view that periphery as their competitive arena.

They understand that their military focus must be on using niche capabilities they have to counter the moves of a technologically superior adversary who might challenge these interests. The Chinese believe that if they can create local and momentary momentum, particularly air and information superiority in a regional clash, then they can defeat a more advanced adversary's plan and bring a conflict to a close under Beijing's terms.

The PLA approaches capabilities development and the assignment of roles and missions to their air and naval service arms in terms of the campaigns that they expect those service arms to conduct. Campaigns to force resolution of the Taiwan issue on Beijing's terms are obviously the top priority. This would include capabilities to support blockade and anti-access campaigns primarily--and those capabilities are already resident to some extent or will be within three years.

The further capabilities to conduct amphibious landing and airborne campaigns sufficient to conduct a costly but possibly effective joint invasion of Taiwan could follow some time around 2012.

After Taiwan, the priority falls to PLA campaigns to control the near periphery which they define by looking at their sovereignty claims in the East and South China Seas. China is probably a decade away from deploying and integrating the key components needed to conduct even the regional sea control campaigns which would be required to address some of those larger sovereignty issues. Those capabilities primarily are joint command and control, long-range surveillance and reconnaissance, maritime area air defenses, and a real time joint targeting architecture--and again they're a decade out from that I would think.

By roughly 2020, Beijing hopes to be able to focus on the greater periphery, particularly the Straits of Malacca, the Indian Ocean and the Persian Gulf. This obviously would require development of a blue water fleet and a strategic bomber force in order to really be able to conduct operations out to that distance.

China is currently building a Navy that can best be described as a sea denial force rather than sea control. Beijing is focused on fielding modern destroyers, submarines, cruise missiles and maritime strike aircraft to deter or prevent an adversary from operating for a given period of time in or above a critical sea lane or a maritime zone of maneuver.

By 2008, I believe China will have the capability to credibly conduct short-term sea denial operations out to approximately 400 nautical miles from its coastline, given some of the systems that they're developing and fielding; and that by 2010 they may be able to sustain such operations for a few weeks.

China's submarine force is the key component in Beijing's sea denial strategy. I think that the PLA Navy will probably have about 28 modern submarines in the fleet by the end of this year, and a similar number of older boats that will continue to require the attention of American commanders in the Pacific Theater. With over 50 subs operational and half of them modern and highly lethal, the anti-submarine warfare mission for the U.S. in the Pacific is becoming extremely difficult.

A second pillar of the sea denial strategy is the new destroyer and frigate fleet. Beijing has purchased four Russian SOVREMENNY destroyers and they're building eight new classes of indigenous destroyers and frigates at the same time with greatly improved anti-air and anti-ship missile systems.

Given its national development priorities--and aside from a lot of the visibility that's been given to the possibility of a carrier program, I don't believe it's in China's interests to pursue the high cost of transition to a carrier navy for at least two decades--but this does not rule out the possibility of a hybrid navy that has one or possibly two carrier groups which are designed to provide minimum blue water power projection for regional contingencies; and I believe that maybe one carrier group would be possible for Beijing by around 2015.

China's air modernization strategy at present still focuses on improving capabilities to conduct what has been a traditional defensive mission--the strategic air defense campaign. The PLA Air Force does, however, aspire in the near future to develop capabilities to conduct an offense air campaign to establish local temporary air superiority in a conflict.

Beijing has acquired or is developing airborne early warning and aerial refueling force multipliers, and they're improving targeting capabilities via unmanned aerial vehicles, shipborne helicopters and over-the-horizon radars.

Integrating these systems with each other and with space-based detection and tracking systems remains a key shortfall that the PLA will not likely correct until probably after 2012--and I'll just add as an aside that that's really, I believe, the key to their "informationization" efforts. When they talk about informationization of the force, really what they're stressing, at least at the moment, is to gain that key understanding--the eyes and ears on the battlefield that they lack right now--and that's going to require an integration of systems that we see them putting out there individually now but not yet putting together.

Looking quickly at the three components of an employment strategy: the first is to take their modern air and naval forces and to structure them into what's called "fist" packages or "fist" forces, primarily designed to be able to conduct blockades, sea denial or invasion campaigns against Taiwan.

Secondly, they want to be able to--I think we've already talked about the missile force--that's the preemptive strike piece of their employment doctrine.

Finally, they need to develop the command, control and intelligence assets necessary to conduct temporary air and sea superiority campaigns in a local conflict.

I believe just to wrap this up, I believe that by 2008, Beijing will be able to put some formidable "fist" packages in the Strait against Taiwan and potentially against U.S. forces coming to Taiwan's assistance, but they would not be able to sustain for any great length of time a full blockade. They could, however, impose considerable damage to Taiwan's economy and the Taiwan military before withdrawing.

I didn't really get a chance to look very closely at the implications for the U.S., but very briefly, I note in my longer testimony for the record, that I believe there is a window of concern between 2008 and 2015. There are a lot of Chinese programs focused on Taiwan and on their near periphery that will be fully online around that time, between 2008 and 2009, but some of the U.S. capabilities to defeat China's sea denial strategy, such as missile defenses, littoral strike assets, and an integrated anti-submarine warfare network, may not be in place until around the middle of the next decade.

So again I think those are particular programs and potential areas of concern that need to be looked at, particularly the anti-submarine warfare architecture, the Navy's new destroyer program, and then--as Mr. Rodman mentioned earlier--some of the force disposition activities that we are beginning to put in place in the region.

With that, I will close.

[The statement follows:]

**Prepared Statement of Cortez A. Cooper, III**  
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Let me begin by expressing my appreciation to the Chairman and the other distinguished members of the US-China Economic and Security Review Commission. It is an honor to have the opportunity to testify here today.

My testimony will briefly examine three areas of pressing concern:

- People's Republic of China naval and air force modernization strategies, in the context of China's national security interests and objectives
- Likely deployment of China's air and naval forces between now and 2020
- Implications of Chinese air and naval modernization and force deployment strategies

**China's National Security Framework and Evolving Military Doctrine**

*China's View of the Geo-strategic Environment.* Chinese force modernization and deployment plans and programs follow from the overarching strategic and doctrinal frameworks by which Beijing defines threats to national security and the military capabilities required to counter them. Chinese strategists do not envision a need for global power projection capabilities through the first half of this century, and believe that only the U.S., or the U.S. and a treaty ally like Japan, present a viable military threat to strategic interests in the near to mid-term. These interests primarily include resolution of the Taiwan issue in China's favor, security of energy resources and economic lifelines, and increasing Chinese leadership in Asian economic and diplomatic decision making forums. Territorial or resource disputes between Beijing and Japan, Russia, India or a unified Korea could conceivably be added to the list in certain future scenarios—but in all cases, the Chinese view their periphery as the competitive arena.

Chinese strategists do not see the PRC assuming preeminence of influence in Asia during the first half of this century, based on Chinese assessments of comprehensive national power. To protect economic growth and integration, and the fragile domestic control that the Communist Party is able to exercise as a result, Beijing will for the foreseeable future seek to avoid a Sino-U.S. showdown in any sphere of international competition. In any case, China will not have the capacity to dramatically alter the Asian security architecture via military competition for at least the next two decades. Beijing believes, however, that if the Party can maintain internal order while the People's Liberation Army (PLA) develops capabilities to

control China's immediate periphery, then strategic objectives will be met. While definitions of the periphery have expanded due to the importance of distant sea lanes for energy and market access, the Chinese know that they will not conduct operations, other than limited anti-access activities, beyond the Asian continent or adjacent seas.

***PLA Strategy and Doctrine.*** PLA strategists understand that for the wars they expect to fight in the next few decades, their focus must be on using the niche capabilities they have to counter the moves of a technologically superior adversary. The Chinese are carefully studying how American forces approach dominant command and control, surveillance and reconnaissance, rapid re-supply, and the capability to quickly overwhelm an opponent with multi-dimensional firepower. PLA campaign planning, modernization programs, and research, development, and acquisition initiatives aim less at decisive victory in what Chinese strategists call "local war under high-technology conditions," but more at defeating an adversary who brings such a war to China's neighborhood. While this sounds like a defensive focus, it is anything but. The PLA is committed to an offensive capability—to limited power projection and preemptive, or at least rapid, strikes against an enemy's critical vulnerability. Viewed in this light, it is easy to understand why Chinese strategists are fixated on information dominance in the early stages of a fight, on the interruption of enemy supply lines, and on strikes against key adversarial high-tech weapons systems.

Within this framework, Chinese military planners look to accomplish a "quick battle to force quick resolution," but with an emphasis on preemptive and unexpected strikes to remove an enemy's technological superiority—what one Chinese theorist calls a "structural destruction operation." The Chinese believe that creating local and momentary momentum (especially air and information superiority) in a regional clash will allow them to defeat a more advanced adversary's plan and bring conflict to a close under Beijing's terms. This is a defeat criterion more focused on an enemy's strategy than on his military force. The Chinese seek to deprive an adversary of the ability to use operational and technical superiority to control strategic outcomes.

***Impetus for, and Priority of, PLA Air and Naval Modernization.*** China's current air and naval strategies are driven by Beijing's overarching diplomatic and economic priorities as delineated in the Communist Party's 11th five-year plan—a plan that is far from transparent to observers outside of Beijing. One cannot speak of China as having a "pure" security strategy, because the political and economic dimensions of its perceived security needs loom so large. Because of military limitations, Beijing relies on economic and diplomatic initiatives to help shape the security environment in the Western Pacific and Indian Oceans. Ultimately, this strategy could increase the access of Chinese air and maritime forces to regional bases—eventually supporting a regional power projection capability.

The 2004 Chinese Defense White Paper stated emphatically that air and naval modernization programs, and the capabilities they forge, are national priorities. The PLA approaches capabilities development and the assignment of roles and missions to these service arms in terms of the campaigns they will be expected to conduct. Campaigns to force resolution of the Taiwan issue on Beijing's terms are currently paramount. Capabilities to support blockade and anti-access campaigns are already resident or will be within three years; amphibious landing and airborne capabilities sufficient to conduct a costly but conceivably effective joint invasion campaign could follow before 2012.

After Taiwan, priority falls to PLA campaigns to control the near periphery, defined primarily by sovereignty claims in the East and South China Seas. Potential expansion of Japanese Self Defense Force missions causes great consternation in Beijing, and the PLA intends to respond by developing regional air superiority and sea control capabilities. China is probably a decade away from deploying and integrating the key components needed to conduct these campaigns—capabilities such as joint command and control, long-range surveillance and reconnaissance, maritime area air defenses, and a real-time, joint targeting architecture. By roughly 2020, Beijing hopes to be able to focus capabilities on the "greater periphery," particularly the Straits of Malacca, the Indian Ocean, and the Persian Gulf. This will require development of a blue-water fleet and a strategic reach bomber force to protect trade and natural resource flows, and "first among equals" status with India and Japan.

## People's Liberation Army Navy (PLAN) Modernization Strategy

As a rising maritime trading power, Beijing approaches its naval modernization as a component of a larger effort that includes robust civil and military shipbuilding capacity, and control of or access to major port facilities on each of the major regional seas. As such, the Chinese are seeking a naval presence along maritime chokepoints in the South China Sea, the Straits of Malacca, the Indian Ocean, and the Arabian Sea by acquiring access to bases in Cambodia, Myanmar, Bangladesh, and Pakistan. These tasks coincide with China's push to acquire and protect its rapidly growing energy requirements, and to protect the trade that keeps the export-focused economy afloat. To support the technical and infrastructure requirements of maritime power, China is in position to become the world's largest shipbuilder by the middle of the next decade—the world's largest shipyard is currently under construction in Shanghai.

***Constructing a Sea Denial Force.*** Chinese strategy is often couched in defensive terminology, but with obvious offensive connotation. This is particularly true for Beijing's evolving naval strategy. China is building a force that can best be described as a "sea denial" force. Beijing is focused on fielding modern destroyers, submarines, cruise missiles, and maritime strike aircraft to deter or prevent an adversary from operating for a given period of time in or above a critical sea lane or maritime zone of maneuver. By 2008, China will have the capability to credibly conduct short-term sea denial operations out to about 400 nautical miles from its coastline; and by 2010 may be able to sustain such operations for a few weeks. Obviously, this capability does not accrue to the Straits of Malacca and the Indian Ocean—China can at best hope to "show the flag" for coercive and/or defensive purposes in those waters until after 2015.

China's submarine force is the key component in Beijing's sea denial strategy. Beijing is concurrently building four classes of submarines, and acquiring another from Russia. China commissioned 11 submarines in 2005, and will commission another five or six this year. The PLAN will have about 28 modern submarines in the fleet by the end of this year, in addition to a similar number of older boats that will continue to require the attention of American commanders in the Pacific theater. With over 50 subs operational, and about half of them modern and highly lethal, the ant-submarine warfare (ASW) mission for the U.S. in the Pacific is becoming extremely difficult. In a protracted head-to-head fight, the PLA would lose these submarines; but they could be quite effective in slowing U.S. response to a short, limited objective fight on China's periphery.

The backbone of the modern diesel attack fleet is the Russian KILO class, of which Beijing will have 10 in the fleet by next year. Because China has access to the entire family of Russian CLUB missiles, the new KILO submarines that began arriving last summer could have the 300km-range 3M-14 land attack cruise missile (LACM), the 220km-range 3M-54E anti-ship cruise missile (ASCM), and the 91RE1 ASW rocket. This is an extremely lethal weapons suite that allows the KILO to support a number of PLA campaign requirements. China's new indigenously produced nuclear attack submarine, the Type 093 SHANG class, benefits greatly from Russian technology and design—it will be armed with both ASCMs and LACMs. The SHANG's range and weaponry will give the PLA its first non-nuclear global strike capability. By 2008, the PLA may have more than 10 SHANGs operational. The new indigenously produced YUAN class diesel boat, the first two of which should enter service this year, may include air-independent propulsion systems that will increase the submerged endurance of the platform. China's older MING and ROMEO submarines remain in service, and likely will continue to do so for some years. They can serve as mine-laying platforms, and can be used to bait or decoy U.S. submarines and complicate the ASW picture.

The second pillar of Beijing's sea denial strategy is the new destroyer and frigate fleet (currently 21 destroyers and 43 frigates). Beijing has purchased four Russian SOVREMENNY destroyers, and is building eight new classes of indigenous destroyers and frigates. China will have nine modern destroyers in service by the end of this year, with greatly improved anti-air and anti-ship missile systems. The LUHAI and LUYANG destroyers are designed to ameliorate the PLAN's most glaring maritime power projection shortfall—ship-borne area air defenses. Of particular note is the LUYANG II class destroyer, which has the very capable vertical-launch HQ-9 area air defense system, with phased-array radar somewhat similar to that of the U.S. AEGIS system. The LUHAI and LUYANG also will have the capability to conduct long-range anti-surface warfare (ASUW) missions with supersonic ASCMs.

Beijing will probably have 17 modern frigates in service by the end of this year, incorporating much-improved air defenses. The JIANGKAI class is noteworthy, as it has a stealthy design similar to the French LAFAYETTE class. China has also introduced a new fast-attack missile platform with a stealthy, catamaran hull design; and is investing in a deep-water mining capability, with a wide variety of applications via varied delivery and activation mechanisms (to include acoustically activated, remote control technology).

To improve the deterrent impact of Beijing's strategy, the PLAN is also modernizing the sea-based nuclear force. China's navy is a strategic force in name only at the moment, but this is changing. A new SSBN, the Type 094 class, will enter service within the next four years. Analysts expect it to be armed with 12 JL-2 ballistic missiles, which could have a range of as much as 12,000km. This would permit attacks on most continental U.S. targets from protected locations close to China's shore.

***Blue Water Aspirations.*** Faced with the perceived requirement to conduct sea control and air superiority operations along sea lanes in the Philippine Sea, Straits of Malacca, and Indian Ocean, the ability to project and sustain air power and air defenses over long distances becomes paramount. Given its national development priorities, it is not in China's interests to pursue the high cost of transition to a carrier navy for at least two decades. But this does not rule out the possibility of a "hybrid" navy that has one or two carrier groups designed to provide minimum blue-water power projection for regional contingencies. China will, however, approach this slowly. Beijing understands its security conundrum—carrier development will increase unease among regional neighbors, who might in turn adopt more active strategies to balance against growing Chinese power projection capabilities.

The recent emergence from dry-dock of the VARYAG carrier purchased from Ukraine has been the source of much discussion and consternation. The VARYAG would require a tremendous amount of energy and expense to become operational—some observers have suggested that it would be a good training platform for the PLAN while an indigenous carrier program pushed ahead to build and deploy China's first fully operational carrier. Some observers believe that China will indigenously build a 45,000-60,000-ton carrier that could carry 30-40 SU30MKK multi-role fighters—something that the Chinese could possibly achieve around 2015.

### **The People's Liberation Army Air Force (PLAAF) and PLAN Air Force (PLANAF) Modernization Strategy**

***A Defensive Force...*** China's air modernization strategy at present focuses on improving capabilities to conduct a traditional defensive mission, the strategic air defense campaign. The SA10/20 surface-to-air missile (SAM) systems acquired from Russia provide the heart of these defenses, with powerful radar capabilities and high-performance missiles that can range in excess of 100 nautical miles. Extended range missiles are available from Russia and will probably be fielded soon—giving the PLAAF the ability to cover the island of Taiwan from deployment locations near the Chinese coast. The growing, modern PLAAF and PLANAF indigenous and Russian-produced fighter fleet is capable of supporting the air defense campaign, but is not yet prepared to sustain even regional air superiority operations against a modern adversary.

***...with Offensive Aspirations.*** The PLAAF, however, aspires in the near future to develop capabilities to conduct an offensive air campaign that would push an enemy on the defense further from China's shore at decisive points in a fight. Beijing has acquired or is developing airborne early warning and aerial refueling force-multipliers, while improving targeting capabilities via unmanned aerial vehicles, ship-borne helicopters, and over-the-horizon radars. Integrating these systems with each other and with space-based detection and tracking systems remains a shortfall that the PLAAF will not likely correct until about 2012.

China's air force is, and will remain for the next decade, tethered to the Mainland and the near periphery. This does not, however, provide great comfort for the preponderance of regional actors lying within this expanding "near periphery." The SU-30 multi-role and maritime strike aircraft and newer, longer range strategic SAM systems purchased from Russia provide the capability to conduct temporary offensive operations out to at least 200 KM from China's land and sea borders—and perhaps beyond when sea-based

air defenses become more capable over the next 5 years. The stand-off capabilities of the PLANAF's SU-30MKK2 maritime strike fleet would also be greatly boosted if Russia sells Beijing the new 300km-range Kh-59MK ASCM.

The Chinese have indigenously assembled from Russian kits around 100 SU-27 fighter airframes—known as the J-11. Russian kit delivery has stopped, and some analysts believe that the Chinese are now confident that they can make the J-11 program completely indigenous. This would require Chinese industry to overcome some significant shortfalls in the capability to produce turbofan engines and advanced radar. China likely will need another five years to overcome these difficulties, but could purchase specific major end components such as engines as a stopgap.

***Attaining Strategic Reach?*** In June 2004, media reports indicated that at the 10<sup>th</sup> Congress of the Chinese Communist Party, PLA leadership passed a resolution that the PLAAF would become a “strategic air force.” If true, this would indicate a significant shift in PLAAF doctrine and campaign planning. A number of analysts note Beijing's interest in Russia's Tu-22M-3 BACKFIRE bomber, but as of yet a BACKFIRE purchase remains speculative. The BACKFIRE uses a range of supersonic and subsonic precision-guided munitions that would greatly enhance China's ability to conduct sea denial or sea control operations. With a combat radius of over 2,000 nautical miles, the BACKFIRE has an impressive footprint that could hold at risk Guam and, if operating from Myanmar, Diego Garcia—without aerial refueling.

### **Future Deployment of PLA Naval and Air Forces**

***Components of Air and Maritime Force Employment.*** The PLA has developed three key components of an employment strategy for operations focusing on Taiwan and the near periphery. The first is the formation of elite configurations of air and maritime packages to conduct the key sub-campaigns of a larger blockade, sea denial, or joint invasion campaign. The second is a preemptive strike capability, represented by a large array of cruise and ballistic missiles. The final component is development of doctrine, tactics, and capabilities (especially command, control and intelligence) to gain temporary, localized air and sea superiority in support of a quick, decisive battle.

The force that China will have afloat and in the air by roughly 2008 would be formidable in using “fist” forces to conduct blockade operations against Taiwan. While Beijing would not be able to sustain a lengthy, full blockade in the face of U.S. response, the PLAN and PLAAF could impose considerable harm on the Taiwan economy and the Taiwan military before withdrawing.

Over-the-horizon detection and targeting are a significant capability shortfall for the PLA, but will improve greatly as new space-based sensors, long distance air reconnaissance drones, and airborne early warning platforms deploy over the next decade. Integration of space-based sensors with aerial reconnaissance aircraft will represent a viable threat to forward bases, command and control nodes, logistics assets, and forward deployed forces. The combined Sino-Russian “Peace Mission 2005” exercise this past August illustrated that, with Moscow's assistance, Beijing is making headway in targeting capabilities. The exercise reportedly featured submarine missile launches coordinated by Y-8 airborne early warning aircraft through use of communication buoys.

“Peace Mission 2005” also featured airfield capture training for Chinese and Russian airborne forces—a key mission for Beijing in certain Taiwan conflict scenarios. Strategic lift in the PLAAF is a constraint on airborne power projection at the moment, but Beijing has inked a deal to purchase additional IL-76 transport aircraft, which could increase lift capacity by as much as 150 percent. Beijing will also purchase IL-78 refueling tankers, which will refuel the Russian SU-30 aircraft in both PLAAF and PLANAF inventories—giving them reach out into the Sea of Japan, the South China Sea, and to Guam. SU-30 aerial refueling training occurred during “Peace Mission 2005,” but Russian pilots were probably in all of the involved aircraft. Chinese aerial refueling capability is coming to fruition very slowly, but can no longer be dismissed by opposing force commanders.

***Future Regional Power Projection.*** Looking beyond Taiwan and the near periphery, the PLA's increasingly formidable green water capability will not easily translate to blue water ambitions. A shift to a



blue water, sea control strategy would be evident if we see the aircraft carrier program begin to gel; production of nuclear attack submarines increase dramatically; and an integrated space-based and terrestrial command, control, and intelligence architecture become operable. Even for green water operations, the PLAN has yet to achieve full integration and automation of the fleet command and control communications system, but will probably be able to do so by 2010—due to what some observers note is the Chinese acquisition of the French TAVITAC system, which is very similar to the U.S. Navy's Link 11 secure tactical data system.. At-sea replenishment also remains a weakness, but two new DAYUN class supply ships are entering service.

As noted earlier, China is seeking to ameliorate the lack of a blue water capability by opening access for maritime forces in nations along key sea lanes. Improvements to infrastructure in the South China Sea will facilitate submarine and aircraft range and performance in and over those waters. While the South China Sea "islands" are for the most part tidal reefs, some of them offer the capability to support blockade or surveillance and tracking operations along major sea lanes south of the islands. Beijing's close relations with Pakistan have opened the door for the PLAN to the Arabian Sea, with a naval base under construction at Gwadar. China's construction of a new highway connecting Myanmar's capital, Yangon, with the PRC has been rewarded by negotiating PLAN access to naval bases under construction along the Andaman Sea and the Indian Ocean. Beijing is also building a railway line from China through Cambodia to the sea. Beijing is using its economic and growing military muscle to increase interaction with Bhutan, Nepal, Bangladesh, Sri Lanka, and the Maldives. Of particular note is the relationship with Bangladesh—Beijing is Dhaka's main weapons supplier, is establishing a road link to Bangladesh via Myanmar, and has gained naval access to the Bay of Bengal via Chittagong port.

Regional access astride the Indian Ocean and the Persian Gulf allows Beijing to push forward its green water capability, but does not allow for sufficient power projection to conduct blue water operations absent aircraft carriers or strategic forward air basing. Beyond 2015, Beijing likely will have one or both of these pieces in place, making operations on the greater periphery feasible.

### **Strategic Implications for the United States**

*Window of Vulnerability?* Looking at a net assessment of emerging Chinese capabilities and U.S. power projection in the Pacific theater, there is a window of concern between roughly 2008 and 2015. Many Chinese programs focused on Taiwan and the near periphery (new cruise and maneuverable ballistic missiles, submarines, and destroyers) will be fully online around 2008; but some of the US capabilities to defeat China's sea denial strategy (missile defenses, littoral strike assets, a state-of-the-art, integrated ASW network) may not be in place until around the middle of the next decade. In this window, America's ability to effectively conduct offensive air and naval operations will depend in large part on the willingness of regional allies to support these operations. The importance of Japan is obvious; but our relations and access negotiations with Manila, Singapore and Seoul are also critical. In part as an attempt to reduce support for American intervention in a Taiwan imbroglio, the Chinese have worked hard over the past two years to gain reaffirmation of strong "one-China" policies from Singapore, the Philippines, and Australia.

Countering PLA submarines in a Taiwan scenario over the next few years would probably rely heavily on Japanese ASW support. For Taiwan and beyond, the U.S. needs an integrated ASW architecture with distributed sensors, unmanned vehicles, and the full complement of surface, sub-surface, and aerial detection, targeting, and weapons systems. As a new generation PLA SSBN becomes part of the equation sometime in the next five years, this will become even more critical. While we have reversed a trend that since 1990 has de-emphasized U.S. ASW capabilities, there are still significant shortfalls in this area. China's ASW, however, is much weaker still—the Chinese are concerned about this, but perhaps believe that the U.S. will not have the number of submarines in theater to rapidly influence the fight. Maintaining a larger number of nuclear attack submarines in the Pacific would provide a number of advantages—ISR operations, mine-laying, SOF insertion, missile strikes—that would certainly give great pause to Chinese decision makers when considering use-of-force options.

As China fields a more effective stand-off capability via improved detection, tracking and long-range cruise missile systems, U.S. carrier groups may have to operate further from China's coast to avoid unacceptable

risk. Ensuring air superiority over potential trouble spots in the East and South China Seas (particularly the Taiwan Strait) will involve difficult decisions about the extent to which the U.S. is willing to strike targets on the Chinese mainland. Threat assessments for the East Asia littoral and the South China Sea are becoming more complicated with the proliferation of advanced ASCMs, fourth generation aircraft, and advanced diesel submarines. The U.S. Navy's new destroyer program (DD(X)) will help to address this threat, but will be another decade or more in coming—U.S. frigates are outdated for the job. As the PLA develops deep-water mining capabilities, new mine counter-measure systems also will be increasingly important. Should Beijing acquire the BACKFIRE bomber from Russia, U.S. carrier battle groups and forward bases will face a significantly increased threat—Air Force F-15 and, eventually, F/A-22A aircraft provide excellent intercept capability; but in some scenarios, the constraints of land basing are a formidable obstacle.

***Reinforcing the Regional Security Structure.*** The PLA will not, for the next two to three decades, have the power projection capability to challenge the U.S. Navy in the open waters of the Western Pacific or the Indian Ocean; but its ability to present a very capable littoral and green water power projection capability will certainly weigh ever more heavily on regional actors as they determine security alignment policies and force development priorities. At the moment, the best the PLA can hope for in terms of the Straits of Malacca and the Indian Ocean is a strategy of reciprocal deterrence—absent the capability to control those sea lanes or defeat US, Japanese, or Indian naval forces in a decisive engagement, the PLAN at least represents a threat against the critical shipping of potential adversaries should Chinese shipping be held at threat. As we have seen, Beijing is attempting to expand its sphere of influence into India's backyard, and the US-Indian relationship in the security realm is thus an extremely important counterbalance.

U.S.-Southeast Asian military-to-military contacts are a critical component of the regional security architecture—one that must not slip as China grows in influence. Since 1995, the US and maritime Southeast Asian nations have conducted Cooperation Afloat Readiness and Training (CARAT) exercises, and annual Cobra Gold exercises include Thailand, Singapore and Malaysia. Singapore's Changi port facility is especially designed to accommodate US carrier visits. The Philippines are now the largest recipients of US military assistance in East Asia, and are considered a "major non-NATO ally." The Chinese have also recognized the strategic importance of the Philippines, however, and have parlayed growing economic ties into strategic level dialogue with Manila on a number of security issues. When discussing mil-to-mil relationships and activities in the region, it is important to include the mil-to-mil program with China in the discussion. Whatever the direction of Sino-U.S. cooperation and competition in the future, a more variegated, robust mil-to-mil relationship is needed to minimize distrust and miscalculation.

Physical presence of naval forces in the Pacific must not be underestimated, and naval exercises should openly illustrate rapid surge capabilities. It should be clear to Beijing that there are no "asymmetries" or "stratagems" that can prevent the U.S. from timely response to crises in the region. There are a number of initiatives already underway to ensure U.S. rapid response and reassure regional allies, such as the transfer of an additional carrier to either Guam or Hawaii. New concepts for rotational ship deployments should also be encouraged. The U.S. response to the catastrophic 2004 Tsunami sent a clear message to the Chinese regarding U.S. surge capabilities; and certainly reinforced in minds throughout the region the need for U.S. presence and access. Because of the importance of physical presence and the various mission challenges that we face in the Pacific, the size of the fleet is important. Numbers do matter, for both operational and political reasons. A growing East Asian Community, albeit still in its infancy, will to some extent measure U.S. security commitment by numbers of ships in theater, port calls, and related measurements.

***Beyond Military Competition.*** The preponderant position among this generation of China's leaders, and probably the next two generations to follow, is that diminishing U.S. influence and access in Asia must eventually occur to accommodate China's rise. Perhaps the most effective way to alter this "zero-sum" thinking is via cooperative security and market mechanisms. This requires a delicate balancing act—Washington absolutely must maintain the physical military presence in Asia that sends a clear message of commitment to the region; but should show this muscle to be a component of the evolving, inclusive regional security architecture, rather than as an exclusive effort to trump a more powerful China. China

retains a “victim mentality” that is not easily vitiated—this mentality raises the likelihood that otherwise manageable tensions could spiral into a security dilemma. If U.S. security initiatives in the region appear to marginalize the development of mutually beneficial security frameworks in favor of “encirclement,” then China will be more likely to respond aggressively on all fronts. The resulting dilemma will force regional actors to make decisions based on an “opposing camps” security structure—decisions that they are trying very hard to avoid.

The regional influence of Chinese air and, especially, naval power is not completely determined by PLA systems and capabilities—US littoral capabilities in Asia, Chinese maritime access via states friendly toward Beijing, US and allied intelligence focus and capabilities, and regional economic trends also play important roles. Washington should ensure overtly recognized U.S. supremacy in key capabilities, but must not rely on this dominance as sufficient to ensure regional stability in the longer term. U.S. leadership in regional security arrangements, such as our work with Singapore on counter-proliferation and anti-terror cooperation, is essential. Along with a cooperative, market-based approach to oil and natural resource access, these avenues potentially can channel PRC military capacity toward shared security roles and interests, rather than toward confrontation.

### **Addendum to the Statement of Cortez A. Cooper III**

This addendum provides a response to the Commissioner’s query regarding a general framework for U.S. hedging strategies to prepare for, but not foment, potential Chinese application of growing national power in ways inimical to U.S. interests. I believe this strategy should consist of three major components:

- Multi-lateral regional security initiatives jointly supported by Washington and Beijing
- Strengthened U.S. dominance in several key military realms, specifically anti-submarine warfare, theater missile defenses, and littoral strike capabilities
- Bi-lateral cooperation on energy and space policies and initiatives

Asia-Pacific regional stability and global and regional economic growth have become increasingly linked with China’s rising power and influence. Many Chinese strategists follow a “realist” line of reasoning that posits an inevitable reduction of U.S. influence and access in Asia to accommodate China’s rise. Altering this “zero-sum,” potentially self-realizing stance requires a delicate balancing act—Washington must maintain the physical military presence in Asia that sends a clear message of commitment to the region, but as a component of an inclusive regional security architecture rather than as an exclusive effort to trump a more powerful China. U.S. security initiatives in the region that appear to marginalize the development of mutually beneficial security frameworks in favor of “encirclement” increase the likelihood of a destabilizing security dilemma.

Growing interdependence and cooperation among the different Asian sub-regions has been on the rise, with China playing a significant role in the multi-lateral forums that enable and facilitate this interaction. An Asian defense framework clearly designed to contain China will invite a cold war competition in an area where the competitor lies physically and economically at the center of the contested region. From the likely perspective of regional actors and in line with their continued acceptance of Washington’s primary role as arbiter of regional peace and security, the most attractive policy path for most regional actors is one in which China lends its voice to inclusive regional security initiatives, while recognizing and addressing those elements of its national development strategy that drive Beijing’s destabilizing development of power projection capabilities.

The importance of physical presence of U.S. forces in the Pacific must not be underestimated, and regional exercises should openly illustrate rapid surge capabilities. In addition to the force posture initiatives already underway to ensure U.S. rapid response and reassure regional allies, Washington should place priority on programs that hedge against growing Chinese capabilities in certain niche areas—specifically, the U.S. should prioritize anti-submarine warfare, missile defense, and littoral strike programs. While Beijing will view increased capabilities in theater missile defenses as a threat to China’s limited deterrence posture, a credible U.S. defense capability is required to address China’s missile modernization program.

Deployment options should be geared, however, to ameliorate as much as feasible Beijing's perception of increased vulnerability.

U.S. military-to-military contacts in the region are particularly critical in light of China's successful efforts to gain access to ports and facilities in nations astride Indian Ocean and Arabian Sea lanes. Washington's regional mil-to-mil focus should include revitalizing military contacts with Beijing. Whatever the direction of Sino-U.S. cooperation and competition in the future, a more variegated, robust mil-to-mil relationship is needed to minimize the likelihood of miscalculation.

China's approach to energy supply control and Beijing's direct linkage of energy and security policies are major drivers for a military modernization program that seeks power projection capabilities incompatible with equitable growth, prosperity, and balanced power in the region. Cooperate energy initiatives that promote a shift to a more market-oriented approach potentially represent an area where Washington could draw China into closer compliance with normative economic behavior (along with continued pressure to normalize currency policy and intellectual rights protection). This in turn could lead to greater Chinese cooperation in initiatives to reduce the dependency of both nations on imported energy supplies.

Civil space programs represent another avenue for further integrating Beijing into cooperative, rather than competitive, international economic, technological, and security regimes. Because many of the technologies associated with space programs have military application, space cooperation poses risks that mandate careful management of scientific exchange programs. The advantages of gaining greater access to and transparency in Chinese research and development programs, however, outweigh the potential risks.

The recommendations outlined above do not represent a complete re-direction of current U.S. policy. Ensuring that U.S. interests are served in their execution, however, will demand greater commitment to managing the U.S.-China relationship on a number of levels. U.S. officials often cite the relationship's high priority, but the time and treasure devoted to many aspects of Sino-U.S. interaction at times belies the rhetoric. Washington will best ensure Beijing's adherence to promises of a "peaceful rise" through close involvement in evolving regional economic and security venues (such as ASEAN+3 and the East Asia Summit), increased bi-lateral cooperation in economic and technological initiatives, and continued U.S. superiority in key military capabilities.

HEARING COCHAIR DONNELLY: I appreciate your speedy testimony, Mr. Cooper.

Dr. Newmyer, please continue.

**STATEMENT OF DR. JACQUELINE NEWMYER  
SENIOR ANALYST, THE LONG-TERM STRATEGY PROJECT  
HARVARD UNIVERSITY**

DR. NEWMYER: Thank you, members of the commission, for the privilege of addressing such a distinguished and thoughtful body. It's also an honor to be testifying with witnesses who have such impressive records of service as Mr. Stokes and Mr. Cooper.

The subject of Chinese military modernization encompasses not only technology or capabilities but also behavior. If we focus solely on weapons platforms and other kinds of hardware and software or even on the size of the Chinese defense budget, about which we've heard a lot this morning and about which I've learned a lot, then we risk failing to anticipate what China will actually do.

If we want to know how China will act, we should be asking what strategic tradition or orientation lies behind the Chinese military modernization? We might think that we know, but I want to argue that the conventional understandings are deficient.

They don't capture how China has actually behaved in the post-1949 period, so we should not be so confident that we can use them to understand how China will act in the future.

I'm going to present an alternative theory of Chinese strategy, one that may be new to us, but one that is actually very old for the Chinese. It's based on ideas that have been around and have shaped Chinese politics through the ages. I'd be happy to talk about this more in the Q&A.

An approach that is derived from what I believe to be the Chinese understanding of strategy casts strategy as a matter of aligning with dominant tendencies or the propensity of things as the French scholar Francois Jullien has suggested.

The Chinese term for this is "shi," which figures prominently in Sun Zi's *Art of War*. A shi strategy depends on the possession of intelligence advantage designed for catching enemies off guard through dramatic shifts in policy or sudden crippling attacks.

This might seem vague, but in fact it differs from the prevailing perspectives on Chinese strategy with regard to the expectations that it sets out for Chinese behavior. So let me first turn to the prevailing theories by way of explaining what shi is not, and then I will say more about what shi is, how it has worked in practice and what this implies for U.S. policy.

A natural way to approach the question of strategy is to put ourselves in Hu Jintao's shoes and ask what would we do. We have plenty of models about how states, including China, behave, and these frameworks build largely on our own experiences.

Perhaps the most popular model for understanding China today is as a rising power. If we were in China's shoes, we would choose policies that would serve our continued economic growth and prosperity, our continued rise. As long as we were rising and had not yet arrived, we would seek to avoid conflict.

A second perspective starts from a different idea of what drives China's strategy, but leads to the same conclusion about Chinese behavior. This perspective which is increasingly influential is that fears of internal unrest in China will keep China's rulers preoccupied at home, determined to avoid conflict abroad in order to concentrate on putting the domestic house in order.

But the record of China's post-'49 behavior does not fit with either model. If the first model suggests that China is sensitive to its relative power or capabilities and will shrink from confrontation with militarily superior states, then how do we explain the PRC's aggression against the U.S. and Korea or against the Soviets at Zhenbao Island in '69? Taking on superpowers hardly seems like the product of a generic realist calculus, and the idea that China will not fight external wars while internal unrest looms large does not square with the record of Chinese conflict initiation in '49 to '50 when Mao had yet to consolidate his civil war victory or in '69 when China took on the Soviets at the height of the Cultural Revolution or in '79 when Deng Xiaoping attacked Vietnam shortly after taking power and before he had consolidated his domestic position.

So perhaps an alternative theory would better capture how China has actually behaved in the last half century. The shi theory of strategy has the virtue of being an attempt to see the world the way that the Chinese see it instead of how we see it. Unlike our way of thinking about strategy as a matter of picking a goal, for instance, in the above examples piece, and then figuring out how to achieve it, the Chinese approach does not feature such an overarching objective looming in the distance, but rather acting

strategically in China means taking actions that make sense in light of the predominant tendencies at a given moment.

Effectively, this makes the Chinese capable of rapid shifts in alliances, diplomatic postures and even states of war or peace, and it militates toward China's being ready at the outset of hostilities to inflict a debilitating, devastating blow, as a matter of exploiting the favorable propensity of things, because if you are mindful of propensity, by the time you actually get to fighting, you should have already won, as Sun Zi says.

So the linchpin of this approach is superior information and an intelligence advantage. In order to exploit the propensity of things, the PRC has to know better than its rivals and enemy what the propensity actually is.

Chinese strategy should place emphasis on spying and depriving competitors of equivalent information about itself through concealment and deception. The evolving nature of China's strategy means that we can't frame the PRC as either status quo or revisionist simply and leave it at that.

The Chinese will be constantly revising their goals and this should resonate with readers of Sun Zi because *The Art of War* is about using intelligence to figure out the propensity of things while keeping the enemy from doing the same.

Let me just suggest how this applies in practice. When we look at the record of Chinese behavior, we should see (1) a willingness to make abrupt shifts; (2) an emphasis on information dominance and deception; and (3) plans designed to undermine enemies at the outset of hostilities.

Does this capture the PRC's history? I think the answer is yes. In terms of shifting alliances and diplomatic postures, we can refer to the way Mao entertained British and American overtures in '49, only to take on the allied coalition in Korea.

We could also consider Bandung in '55, which appeared to be a charm offensive aimed partly at India, though by '62, China had secretly built a road near the Sino-Indian border and had prepared for war. Or in very recent memory, we could observe how the Chinese have shifted from a militarized policy toward Taiwan in the mid-'90s to, of late, a kind of sunshine policy involving courting Taiwanese opposition leaders.

The emphasis on intelligence superiority is difficult to find in the historical record because of the sensitive nature of the subject, but one way we can see it is in its association with a third pillar of a shi strategy, which is undermining enemies at the outset of hostilities, because this requires keeping targets in the dark about inimical intentions or weapons and means of fighting. The Chinese have a record of initiating war by surprise, trying to undo the enemy with an opening gambit that will ensure victory.

I refer, I can talk more about a paper on a whole series of examples of initial surprise attacks in Chinese history from Korea to Zhenbao Island to offshore islands episodes, but for the sake of time I'll just focus on Korea for a few seconds now.

Korea and the disaster that befell America coalition forces in late November 1950 has been seen as an example of American provocation or at least failure to heed a warning sent by the Chinese through the Indian ambassador on the eve of the Chinese intervention.

But we now know that the Chinese planned for entering Korea much earlier than we had earlier believed and, in fact, the Chinese knew about Kim Il Sung's intention of invading much earlier than we'd previously known.

We now know that the word that Zhou Enlai used at his meeting with the Indian ambassador where the threat was relayed was a deliberately vague term. So what happened in November 1950 now looks less about American provocation and more about a Chinese effort to ensure success through surprise, manipulating our expectations and concealing preparations for an ambush. And I'd be happy to go into further detail in the Q&A.

How ingrained is this shi approach to strategy? I've talked about history. Does it still apply today? Maybe the Chinese are getting sufficiently wealthy and free-marketized that their strategic orientation is changing. Maybe not. I don't think we know.

An important clue will be what the Chinese government thinks its position is vis-à-vis its subjects. How secure Beijing is, or the character of Chinese politics is bound up with shi because the shi approach grows out of the way Chinese domestic politics works.

If it continues to be a province of close monitoring of the population and surprising attacks against key dissidents, then we should be attuned to the persistence of the shi approach abroad, and the first major policy implication is that we should not base our attempts to influence China on expectations derived from linear projections of China's recent behavior.

Rather we should be humble and recognize that our signals could be misread because we are dealing with a different kind of regime or at least a regime with a different approach to strategy, and the second policy implication is that the shi approach creates an intelligence requirement for us to better understand and perhaps at the classified level investigate Chinese concealment and deception efforts.

So bottom line, according to the logic of shi, what the PRC can do or what the PRC has done lately is not determinative of what the PRC will do in the future.

Thanks.

[The statement follows:]

**Prepared statement of Dr. Jacqueline Newmyer  
Senior Analyst, The Long-Term Strategy Project  
Harvard University**

Filling a Gap in Our Understanding of Chinese Strategy

Thank you, members of the Commission, for the honor of addressing such a distinguished and thoughtful panel. It's also an honor to be among such a distinguished group of witnesses.

**A New Question?**

The subject of Chinese military modernization encompasses not only technology or capabilities but also behavior. If we focus solely on the weapons platforms and other kinds of hardware and software that the People's Republic of China (hereafter, "PRC" – or just "China") is pursuing, or even on the size of the Chinese defense budget, then we risk failing to anticipate what China will actually do with its new arsenal. The PRC's behavior is a function of China's approach to strategy – its orientation to war and peace. If we want to know how China will act, we should be asking, What strategic tradition or orientation lies behind the modernization of the Chinese military?

We might think that we know, but the conventional understandings are deficient in that they fail to capture how China has actually behaved in the post-1949 period. On this grounds, we should not be so confident that we can use the extant theories to understand how China will behave in the future.

I'm going to present an alternative theory of Chinese strategy – one that may be new to us but is actually very old for the Chinese. In fact, it's based on ancient philosophical principles – or a particular way of looking at the world and man's place in it – that has shaped Chinese politics through the ages. An approach that is derived from what I believe to be the Chinese understanding of strategy casts strategy as a matter of aligning with dominant tendencies, or the propensity of things, as the French scholar François Jullien has suggested.

The Chinese term for this is *shi*, which figures prominently in Sun Zi's *Art of War*. A *shi* strategy depends on the possession of an intelligence advantage designed to allow for catching enemies off-guard through dramatic shifts in policy or sudden, crippling attacks.

This might seem vague, but in fact it differs from the prevailing perspectives on Chinese strategy with regard to the expectations it sets out for Chinese behavior. So let me first turn to these other theories – by way of explaining what *shi* is not – and then I'll say more about what *shi* is, how it has worked in practice, and what this implies for US policy.

A natural way to approach the question of strategy is to put ourselves in Hu Jintao's shoes and ask, What would we do? We have plenty of models about how states, including China, behave, and these frameworks are built largely on our own experiences. Perhaps the most popular model for understanding the PRC today is as a "rising power." If we were in China's shoes, we would choose policies that would serve our continued economic growth. As long as we were rising (and had not yet "arrived"), we would seek to avoid conflict, though we might hedge by investing in a minimal deterrent capacity, for instance, the military assets necessary to keep Taiwan from declaring independence or the US from intervening in the event of such a declaration. (The Princeton scholar Aaron Friedberg describes this outlook and some variations on it in his latest *International Security* article.)

A second perspective starts from a different idea of what drives China's strategy but leads to the same conclusion about Chinese behavior. This increasingly influential perspective, associated with the work of Allen Carlson and Taylor Fravel, is that fears of internal unrest will keep China's rulers preoccupied at home, determined to avoid conflict abroad in order to concentrate on putting the domestic house in order.

But the record of China's post-1949 behavior does not fit with either model. If the first framework suggests that China is sensitive to its relative power and will shrink from confrontation with militarily superior states, then how do we explain the PRC's aggression against the US in Korea or against the Soviets at Zhenbao Island in 1969? Taking on superpowers hardly seems like the product of a generic realist calculus. And the idea that China will not fight external wars while internal unrest looms large does not square with the record of Chinese initiation of conflict in 1949-1950, when Mao had yet to consolidate the Civil War victory, or in 1969, when China took on the Soviets at the height of the Cultural Revolution, or in 1979, when Deng Xiaoping attacked Vietnam shortly after taking power – before he had necessarily consolidated his position. In fact, Iain Johnston of Harvard once did a study showing that in the post-World War II period, of major powers, the Chinese were most likely to escalate in international crises.

### **The *Shi* Strategic Framework**

So perhaps an alternative theory would better capture how China has behaved in the last half-century. The *shi* theory of strategy has the virtue of being an attempt to see the world in the way that the Chinese see it. Unlike our way of thinking about strategy as a matter of picking a goal – for instance, in the above examples, peace – and then figuring out how to achieve it, the Chinese approach does not feature such an overarching objective looming in the distance. Rather, acting strategically in China means taking actions that make sense in light of the predominant tendencies at any given moment. So as trends seem to be going – either favorably or unfavorably for China – so goes Chinese strategy. Effectively, again, this makes the Chinese capable of rapid shifts in alliances, diplomatic postures, and even states of war or peace. And it



militates toward being ready at the outset of hostilities to inflict a debilitating blow – as a matter of exploiting the favorable propensity of things because if you are mindful propensity, by the time you fight, you should have already won, as Sun Zi says.

Where does this approach come from? Jullien traces the idea of *shi* to ancient Chinese philosophy, which downplays men's ability to master nature, holding that circumstances and events unfold inexorably according to a sacred, virtually unfathomable order. And Jullien traces the first concrete application of the concept of “the propensity of things” to the moment of China's political founding at the end of the Warring States period (c. 220 BC), when a school of philosophers known as the “Legalists” (even though their theory is tyrannical, not liberal) articulated how to confine subjects to the position of supplicants – according to the *propensity* of the sovereign's authority. Many of the texts now known as Chinese military classics, including Sun Zi's *Art of War*, date to this time and might be said to specify the mechanisms of rule in accordance with *shi* – from extensive surveillance to the wielding of punishments and rewards in an awe-inspiring way to keep the population in line. China's first unifier, Qin Shi Huangdi, founder of the Qin Dynasty, is supposed to have exploited these techniques to consolidate control over his own kingdom and then conquer the others. Emperor Qin and his successors were in the position of constantly deploying strategy against their own people, so the application of *shi* as a strategic precept spans categories that Westerners usually divide into the political on the one hand and the military on the other. This continuity means that the Chinese approach to external warfare features practices perhaps most easily employed at home – for instance, intelligence, bribery and other methods of cooption, and the targeting of leaders of hostile groups. It is not a coincidence that, among canonical works on strategy, Sun Zi's *Art of War* and other Chinese classics accord espionage and sabotage unusually prominent roles.

In terms of operational hallmarks, then, the lynchpin of the *shi* approach to strategy is superior information, an intelligence advantage. The PRC has to know, better than its rivals and enemies, what the dominant trends are. So Chinese strategy should place a large emphasis on spying and depriving competitors of equivalent information about itself – through concealment and deception. The evolving nature of China's strategy means that we cannot frame the PRC as either “status quo” or “revisionist” and leave it at that. The Chinese will be constantly revising their goals. And this should resonate with readers of Sun Zi because, as François Jullien points out, the *Art of War* is about using intelligence to figure out the propensity of things while keeping the enemy from doing the same.

So let me just suggest how this applies in practice. When we look at the record of Chinese behavior we should see 1) a willingness to make abrupt shifts; 2) an emphasis on information dominance and deception; and 3) plans designed to undermine enemies at the outset of hostilities.

Does this capture the PRC's history? I think the answer is “yes.” In terms of shifting alliances and diplomatic postures, we can refer to the way that Mao entertained British and American overtures in 1949 only to take on the allied coalition in Korea. We could also consider Bandung in 1955, which appeared to be a charm offensive aimed partly at India, though by 1962, China had secretly built a road near the Sino-Indian border and completed preparations for war. Or, in very recent memory, we could observe how the Chinese have shifted from a militarized policy toward Taiwan in the mid-1990s to, of late, a kind of sunshine policy involving courting Taiwanese opposition leaders.

The emphasis on intelligence superiority is difficult to find in the historical record because of the sensitive nature of the subject, but one way we can see it is in its association with the third pillar of *shi*, undermining enemies at the outset of hostilities, because this requires keeping targets in the dark about inimical intentions or modes of fighting. The Chinese have a record of initiating war by surprise – trying to undo the enemy with an opening gambit that will ensure victory. (For an exploration of examples from Korea and Zhenbao Island to offshore islands episodes, see my November 2005 Long-Term Strategy Project report on Chinese surprise attacks, “Regimes, Surprise Attacks, and War Initiation,” and a subsequent workshop report on the same subject.) For the sake of time, let me just take a few seconds on Korea now.

Korea – and the disaster that befell coalition forces in late November 1950 – has been seen as an example of American provocation or, at least, failure to heed a warning sent by the Chinese through the Indian ambassador on the eve of the Chinese intervention. We now know that the Chinese planned for entering

Korea much earlier than we had earlier believed. In fact, the Chinese knew about Kim Il Sung's intention to invade much earlier than we had previously known. And we now know that the word Zhou used at his meeting with the Indian ambassador, where the threat was relayed, was a deliberately vague term. So what happened in November 1950 looks less about American provocation and more about a Chinese effort to ensure success through surprise – manipulating our expectations and concealing preparations for the ambush.

### **Applications and Policy Implications**

How ingrained is the *shi* approach to strategy? Maybe today the Chinese are becoming so wealthy or “free market”-ized that their strategic orientation is changing. But maybe not. I don't think we know. An important clue will be what the Chinese government thinks about its position vis-à-vis its subjects. How domestically secure Beijing is is bound up with *shi* because, as I mentioned above, the *shi* approach grows out of the Chinese regime. If Chinese elite politics continues to be a province of close monitoring of the population and “surprise attacks” against key dissidents, then we should be attuned to the persistence of the *shi* approach abroad.

The first major policy implication is that we should not base our attempts to influence China on expectations based on linear projections from recent behavior. Rather, we should be humble and recognize that our signals could be misread because we are dealing with a different kind of regime, or, at least, depending on the persistence of *shi*, a regime with a different approach to strategy.

The second policy implication is that the *shi* approach creates an intelligence requirement for us to better understand – and, in particular at the classified level, investigate – Chinese concealment and deception efforts.

The bottom line, in a word, is that attempting to see the world through Beijing's eyes suggests that what the PRC can do by virtue of its military capabilities and what it has done in the recent past are not necessarily guides to what the PRC will do.

Thank you again for having me, and I look forward to your questions.

### **Panel III: Discussion, Questions and Answers**

HEARING COCHAIR DONNELLY: Three very impressive presentations not only for their substance but for their speed. Again, I apologize that we don't have nearly enough time to do the presentations and the presenters the justice that they merit.

I have a couple of observations I want to make and then a question before I turn it over to my colleagues. A couple things from Mr. Stokes' presentation. You mentioned that the number of launchers was an important metric for the growing Chinese missile force, but if you mentioned the number of launchers and its implication, I missed it. So that might be worth, again, maybe if it's not in your testimony, that is worth examining some more.

I also appreciate your point about the steps that Taiwan is making to--it's little understood in this country, I think, what exactly is going on in the island both in terms of the progress being made, but it's usually cast in the shadow of things that aren't happening that we would like to happen.

A couple of aspects of Mr. Cooper's testimony that really struck me. The number of submarines, the different kinds of submarines, and ASW surface platforms is easily as stunning as the total fleet themselves. The idea that they're eight classes of surface combatants with ASW capacity in the works not only suggests a growing fleet but a fleet

that could grow exponentially, if they decide on one of these things that's a real winner and pour all their resources into it.

The potential for a really rapid leap-ahead in capability is one thing that really stuck me.

I'm not sure that we have eight classes of ships total of all kinds in our shipyards at the moment.

A couple of things that I would ask that you reconsider, and one would be the question of the disconnect between China's increasingly global strategic interests and the more traditional wisdom that its global strategic reach is going to proceed at a relatively slow pace.

If they get, particularly when it comes to the energy and natural resource regions of the world, they're already out there. To the degree that the flag follows trade, I'd be interested in a more speculative look about if there were troubles for Chinese interests in Africa or anywhere else, what they would actually do about it?

Finally, I appreciate Dr. Newmyer's suggestion that there could be a quite different Chinese strategic culture than, again, traditional analysis would suggest and what I'd like to hear from her at some future date is how she thinks that might intersect with a particularly distinct American strategic culture?

It's not just that the Chinese are different than we think we see them, but I think perhaps we're different than we see ourselves and the combination of those two is I think potentially provocative, but my one question is for everybody, is in the brief time allotted, is to put the pieces together a little bit, in kind of a narrative fashion. Given the growing capabilities of a wide variety of kinds, and perhaps a different propensity or different strategic approach to the use of military force, and in a Taiwan scenario, to limit it a little bit, what might a crisis really look like? Put these things together in a narrative fashion so those of us who are just scrambling to keep up with all the details of your presentations can see the whole as well as the parts.

Again, if you could be pretty quick about it, that would be good, too.

MR. STOKES: Okay. Let me, quickly address your question. Numbers of launchers, minimal 168; maximum, 336. It depends on which structure you look at.

Again, I'd refer you to Ken Allen's study. You can get some more definitive numbers there.

Very quickly, progress Taiwan is making, never forget Taiwan is still one of the largest customers of the U.S. for military sales in the world. It's anywhere between 750 million up to about 1.2 billion a year they're still buying in new weapons systems. And that's based on production--

HEARING COCHAIR DONNELLY: The single question was the scenario, so just a quick--

MR. STOKES: Okay. On the scenario, what I would use, one needs to expand their perspective in terms of PRC and Taiwan in terms of how these two interact to resolve the differences. Military is just one aspect. There is a, I refer back to Chiang Kai-shek, who at one time said that the competition between Communist China and the Republic of China is 75 percent political, 25 percent military. There is significant political and economic elements.

Taiwan's ability to defend itself is not just based on its military, but it's also economic. One has to remember these two are very economically integrated. People, in

terms of being able to raise the threshold for PRC use of force, one has to remember that Taiwan has other measures with political, economic as well as military to defend itself. I'll call it quits there.

HEARING COCHAIR DONNELLY: Thanks.

MR. COOPER: I'll expand on that, and I think it goes back to a question that was asked during an earlier session this morning, talking about the different "inboxes"--the economic, the diplomatic, the informational, and the military "inboxes" here in Washington as we look at specific issues that might impinge on our ability to respond to conflict or a crisis in the Pacific, and trying to get a handle around what an integrated approach would look like. I don't think there is as big a problem with that in Beijing.

I think that they understand that it's one big inbox and all those things are part of it. And I think, what Mark was just alluding to is very important--and that is that the Chinese are laying the groundwork, and have been for a number of years, in northeast Asia and then throughout the Pacific region for potentially having to take action if things come to a head in the Taiwan Strait. And I think there are many definitions for "coming to a head," and that's one of the hard parts of getting our hands around it.

But if they decide at some point in time that the status quo is unacceptable, that what it means basically is that they are accepting Taiwan's independence, whether that's de facto or de jure, into perpetuity--at that point when they have to take action, it will depend on where they are in establishing that security framework. They've traveled very far in this in terms of trying to get very strong one-China statements from traditional U.S. allies in the region like Australia and South Korea and others. They've been doing that for some time now with a great deal of success.

Building their military to be able to conduct both operations against Taiwan and also operations to deter or delay U.S. involvement in the region, they've come quite a bit of a way in that; and then, diplomatically, just in the region, via ASEAN and other forums, to ensure that all the players in the region are going to see a crisis in the Taiwan Strait as something that has to be resolved quickly--and to hopefully see that in order to get it resolved quickly, to line up in Beijing's favor as they do that.

So, I don't think you can point at any given military scenario other than to say that at some point if they make that determination, that the status quo has to be interrupted, they'll look at what the art of the possible is; and I think for the next few years, as I hopefully pointed out a little bit in the testimony, they have some considerable capabilities to conduct blockade operations that would be very, very detrimental to Taiwan's economy, no matter how quickly we respond.

And then, of course, they have the capabilities, and they're growing over the next five years, to make our risk/benefit analysis as we respond much more difficult, in determining how quickly we can get there and how we can defuse the crisis.

HEARING COCHAIR DONNELLY: Thank you.

DR. NEWMYER: On the Taiwan scenario, I would say in the literature on surprise attacks, it's interesting that there's a discussion of signals and noise and how difficult it is to anticipate attacks when there is a lot of noise out there. And so it should be remarkable to us that at this point, anything could happen with Taiwan. I mean, any strike on Taiwan could occur and we wouldn't necessarily have a way of knowing from diplomatic talk that there was a ramp-up underway.

We would be surprised, and yet China would be able to claim that they had given us warning and that this was on the table.

The other point I would raise is that China's intervention or engagement with political opposition leaders in Taiwan suggests, given China's sensitivity to opposition and political unrest, that China is in a way shaping the battle field there, and perhaps China is looking at our experience in Iraq and thinking about the difficulties of regime change or maybe they're thinking about the headaches of Hong Kong, but engagement with Taiwanese political figures is actually, even though it might be seen as a sunny sign, it actually should also be a worrisome sign as well in a way.

As for the military scenario, I think what Mr. Stokes said about the missile launchers and what Mr. Cooper indicated about the PLAN capabilities is interesting.

Thanks.

HEARING COCHAIR DONNELLY: Okay. I'm happy somebody is drawing a more cautionary lesson or potentially more cautionary lesson from our involvement in Iraq. Might be happy news.

I would like to ask one question for the record before I turn it over. I would like you all to respond in writing. If you heard my concerns in the first panel about what the nature of an American hedging military posture might be going forward, just like three points, paragraph each or something like that. I don't want to make this excessively burdensome, but I would and I think the commission would find that very valuable. So pick whatever you like, the top three steps toward hedging strategy.<sup>5 6</sup>

We've got about a half hour left and we've got six questioners I believe.

VICE CHAIRMAN BARTHOLOMEW: You can add me to the list.

HEARING COCHAIR DONNELLY: Well, seven questioners.

Chairman Wortzel, the floor is yours.

CHAIRMAN WORTZEL: Thanks to all three of you for coming today and for your testimony. Great job in written testimony, great job in oral testimony. A little fast, Jackie.

An early PLA goal in Chinese military publications was to be able to target and sink aircraft carriers; deployed naval battle groups, and I would ask all three of you, first of all, given what they've done in maneuverable warheads, given their advances in sensor systems, are they closer to being able to do that? And if not, how far away from that capability are they?

Is this a serious capability that they're still going after? Finally, do they realize that if they ever achieve that goal, they're in a big-time war? Do their publications, does their doctrinal thinking realize that, after awhile sea denial turns into big conflict?

Thank you. The three of you can respond.

MR. STOKES: I would say there are certain unknowables that I don't have access to. Number one, do they have targeting capability? Primarily space based and for example over the horizon radar? Space-based need to be able to track them. For example, synthetic aperture radar satellites, do they have that on board in terms of with moving target indicators, do they have electro-optic sorts of things, are able to get, for example, a maneuverable ballistic missile with sufficient size warhead and munitions into the basket, so to speak, to be able to go after it.

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<sup>5</sup> [Additional information submitted by Jacqueline Newmyer on an American hedging strategy](#)

<sup>6</sup> [Additional information submitted by Cortez Cooper on an American hedging strategy](#)

I don't have the answer to that question. I certainly would not underestimate their capabilities.

MR. COOPER: Sort of a three-parter there. Are they going after it? Yes. Is it important to them? Yes. Are they closer? Yes. Where are they in that? I really think I'll have to defer to others in that.

I think that they don't have the joint targeting architecture necessary to put it together. They certainly don't have a single capability yet, I don't believe, that can accomplish that mission. However, I think they would approach that in a combined arms fashion with certain missile platforms launched from both aircraft and from shipborne and submersible launched platforms and that they would try to go about it that way.

Again, I don't believe that they yet have the joint targeting architecture really to put an operation like that together successfully, but it's certainly I think within their reach within a reasonable period of time, within the next decade, and I'm not sure where that would lie given their current programs.

The last part of your question is very interesting. That's "do they really understand the implications of that?" I believe that probably they have been debating that issue for some time now. It relates back to, I think, a fundamental debate about what our casualty averseness is in the United States and what that would mean to them if anything were we were to challenge a fundamental interest of theirs like Taiwan.

I think given that particular issue area, the area of Taiwan, I don't believe that a carrier itself would be necessarily their first and most important target. But it certainly would not be an off-limits target as a conflict developed and they potentially were faced with failure.

DR. NEWMYER: On the subject of what the Chinese think about the risk of big time war, I think we should be careful about projecting on to them our analysis of these kinds of questions because in the past they have done things that are quite surprising from our perspective.

They're quite risk tolerant. In 1969 around the conflict at Zhenbao Island, Mao had built tunnels under Beijing. The threat of Soviet nuclear response was there or at least a Soviet tactical response against Chinese nuclear facilities, and yet China still elected to ambush Soviet forces. This is the superpower next door. So the threat of big time war might not be quite the deterrent that we would expect it to be.

HEARING COCHAIR DONNELLY: Commissioner Wessel.

COMMISSIONER WESSEL: Thank you all for being here and the rapidity at which you presented your testimony. You've given us a lot to think about. I would like to understand from all of you, but have our gentlemen witnesses comment in part on Dr. Newmyer's testimony, which as I heard, gives me greater pause about or greater concern about the potential for action regarding Taiwan much earlier than the scenarios presented by the other witnesses who talk about the need for a decade or more to build up and prepare the necessary armaments.

With the exhaustion of the American people in terms of force projection, declining public support, what I taking projection from Dr. Newmyer's testimony, I'm concerned more about early action with Taiwan rather than waiting for the capabilities to be there.

Could all the witnesses comment on that? Are you concerned with the potential for surprise action much earlier than the forces would, force capabilities would otherwise dictate?

MR. STOKES: Let me first say if I gave the impression that PRC would have to wait for five years or ten years, that certainly was not my intention. The PRC could use force today. They could have used it five years ago. It really depends upon the cost that the PRC leadership are willing to bear.

They could use force today. They may be able to attain their objectives, but today my guess it would be at tremendous cost, and it's a consideration they're going to have to bear, costs in terms of number of lives lost, cost in terms of aircraft and things like this.

As time goes on, those costs will diminish. That's the key consideration. PRC could use force today should they so choose to do. Successful, I'm not sure. It depends upon their goals and objectives.

MR. COOPER: That's a very good question. I think for the PRC, operational failure is not failure if you're strategically successful. And I think a part of what we've been discussing here about the propensity and the preparation, if you will, of the geostrategic environment right now mitigates against preemptive surprise action against Taiwan, and really for that matter against any of the stakeholders in the South China Sea or certainly against Japan in terms of the sovereignty dispute there.

It mitigates against that because the strategic aims and objectives of China now are so inextricably tied up with a national development plan that pretty much has to stay on course if you're going to maintain domestic stability.

So I think a major brake on a use of force decision by China's leadership, is the domestic situation; put in the framework also of what right now is a fairly successful--certainly in their eyes and I think even objectively--a fairly successful diplomatic effort to establish the environment on their near and greater periphery conducive to their national interests and to the direction that they want to travel.

Certainly, a change that drastically changes this situation--and I completely agree with Mark on that point--I'm not sure that we should be looking at capabilities or numbers at that point. We should be looking at the fact that the calculus for China may have changed significantly, but again I don't see that on the horizon at the moment.

COMMISSIONER WESSEL: Dr. Newmyer.

DR. NEWMYER: Thank you for the question. I think I didn't necessarily mean to imply that I think that an attack could come tomorrow. I think in some ways, there are non-military solutions for China that might be attractive or at least that patience might be required, and that China has shown in military operations that it's capable of being very patient. The key is China's sense that it can manage the situation.

So there have been instances where they have held military plans in the hopper for two years and then executed. I think the other sort of question in my mind is what is the costliness? How does that bear on this question for China? In some ways, with regard to holding Taiwan after taking Taiwan, if that happens, when that happens, a costly scenario for China but also for Taiwan might make it easier to hold Taiwan in China's eyes.

So the cost of the situation might have a different kind of input value in the Chinese mind than it would have for us.

COMMISSIONER WESSEL: Thank you.

HEARING COCHAIR DONNELLY: Commissioner Blumenthal.

COMMISSIONER BLUMENTHAL: Yes. Thank you very much for your testimony. Dr. Newmyer, your testimony actually questions a lot of basic assumptions about deterrence because if you're correct about the way China thinks about things, then it clearly matters a lot more what China thinks than what we think China thinks about things. In terms of affecting their calculus on issues of shi and the propensity for things, it makes our calculations a lot more difficult than some of the things that we talk about in our reports and defense white papers.

So it seems like there is this huge hole now in terms of intelligence, what we need to know about China and what we need to know about what matters to them and how you affect their thinking about the propensity of things.

I'd like to know from you and possibly hear comments from others, what you think the requirements--this is a much bigger deterrence problem if you're correct than we had assumed. I'd like to know from you how we affect calculations of shi when China thinks clearly that through stratagem they can be very clever and initiate war. And I'd like to tie that back also to a comment Mark made about more cooperation with Taiwan, and I understand, particularly on cruise missile technologies and some of the capabilities that scare all of us. I'm wondering if Mark and even Mr. Cooper can comment on what that does for Chinese calculations of deterrence because I think it comes down to changing Chinese calculations about shi.

DR. NEWMYER: Okay. This is a little bit improvised or spontaneous, but I guess one point is that in Chinese history, the view of deterrence wasn't, you seem so strong; or, you seem very strong and therefore I won't be able to do what I want to do; or, I should seem very strong, and therefore you won't be able to threaten me. The view was, I'll give you all my weapons and I'll dare you to come at me.

So that right there suggests that there is a different approach. I think the Chinese from their regime, from their writing, seem to be very concerned with internal cohesion--both their own, and, because of their own concerns, the internal cohesion of others. So the cohesion of the United States and our confidence about our internal situation, it really doesn't make sense to us because we are a democracy and we can weather storms and tumult, but from a non-democratic regime with all sorts of internal legitimacy concerns, that's what is most impressive about us.

That's the kind of strength that might be a deterrent, or at least there is a corresponding weakness on the Chinese side, I think, and fears of our manipulating Chinese internal divisions would be acutely sensitive. So obviously they register our military capabilities, but I think they're also very sensitive to any indications that we're trying to play on internal divisions within China, and I think that's relevant for deterrence or failures of deterrence.

Maybe I'll leave it at that.

MR. STOKES: I would just make one quick comment and that's to look at deterrence in a broader sense. Deterrence, just simply raising the cost in the minds of PRC leadership, this is Hu Jintao and others, raising the cost to them to resorting to use of force against Taiwan or others in the region.

To be able to look at this issue, you have to ask the question: what does Hu Jintao and other members of the PRC leadership value most? What do they value? What do they think is most important? Well, I would argue it comes down to one thing, maintenance of power.



Therefore what are instruments? How do they maintain power? Well, it's economics. Maintain the economic growth. It is being able to have some political stature and things like this, To your question, that one has to be answered, is what do they value most? Based on that, how do you affect that value calculation or how do you affect that in order to raise the cost?

I'm sure this is going through the minds of Taiwan, people in Taiwan right now. Yes, so I'll leave it at that.

MR. COOPER: I do think there needs to be a pretty significant debate at the national level about how we approach--and perhaps not directly using the terminology deterrence--but how we approach the concept of deterrence when we have China as a rising power in mind. I think that some of the traditional views probably are either going to fail us in that regard, or if pursued are going to come at greater costs to the U.S.--if pursued in some of the more traditional manners in a head to head competition. We certainly have the capabilities to maintain advantages that will serve a deterrent purpose, but at the same time at what cost? And then what are the future strategic implications of that for the global economy and for global geostrategic alignments if we do that?

I would look at it more in terms of being a lot more attentive than we have been to what China's strategy is, and then addressing specifically how does that potentially become inimical to U.S. interests--or the ways in which we can perhaps shape developing situations such that we are not in this spiraling, you know, situation that's going to be very costly for the U.S.

I think there are a couple of ways to do that, to be more attentive in that fashion. One of them is to look at the potential for cooperative security alignments in East Asia.

There really is not yet a mature East Asia community as such, but we've certainly seen an effort on the part of key players in the region to start down that road with ASEAN Plus Three with the nascent EAS--the East Asia Summit, some of these things. These are venues where if we pay very close attention to them, make sure that U.S. interests are represented in those venues as the key Pacific power, and that China very clearly understands--again not in a head to head competitive fashion--but understands that it's in their interests to continue to uphold the architecture that has been so good to them, as they've developed, that's been so supportive of their economic development and all these things. So, that they can be part of developing security and economic and diplomatic multilateral structures in the region where the U.S. is and has been the key player. I think that's very important.

I think the second part of this is--and this may seem like it's not exactly in line with my initial statement--but the second part is to look at key capability areas for our military and to make sure that we overtly are maintaining a superiority that the Chinese know, that they will not surpass except at such incredible cost to themselves. I think that there are several areas where that is very important.

COMMISSIONER BLUMENTHAL: We can come back if we have time, but this seems to be a good debate.

HEARING COCHAIR DONNELLY: Okay. Commissioner Mulloy.

COMMISSIONER MULLOY: I want to thank all three of you for being here and your very helpful testimony. Mr. Cooper, I note that you finish up your analysis by noting that you don't want confrontation with China. That's your last thought. Neither do I.

Here's my concern, and it follows up with Dr. Newmyer. She put out that we really don't understand fully this entity that we're now so engaged with, and there's a term--I'm not a China expert. I do try and follow trade and investment and other things.

There is a term I heard from China scholars called "comprehensive national power." I'm never quite sure what that term means, but I suspect economic is part of it, and I read an article in the Wall Street Journal on Tuesday about the R&D labs that are moving into China from one of our major corporations now.

I wanted to ask Dr. Newmyer, can you help us understand what that term "comprehensive national power" means? And then secondly, if any of you others wanted to comment on the definition.

Secondly, are we helping China build comprehensive national power? And three, do we have any idea what they're going to do with this comprehensive national power that we're helping them build if that's what we're doing?

Dr. Newmyer, maybe you could start and then we'll have the others.

DR. NEWMYER: Sure. I think you're right to suggest that comprehensive national power includes not just military capabilities but also economic potential and softer things like know-how and even maybe internal cohesion and religious spirit, but this is not the exact version. Michael Pillsbury has written a lot about comprehensive national power, so for what the Chinese actually say and his interpretation, I would commend that to you.

I was going to say that I think that they have a big picture notion of what it is to be strong or what it is to have propensity in your favor, and having a lot of capabilities that are not necessarily just military or hardware-ish, but are also softer and have to do with cohesion and national spirit and those sorts of criteria which are included in comprehensive national power.

Really I think it's a useful concept insofar as it gets us thinking outside typically American strategic logic. But I also think we could probably wrap ourselves around an axle trying to figure it out exactly, and I'm not sure that would be too worthwhile.

MR. COOPER: I think that the Chinese actually--and again I'm not an expert in this area either--but I believe that they are using a formula for comprehensive national power that the Japanese I believe were initially responsible for developing. There's actual mathematical elements of it where you take into account things like current economic status, the educational level across the population, military capabilities, a number of other things that figure into it--and using that, most Chinese analysts believe that China will at best be a mid-developed country by the middle of this century.

So, again, the Chinese analysts when they write about it see this development as a very slow process and don't see themselves as being a superpower perhaps in the way we would define it any time very soon. They see themselves as being basically across the board a mid-developed country by perhaps the middle of this century.

DR. NEWMYER: Can I just say one more thing? I'm sorry. I just forgot to say, I think it would be very interesting to know, and I'm not sure we do, who is in charge of calculating America's comprehensive national power in China, and whether there are people who are specifically American focused, American experts who have an idea of the U.S. and how it works. Because my sense from some of the literature is that what goes into that calculation varies from country to country and from place to place. So if we

knew about what went into the calculation and what goes in with respect to America, I think that would be very useful.

COMMISSIONER MULLOY: They could be calculating their own but also calculating ours.

DR. NEWMYER: Definitely. It's a relative thing. Yes.

MR. STOKES: Commissioner Mulloy, you're on to something. It's a very important point. Their calculations of comprehensive national power, as Cortez said, it's critical, and they've got it boiled down to mathematical formulas. And it's easy to dig up. Again, Dr. Pillsbury is the master on this particular issue.

Comprehensive national power, economics is critical. Some of the trends in terms of competitiveness with the United States, trends in terms of their trade and investment and balanced trade and investment and level with, for example, Northeast Asia, Korea and Japan. Look at how their activity and the levels are increasing there. Establishing trade blocs in northeast Asia. Look at what the U.S. is doing in terms of our levels of trade and investment in Northeast Asia going down.

Same thing in Southeast Asia. Same thing in Taiwan. Interesting about Taiwan in terms of trends, PRC developing economic trade blocs, for example, free trade agreements with Korea and Japan, Northeast Asia, and in Southeast Asia, locking Taiwan out, blocking Taiwan out.

My view is it's part of an integrated strategy to be able to shut off Taiwan politically and almost more importantly economically, to be able to suck them in, to be able to make them so dependent upon the PRC for economic growth, that they're going to have no choice, no freedom of movement.

COMMISSIONER MULLOY: Thank you. Dr. Newmyer, I just thought that your point of shi and identifying with the prevailing trends, if you're calculating these factors, it could make, where do you see the prevailing trends going?

DR. NEWMYER: Yes, you are absolutely right, and I apologize. I'm frustrated with our lack of knowledge on the subject, but I didn't mean to suggest that it's not important. I do think it's extremely important and I also commend, in addition to Dr. Michael Pillsbury's work, the Office of Net Assessment's Summer Study Report, which set that out as one of the questions that we don't know enough about and we don't have enough intelligence directed at, so that would also be useful document if you haven't already seen it.

COMMISSIONER MULLOY: Thank you. Thank you very much.

HEARING COCHAIR DONNELLY: Commissioner Brookes.

COMMISSIONER BROOKES: Thank you. If you already covered this, please, let's just press on because of time.

Mark Stokes, I had a question for you. You talked eloquently about the tactical threat from China's ballistic missiles against Taiwan. In a quick snapshot, can you tell us what's going on in a strategic element of Chinese missile modernization, and--if you don't feel comfortable, that's fine. I think that's critically important, the issue of how China's land-based mobile systems are developing. If China eventually plans to put a nuclear deterrent to sea? And even some of the issues of, which we probably know most about, what is their land-based capacity. So if you could address that.

Then I'd like to ask Mr. Cooper --we're looking at the Chinese developments in a whole bunch of areas, but obviously the most critical element is the net assessment,

because you're just looking at a set of facts and figures, but you really need to do the blue and orange forces assessment.

I don't know if you can address that or not? If it's in the scope of your knowledge. But if you could point out as to what you see in the near future, maybe five to ten years, as American vulnerabilities. Where Chinese developments are going? When you're talking about ship on ship, that's one thing, but are there asymmetric capabilities that we need to be worried about from a strategic tactical standpoint?

So those are my two questions if they haven't already been covered, Mr. Chairman.

MR. STOKES: Actually I have not looked at this issue recently in the last couple of years. There is no question. They're investing significant resources into maintaining some degree of assured retaliatory capability against U.S. territory with deployment of new mobile solid-fueled ICBMs.

My guess is probably Cortez has been following this issue more closely.

COMMISSIONER BROOKES: Either of you can answer that, but I think it's a critical question.

MR. COOPER: I'm at the same disadvantage as Mark in terms of answering that broadly. I will say, though, that you asked about the sea-based deterrent--and that certainly is coming. The PLA Navy had been a strategic force really in name only for the last couple decades, but that will change. There will be a considerably more capable sea-based deterrent force when the Type 94 submarine comes on line and then the missile, called the JL-2 that will be with that, and again I don't know time-lines on that. But again, it is coming in the not very distant future, sometime in the next few years.

Your question on the net assessment, of course, is a very good one, and I did talk about that a little bit in the testimony. I think that I worry less about asymmetries coming on line that will represent totally new technologies or capabilities at least for the next few years, say between now and 2015. But what I call in my testimony a window of concern, between 2008 and 2015, deals with a set of capabilities that the Chinese certainly will have in that time frame, and that our answers to them--while, again, in a full-up fight, we're going to resolve those issues in our favor.

But the cost of getting to there concerns me a great deal, and I think the capabilities specifically for China are the cruise and maneuverable ballistic missiles that Mark mentioned and their capability potentially to target moving targets at sea; their submarine force; and then their newer destroyer force.

Those are the ones that concern me the most and I think an answer to that, the things that we will need perhaps in responding to a crisis in the region, possibly, are improved missile defenses, littoral strike assets, again, an area that right now, again the programs that the U.S. has, and my limited knowledge of them we're looking at probably the middle of the next decade for the DDX program, for the new destroyer. Then, of course, an integrated anti-submarine warfare architecture that our commanders in the Pacific will know is the absolutely best architecture anywhere in the world and it will support any operations that they have to conduct. So I think those are again the key areas.

I'll try to kill two birds with one stone--to some of the concerns that I think I may have raised in Dan in his questioning--and that is a disconnect between the cooperative element of what I believe we need to be doing multilaterally in the region to include

China, and then some of these areas where we need to make sure China specifically understands that we have and intend to maintain superiority.

Again, I don't think that there's a disconnect there. I believe that the expectation of a power such as the United States to secure a region that's of vital interest to us is going to require developments such as a couple of these that we've talked about, and that's not necessarily confrontational--but that it is obviously essential to continued security in the region. It's been the basis for that security for a number of decades.

COMMISSIONER BROOKES: I want to ask a follow-up question, but I think it's critical as a new member to the panel, that if there is an opportunity for the commission to be briefed on the net assessment that's been concluded by the government, that would be critically important in our deliberations and our report writing.

HEARING COCHAIR DONNELLY: Agreed 100 percent. Mr. Cooper I think has actually reasonably defined the requirements of a hedging strategy going forward.

Commissioner D'Amato.

COMMISSIONER D'AMATO: Thank you, Mr. Chairman, and thank the panel. I thank the panel for very interesting testimony.

I'd like to ask Dr. Newmyer, I actually read *The Propensity of Things* by Francois Jullien, and actually I'll have to be honest, I didn't get all the way through it. It occurred to me that it might be a French attempt to confuse me.

But I think it's a very important question because these concepts we talk about here of costs, deterrence, architecture, they're our concepts. They're not necessarily Chinese concepts. So we're putting our concepts into the framework of analysis that may depart from where the Chinese are in their propensity of perception or what you call propensity of things.

We had Andy Marshall as one of our first witnesses when we started as a commission, from the Office of Net Assessment. I'm not sure he's got a room over there called the "propensity room," but he's been into this for awhile.

It strikes me that it might be useful, Mr. Chairman, somehow for us to try to understand what the current Chinese thinking on propensity is, not the French perception, but the Chinese thinking. Is there any kind of assessment, Dr. Newmyer, now, do you know what is coming from the Chinese and not necessarily the Chinese that have been educated or are being educated in the United States, but Chinese that are within the Chinese establishment that are--do you have any sense of what their evaluation of the propensity of things is right now? That's number one.

Secondly, it seems to me this is an interesting concept for some focused research, to find out what it is that the Chinese propensity or perception of the current situation. I think this is very legitimate area of inquiry--this question of a very different sense of reality. Are you aware of some source that we can go in terms of the Chinese assessment of the current propensity? What is it?

DR. NEWMYER: I think this goes back to Commissioner Mulloy's question in part. I don't think we know enough about their assessments of propensity or the inputs with respect to the United States for China on those calculations.

I'm not sure that it's all mathematical when it comes to propensity. There are formulas for comprehensive national power, but propensity is also subjective. On the subject of Jullien's work and efficacy, I think it is difficult, but I also think the fact that we can read it and understand it and it's in English or it's been translated means that these

concepts are comprehensible. I'm wary of going all the way to saying the Chinese are inscrutable because I think we can understand them; it's just work.

We can't be lazy and our terms can apply as long as we just think creatively about what cost means instead of just substituting our definition of cost when we think about cost for the Chinese. What complicates all of this, of course, is that the Chinese have access to all of our literature because we're very open and transparent.

So often when we read Chinese literature, it's difficult to tell whether we're just reading their interpretation of what we're saying or what they really think or some mix of the two, but again I also commend the Office of Net Assessment, DOD's Summer Study Report, which pointed out, I think, the intelligence requirements that stem from these issues and the lack of intelligence about who in China is assessing the U.S. and/or the balance or the propensity of things with respect to U.S.-China relations.

I don't think we know enough about that. I don't think we know enough about China's image of the United States and where it got it from.

COMMISSIONER D'AMATO: Thank you. I think that's very useful.

MR. COOPER: I'll offer one recommendation.

COMMISSIONER D'AMATO: Yes.

MR. COOPER: It may be getting a little dated now, but there's a 2002 publication called *In The Eyes of the Dragon*, which all but one article were by Chinese political scientists, by mainland theorists and then one article by a noted American, Dr. Tom Christensen from Princeton--I think it's very good because one of the themes that runs throughout many of the articles, as they look at the geostrategic environment through Chinese eyes from a variety of perspectives--but one of the themes that runs throughout, is that most or a lot of the Chinese strategists that have an ear in Beijing really are realists and they follow from a lot of fairly classical American realist thinking.

So you can, I think, through these articles get a viewpoint of some areas where they think like us, or at least some of us in some areas. I don't know if that makes you feel any better, knowing that they are of the realist bent, but certainly I would commend that book to you. I think it's very informative.

COMMISSIONER D'AMATO: Thank you. It seems to me that the propensity of things is one thing, but to marry it with what seems to be the tendency toward deception and surprise is something that I think we need to be concerned about because obviously that means that we not only know far less of their perceptions, but know far less of what they will do, given that propensity.

Thank you, Mr. Chairman.

HEARING COCHAIR DONNELLY: Finally, my cochair.

VICE CHAIRMAN BARTHOLOMEW: Thank you very much. Thank you to all of our panelists for very interesting and informative testimony. Thank you, particularly, Dr. Newmyer. I'm thrilled to see a young woman getting engaged so strongly on national security issues. We don't see enough of it, so thank you very much for your contributions.

Mr. Stokes, when we embarked on putting this hearing together, I was told that your 1999 piece was a very important piece, *China's Strategic Modernization: Implications for the United States*, and it came to me highly commended and then I found, of course, that Larry Wortzel had written a forward to it, though he was not the person who told me that I needed to be reading this.

In Larry's forward--I'm sorry he's not here to hear this--but he notes that you ventured in this study into facets of PLA modernization that are often ignored. Now this is six years old. I'm not going to ask your colleagues up there whether they've read it or not, but I'm wondering whether the analysis is catching up with the trends that you were talking about here? We're six years on. Are people in the government paying attention to what they need to be paying attention to, and if not, what should we be doing? That question actually is for all of you. What should we be doing to make sure that the U.S. government is doing the kind of analysis that we need to be having done? That's my first question.

The second question also rises from something that you say, and I had thought at first before you mentioned it that it might be kind of unfair, but I was going to ask it anyway, then you opened the door.

And that is, I'm particularly struck as we look at this whole concept, the Chinese concept of defeating an enemy before you even get to the battlefield, as we on this commission are trying to marry the strains of economic security and national security, if you could go a little bit beyond your focus generally on the traditional strategic issues of warfare and give us any thoughts that you might have as to, as we are embarked in what is essentially an economic battle right now, too, is there a possibility that as the Chinese are growing their own economy and doing development, that part of what is happening or part of what is going to happen is that they would ultimately be able to defeat us without even having to go into a warfare context?

MR. STOKES: Starting off with the book, I would just cite one example. Go back to 1995 or 1996--not crediting myself but crediting Mr. Rick Fisher, who based on his own research came up with a concept of the PLA, actually not the PLA, but the China Academy of Space Technology or the First Academy of their space missile industry conducting research on terminally guided ballistic missiles associated with the DF-21C. He had that in 1996.

That was something that people tended to dismiss and blow off. There are countless examples of this. There is so much in PRC open source writing and it doesn't have to be *junnei faxing* or internal publications. It's out there. It's just a matter of sifting through it, getting to know the people, the authors, and it's there. People complain about transparency. It's there. You just have to look at it.

The concept of *shi* or propensity or other sorts of thinking, when one wants to look at basic Chinese approaches to things, it's a mix of Western. They're not that different, but there are some unique aspects, and it goes back to looking at traditional Chinese thought, like going back to Meng Zi and Kong Zi and people like this, all the way up through the neo-Confucionists, and all the way up through Zhang Taiyan and Sun Zhongshan and people like that, and there is so much out there to be able to get a good understanding of what they're doing that one can look ahead.

The problem with the intelligence community frankly is that they, if nothing comes from a secret source, it tends to be discounted. Therefore the obvious is discounted and they tend to go for the secret sources.

On the economic security, I would tend to say that if you look at warfare as an aspect of competition, you have certain national goals. I tend to believe that the national goal of the PRC leadership is to maintain power. Economic security is key to be able to maintain power, to let off steam, to allow people's lives to be able to enhance themselves.

Sooner or later, standards of living, as they grow, you're going to have people who are crying out for democracy more. This can be a significant challenge for them. They look at economic security almost in some ways what seems to be competitive. Again, I have nothing to hang my hat on this, but when you look at the way they're trying to shut out the United States and also Taiwan out of economic trade organizations in the Asian Pacific region, one has to ask themselves a question, why are they doing this?

So I would just leave it there. But you're exactly on the right track, that military and when you look at competition or things in a broader perspective, that's something to look at carefully in terms of the economic trends.

MR. COOPER: I guess the part of that question I'll address briefly is the "what should we do," and I think that Mark had a very good point when he talked about the wealth of open source information that perhaps is not--it may be manipulated and exploited by some--but it's not really being integrated, appropriately with the other intelligence that we have available to us.

I think that that's one of the things that we need to take a very close look at. I think there was a RAND publication called *A Poverty of Riches*, and it was looking at the sources of information that we have available to us coming out of China now and how that has changed so drastically over the past couple of decades in terms of our ability to gather just open source information and information from interlocutors who are traveling regularly into China, and I think that's very key.

The second thing I would say goes back to the mil-to-mil relationship, and again I know it's a very touchy area, but I think that regardless of whether one views China as a future cooperative friend or however we want to put that in a more positive light, or whether one views them more negatively as a competitor or challenge or even perhaps a threat, that in either case we must have a different and much more robust military to military contact with them.

Again I'll leave it at that because there's a lot of ways that has to be done in order to be done properly, but I think that we do need to focus more on that.

Finally it comes from the top--if we believe that the Sino-U.S. relationship will be the most important one of this century, and I think it can be argued that it probably is, then that then has to begin to drive things like intelligence efforts and things like that.

If we don't have that kind of focus from the top emphasis on the relationship and on the importance of it, then I think again we're going to be selling ourselves short.

DR. NEWMYER: Thanks, Commissioner Bartholomew. I would pile on, on the subject of consulting open sources and going to China and learning Mandarin, which for me is a long-term effort, and on the subject of military modernization questions that are under-attended to, one topic that I haven't heard a lot about today, but that I think is worth investigating, and that I know some people in the U.S. DoD world have done work on, is how the Chinese are going about developing an NCO corps and officer training and that side of military modernization, the software side, the education side.

I think those kinds of non-hardware related questions are also key to developing a modern military and are worthwhile for us.

VICE CHAIRMAN BARTHOLOMEW: Thank you.

HEARING COCHAIR DONNELLY: Thanks to the witnesses. Thanks to my colleagues. I'm very cheered to hear the enthusiasm amongst the commission to try to delve more deeply into the origins of Chinese strategic thought. I think that is a very



wise idea and something the commission can quite usefully bring to the larger debate and conversation.

Administratively, I have to announce that the room shall be cleared for lunch and that we will reconvene at one o'clock for this afternoon's panels. Thanks again.

[Whereupon, at 12:20 p.m., the hearing recessed, to reconvene at 1:06 p.m., this same day.]

#### **PANEL IV: THE MODERNIZATION OF CHINA'S DEFENSE INDUSTRIES**

VICE CHAIRMAN BARTHOLOMEW: I would like to call the hearing to order. We'll move into our next panel, which is on the Modernization of China's defense industries. We have three witnesses: Roger Cliff, who is a Senior Analyst with the RAND Corporation; Adam Segal is a Senior Fellow at the Council on Foreign Relations; and Richard Bitzinger is an Associate Professor at the Asia Pacific Center for Security Studies.

Welcome, gentlemen. I think you know the ground rules, seven minutes of testimony. I'll remind commissioners that they will have five minutes of questioning including the question and the response.

Please go ahead. Dr. Cliff, you want to start?

#### **STATEMENT OF DR. ROGER CLIFF SENIOR ANALYST, THE RAND CORPORATION**

DR. CLIFF: I would be glad to start, and it is my pleasure and honor to be back here again and thank you for having me. Before I go any further, I should give credit to my RAND colleague, Evan Medeiros, who has collaborated with me on much of the work that we have done at RAND on defense industries, and, in fact, he was the lead author for this book called *A New Direction for China's Defense Industry*, and I was the other major contributor to it, but unfortunately he couldn't be here today and asked me to come and speak in his place.

That said, he hasn't had a chance to review my remarks, although what I will say will draw on the work that he did, he shouldn't be held responsible for anything I say.

I guess until recent years, the common theme of most analyses of Chinese defense industries was that they were backwards, moribund, and a bunch of other negative adjectives, but since the late 1990s, that characterization has started to lose its accuracy, and the Chinese defense industries have been turning out a number of recognizably modern weapon systems, and although the capabilities of those systems fall short of what the U.S. military is bringing into service now with its next generation of systems, the capabilities are comparable to the types of systems that make up the bulk of our forces still today which were systems that we developed and fielded in the 1970s and 1980s.

To skip quickly to my bottom line for this, if the U.S. is going to keep its military advantage over China, in my opinion, we are going to need to continue to develop and field significantly more advanced systems than those that we currently rely on today and which China is in the process of fielding itself.

To answer the questions that were posed for me to talk a little bit about changes in China's defense industries, they were originally set up along the Soviet lines really as

ministries, not as independent corporations, but in around 1993, most of them were converted into state-owned corporations that were nominally independent of the Chinese government.

Then in 1999, all of the major companies were split in half into two parts, so there are now two aviation companies in China, two missile and space companies, two shipbuilding companies, two nuclear power companies, and two what they call the ordnance industries which are basically systems for the ground forces.

China's nuclear weapons complex, however, does remain under direct state control. It is controlled by the Commission on Science, Technology and Industry for National Defense and the General Armaments Department of the People's Liberation Army.

The other major change that occurred in the late 1990s was the establishment in the military of the General Armaments Department which was created as a separate body, separate from the civilian industries to act as an advocate for the interest of China's military in the development and procurement of weapon systems.

This was a break from the past where it was before combined with the Commission on Science, Technology and Industry for National Defense and therefore had a number of conflicts of interest because that body acted both as an advocate for the defense industries and for the military, and now those have been separated. So you have at least on paper an organization whose job it is to see that the weapon systems that China's defense industries produce are actually what is desired by the Chinese military.

China has taken a number of other steps since the late 1990s that have also affected the character of the defense industries. The number of workers in the industries has been significantly reduced, and a number of enterprises, money-losing ones have been shut down, and a number of enterprises, particularly the productive enterprises, are now responsible for their own finances.

Perhaps the other thing that has been going on is, as Dr. Segal has documented and spoken about in other venues is their rapid technological improvement of China's commercial industries, and the benefits of that are starting to filter into China's defense industries.

You have available to them now much better trained scientists, engineers and managers. They've been exposed to modern management and production practices, and the indigenous technological capabilities of China's commercial industries of the supporting industrial infrastructure, if you will, around the defense industries has also significantly improved.

Maybe the most significant change in China's defense industries, though, in the last few years has been the rapid increase in the amount of resources flowing to them.

We all know how rapidly China's overall defense budget has been increasing, but the proportion of that that goes to equipment procurement has been increasing even more rapidly. From 2000 to 2003, for example, while defense budgets rose by an average of 16 percent, procurement spending rose by an average of 18 percent. Just in that three year period it almost doubled in total quantity.

It's hard to say which of all these changes has been the most crucial, but the net effect has clearly been a qualitative improvement in the output of China's defense industries. They are now producing systems, as I said earlier, they're not cutting edge,

but they are comparable to those that dominate the militaries of the United States and other advanced militaries in the world today.

Now, what is not clear is how much of it is the result of indigenous technological innovation in China because there's been a significant amount of external assistance, on the one hand. On the other hand, or in addition, many of these systems, although they're new to China are certainly not new to the world and were developed in some cases, in most cases, really decades earlier in the United States, the Soviet Union and so on.

And of course espionage has probably played a role in some of this, and as I've said there have been spin on technologies from China's commercial sector as well.

But this shouldn't necessarily be viewed as a weakness because if you're in a situation, as China has been, of being well behind the most advanced countries of the world, it makes much more sense to try to acquire technologies that have already been developed abroad rather than to try to reinvent them yourself.

So really the issue will be, going forward in the future as China begins to close the gap between its defense industrial technology and that of the advanced countries of the world, those other countries' technologies are going to be less available to China. Those countries will either be unwilling to share them or will be charging much higher price for the technologies, and at that point, China's indigenous technological efforts will become much more important.

Now with all that said, a number of shortcomings remain in China's defense industrial capabilities, and if it is going to catch up to the rest of the world, there are some significant structural shortcomings in its defense industries that probably have to be addressed, and two of these, I think, are most important.

One is that there is still very little competition in the production of weapon systems in China. With a few exceptions, in the missile arena, most sectors are dominated by a single major manufacturer that produces all of the weapons of a particular type.

For example, the Shenyang aircraft company makes all twin-engine fighter jets in China. Now, there is some evidence that they're getting competition from the Chengdu aircraft company for the next generation fighter that is merely on the drawing boards these days, but clearly there isn't direct open competition for defense contracts like we have in this country, and I think from our own experience in a variety of sectors, we've seen that when there isn't competition, the incentives for companies to innovate and improve quality are much weaker.

VICE CHAIRMAN BARTHOLOMEW: Dr. Cliff, I'm going to have to ask you to summarize.

DR. CLIFF: Okay. Let me just point out the second structural weakness and then I will wrap up.

The second structural weakness is: these corporations are still state owned, and, particularly because of their history of having been industrial ministries in the past, that means that they have many of the bureaucratic practices of a large state bureaucracy still persist, and this is another inhibitor to competition.

I think China will have to overcome those two structural weaknesses if they are going to present a challenge to the U.S. So, nonetheless, I think the strategic significance of these changes is huge. China now has the technological capability and increasingly

the financial resources to field a military over the next ten or 15 years that looks in many ways quite like our military today.

So the implication of that if we don't--I will try to avoid using the word "transform"--but if we don't improve significantly the technological capabilities of our military in the next decade, then China has the potential to present a significant military challenge to U.S. military dominance in the East Asian region. Thank you.<sup>7</sup>

VICE CHAIRMAN BARTHOLOMEW: Thank you very much. Dr. Segal.

**STATEMENT OF ADAM SEGAL  
MAURICE R. GREENBERG SENIOR FELLOW IN CHINA STUDIES  
COUNCIL ON FOREIGN RELATIONS**

DR. SEGAL: Let me thank the commission for inviting me. It's a great honor to be here. In my comments today, I want to make four points. The first is that the Chinese leadership clearly sees a link between civilian high technologies and defense industries.

The second, Chinese planners and decision-makers are clearly trying to foster links between the civilian high tech economies and defense technology sectors. They're doing this by funding dual use R&D that spans civilian and defense sector industries and R&D units, and increasingly trying to involve non-state actors, commercial actors, more intensely in defense production.

The third point I'd like to make is that over the last five years, we've clearly seen a rise in indigenous technological capabilities among commercial sectors, especially in the information technologies, and this has allowed the PLA to modernize in particular its C4ISR capabilities, and this is likely to have an effect on the military capabilities of the PLA.

There has also been, as Dr. Cliff mentioned, a migration of skills from the commercial sector to the defense industries, mainly management, systems integration, and R&D skills that have gradually migrated from the commercial to the defense side.

Finally, I think there is a tension between the larger goals of the leadership to develop an innovative, independently innovative civilian system and wanting to raise the technology capabilities on the defense side.

The mechanisms and policy tools for trying to foster independent innovation are not always the same as the ones that would try to raise defense industries capabilities and, in many cases, will work against each other.

So those are the four larger points. Let me just go into a little bit more detail about them. The link between civilian high tech and defense I think you can see at every level of Chinese decision-making. Just to take one example, in the most recent mid to long-term plan for science and technology that came out in January 2006, and if you look at the commentary from both Hu Jintao and Premier Wen Jiabao, there are numerous comments about the importance of high technology industries, not only to the national economy but to national security strategy.

Wen Jiabao constantly talks about the need for independent innovation to build China's national prestige and power. You can find these links, I think, at any level of Chinese decision-making.

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<sup>7</sup> [Prepared statement of Dr. Roger Cliff, Senior Analyst, The Rand Corporation](#)

Given this link, how are they trying to build this connection, and this is happening on two main sides. The first, excuse me, let me just take a step back here. And that is my written comments go into much more depth about how I think the civilian S&T side is developing so I'm not going to go into detail in my comments today.

Let me just say that given the increasing centrality of China to high tech markets globally, the central government's increasing commitment to increasing R&D expenditures, and their policies designed to foster greater innovation, I think we're safe to say that capabilities on the civilian side are going to continue to rise in the near to mid-term. I don't think there is any doubt about that.

Defense planners are working to try to gain greater access to those capabilities and they're doing it in two main ways. The first, as I mentioned before, was supporting R&D, mostly dual use R&D in areas like space, laser, optical electronics, super-large scale integrated circuits and new materials, that spans both defense and commercial R&D research units and defense and commercial enterprises.

Of course, the most well-known plan is the 863 Plan which focuses on these critical dual use technologies and in the Tenth Five Year Plan between 2001 and 2005. The central government allocated 22 billion RMB to the 863 Plan, more than four times what they had spent the last 15, previous 15 years before that. So clearly more resources are going into this critical dual-use technology area.

The other area is trying to bring commercial civilian sectors into defense production, and so we've seen incentives like tax perks for commercial producers, licensing, a great deal more transparency in procurement, and then finally in May of 2005, they formally rolled out permission for non-state firms to participate in defense production.

The outcome I think, as I mentioned, is clearly commercial civilian indigenous capabilities have risen, especially in the IT sectors, and the PLA has been able to take advantage of this mainly at the subcomponent level. We're not talking about advanced systems, but at the subcomponent level, especially in computers and communication systems, they have been able to take advantage of that, and that the most obvious example is the advances made in C4ISR, and the PLA shift to digital communications via fiber-optic cable, satellite, microwave, encrypted high frequency radio and other technological advances that have improved those capabilities.

Currently, the military is looking to repeat those successes in the areas of micro-electronics, space, new materials, sensors and tracking and computer-aided manufacturing processes.

On the migration side, as I mentioned before, it's clear that skills on the management and systems integration side are moving from the commercial sectors to the defense sector, and again the most obvious example here is the reduced time to development for the FC-1 fighter through the use of CAD and CAM developed by the 863 Plan, so they've managed to shorten the production cycle by using technologies from the commercial side.

Let me finish with my final point which is no matter the degree that defense planners want to rely increasingly on this commercial sector side, there is a tension between what civilian planners want to do and defense planners want to do.

If you look at the language of this recent long and mid-term plan, this increasing focus on independent innovation, there's a great deal of tension between that and these top down plans that are focused on dual use technology.

The focus on independent innovation is an attempt to increase and encourage technological entrepreneurship, as a way to create stock systems, IPOs, other ways of rewarding scientists and individuals for starting their own companies. It's much more market focused. It's much more bottom up. It's much more decentralized.

The efforts to develop dual use subcomponents, even though they may be more flexible plans, are still top down plans. And even in the case of a company like Huawei, which spans the commercial and the defense sector, the support that the central government gives Huawei, loans, and other export subsidies, still distort the market and still give the wrong type of signals to other companies that are trying to recreate Huawei's success.

So the larger question about innovation in China, especially on the commercial side, I still think is an open one. Clearly, we've seen progress on a lot of levels. Clearly, they have raised their capabilities. Huawei is seen to be number eight or number nine on global markets into the telecom sector, but are we at the point where we're going to start seeing indigenous innovation on a systemic level?

On the commercial side, I think it's too early to tell, and I think there are a number of barriers that the Chinese are going to have difficulty overcoming, but I think they have the right answers to those.<sup>8</sup>

VICE CHAIRMAN BARTHOLOMEW: Thank you, Dr. Segal. Mr. Bitzinger.

**STATEMENT OF RICHARD A. BITZINGER**  
**ASSOCIATE PROFESSOR, ASIA-PACIFIC CENTER FOR SECURITY**  
**STUDIES**

MR. BITZINGER: Thank you very much, Madam Vice Chairman, and the rest of the members of the commission for inviting me here today. I will, as my high school English teacher used to say before giving us a pop quiz, keep this short, sweet and deadly.

I should note, first of all that whatever I say here today are my own assessments and opinions and not necessarily those of the Asia-Pacific Center for Security Studies, the U.S. Department of Defense or the U.S. government.

I think I've been brought in here today to be the voice of skepticism. I know I've always expressed a little bit of skepticism about trends and developments in the Chinese defense industry, and particularly what I tried to do in my written testimony is talk a little bit about the progress of the efforts at reform of the defense industry over the last decade or so.

And even though I think that I probably have a lot more in common with Dr. Segal and Dr. Cliff than we might say in public, bottom line for me is I'm still waiting to be impressed. I believe we have this kind of glass half full, glass half empty thing, but since I've been looking at this for so long, I'm still waiting to see what the Chinese have

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<sup>8</sup> [Prepared statement of Dr. Adam Segal, Maurice R. Greenberg Senior Fellow in China Studies, Council on Foreign Relations.](#)

done to close technological gaps, particularly since this is apparently a new kind of primary strategy in the PLA's modernization policy which was laid out in the 2004 white paper, what You Ji calls "generation leap," that is the effort to skip or shorten stages of R&D and generations of weapon systems, a "double construction" approach which he calls it a "mechanization" and that awkward term "informationization" in order to upgrade and digitize the PLA at the same time.

Obviously, the local defense industry has an important role to play in this. Of course, we already are aware of the litany of complaints regarding the deficiencies and shortcomings long present in the Chinese defense industry--of technological backwardness, excess capacity, the inability to overcome extremely constraining structural and organizational cultural deficiencies, and generally a stratified and stovepiped and risk-averse bureaucratic hierarchical type of management process--one in which we find a lot of weapon systems take much longer than they should to get through the pipeline to production, and of course in which we're constantly kind of skeptical about their capabilities and their quality.

It's obvious that the Chinese have been long aware of these problems and shortcomings, and it's also, I think, fair to say that they have tried very concerted over the last 15, 20 years even, to try to tackle these problems.

I'm not going to go into those problems and shortcomings, because I think Roger Cliff already made a very good argument for what they've been trying to do to rationalize, consolidate, innovate and upgrade the defense industry. Where I, like I say, am still waiting to be impressed, is when I look at what's happened so far. Now the reforms have been basically going on for almost about nine years now, and I'm still waiting to see what new is coming out of the defense industries. I'm still looking for that silver lining in these things. I don't necessarily see greater competition coming out. I don't necessarily see a concerted effort at exerting more PLA control over armaments production, particularly when it comes to quality control. I still don't see the rationalization of the defense industry, which I personally believe is paramount to engaging in meaningful reform, in particular, eliminating excess capacity in the defense industrial base, so, for example, that you can free up money so it goes to the right places.

I don't think that it's exactly clear, as Roger points out, how independent these defense industries are going to be of government control and ultimately therefore how much they're going to be responsible for their own profits and losses.

In other words, the efforts to corporatize the defense industry, I think, still have a long ways to go. Now having said that, I will concede several points that have been made earlier today.

In the first place, the Chinese defense industry, ironically enough, does seem to be doing a pretty good job of turning out some new types of weapons systems. It actually seems to be booming if we can believe the statistics that have come out, which is that production and sales are up, and that supposedly in 2002, after eight straight years of losses, the overall Chinese military industrial complex actually broke even.

Obviously, some parts were not as profitable and others were. Again, to concede the points made earlier by Adam and by Roger, we do see increased capabilities in Chinese power projection, C4ISR and precision strike. We also see, I think, a couple of real bright spots, which is what's happening in the shipbuilding and IT sector. In particular, the shipbuilding industry has moved up to a respectable level of global

competitiveness. It is the only sector of the defense industry that seems to be *adding* capacity because it seems to be going so all out with commercial production. We've seen that in the doubling of the rate of naval ship production over the last, well, certainly since the turn of the century.

I would argue, however, that most of this progress is being made *despite* the reforms rather than *because* of them. Many of the so-called successes in developing new generation weapon systems and putting them into production actually had their genesis in design and development decisions made years, even decades ago--that is, long before the reforms were inaugurated in the late 1990s. These weapon systems were already in the pipeline and scheduled to enter production anyways. Now, you could say that reforms maybe helped this process along, but I would not say that the reforms were instrumental in the creation of these capabilities.

The success of the shipbuilding industry, in particular, I think seems to be more based on decisions made back in the early 1980s to corporatize the shipbuilding sector, to open up the industry to foreign technology imports and to compete on the global market, but I would also argue that this is the exception that seems to prove the rule, so far at least.

I think it's also premature to make overly optimistic and sweeping statements about continuing progress in modernizing the Chinese defense industrial base. The continuing lack of transparency on the part of the Chinese when it comes to telling us about capabilities means that often we have to fall back on scanty, often anecdotal types of evidence and a lot of inference.

For example, new weapon systems and platforms may appear to be more modern and more capable, but absent sufficient and reliable information which is perhaps collectable only by covert means, most of us can only guess at these capabilities. We also continue to lack detailed and consistent data when it comes to such factors as sales, profits, capacity utilization and productivity within the Chinese defense industry.

Finally, I would make one last point here, and that is I believe that much of the progress being made in the Chinese defense industry is probably more due to the fact that the Chinese are simply throwing more money at it. Roger made the point of huge increases in the defense budget, particularly in the procurement budget. The procurement budget alone has more than quadrupled between 1997 and this year. You're bound to get some kind of effect even if that money is wasted. Okay. So I would say that there's a lot to be said in that.

Actually, one last final point is to note that the sharpest edges of the pointy end of the PLA spear still mainly consists of foreign equipment, particularly Soviet and Russian equipment. I have yet to see where the Chinese are making equipment that would be comparable, except in certain areas, such as missile systems and perhaps the shipbuilding, where they could begin to supplant their reliance on foreign sources in order to gain that competitive edge.

So overall, I would say that it appears that Beijing's operational strategy regarding its defense industry is still one of basically going to be to muddling through, with some minor structural retinkering, a healthy increase in defense spending and an increasing, continuing reliance on military-industrial "pockets of excellence."

Thank you.

[The statement follows:]



**Prepared Statement of Mr. Richard A. Bitzinger**  
**Associate Professor, Asia-Pacific Center for Security Studies**

“Modernizing China’s Defense Industries: How Effective Have Been Recent Reforms?”

*Note: The assessments and opinions expressed in this testimony are strictly those of the author and should not be interpreted as representing those of the Asia-Pacific Center for Security Studies, the U.S. Department of Defense, or the U.S. Government.*

Introduction: The Chinese Military-Industrial Complex in the Late 1990s

Thank you, Mr. Chairman and the other members of the U.S.-China Economic and Security Review Commission for the opportunity to take part in the hearings you are holding today on the overall issue of Chinese military modernization and export control regimes, and in this particular case, on the topic of the modernization of China’s defense and defense-related high-technology industries.

China possesses one of the oldest, largest, and most diversified military-industrial complexes in the developing world, an agglomeration of several hundred state-owned enterprises (SOEs) employing some three million workers, including more than 300,000 engineers and technicians. China is one of the few countries in the developing world to produce a full range of military equipment, from small arms to armored vehicles to fighter aircraft to warships and submarines, in addition to nuclear weapons and intercontinental ballistic missiles.

At the same time, the Chinese military-industrial complex has suffered from a number of shortcomings that in turn inhibited translating breakthrough technologies and design into reliable weapon systems. As late as the late 1990s, China possessed one of the most technologically backwards defense industries in the world; most indigenously developed weapons systems were at least 15 to 20 years behind that of the West – basically comparable to 1970s- or (at best) early 1980s-era technology – and quality control was consistently poor. China’s defense research and development (R&D) base was regarded to be deficient in several critical areas, including aeronautics, propulsion (such as jet engines), microelectronics, computers, avionics, sensors and seekers, electronic warfare, and advanced materials. Furthermore, the Chinese military-industrial complex has traditionally been weak in the area of systems integration – that is, the ability to design and develop a piece of military equipment that integrates hundreds or even thousands of disparate components and subsystems and have it to function effectively as a single unit.

Consequently, aside from a few “pockets of excellence” such as ballistic missiles, the Chinese military-industrial complex appeared to demonstrate few capacities for designing and producing relatively advanced conventional weapon systems. Especially when it came to combat aircraft, surface combatants, and ground equipment, the Chinese generally confronted considerable difficulties when it comes to moving prototypes into production, resulting in long development phases, heavy program delays and low production runs. The J-10 fighter, for example, took more than a decade to move from program start to first flight, and it will take more than twenty years before it enters operational service with the People’s Liberation Army (PLA) Air Force. Even after the Chinese begin building a weapon system, production runs were often small and fitful. According to Western estimates, during much of the 1990s the entire Chinese aircraft industry of around 600,000 workers manufactured only a few dozen fighter aircraft a year, mainly 1960s- and 1970s-vintage J-8IIs and J-7. According to the authoritative *Jane’s Fighting Ships*, China launched only three destroyers and nine frigates between 1990 and 1999 – a little more than one major surface combatant per year. The first *Song*-class submarine was only commissioned in 1999, eight years after construction began.

Consequently, despite years of arduous efforts, the inability of China’s domestic defense industry to generate the necessary technological breakthroughs for advanced arms production meant that Beijing continued to rely heavily – even increasingly – upon direct foreign technology inputs in critical areas. The J-10 fighter, for example, is believed to be heavily based on technology derived from Israel’s cancelled *Lavi* fighter jet program. These foreign dependencies are especially acute when it comes to jet engines,

marine diesel engines, and fire-control radar and other avionics. For example, endemic “technical difficulties” surrounding the JH-7 fighter-bomber’s indigenous engine resulted in significant program delays, forcing the Chinese to approach the British in the late 1990s about acquiring additional Spey engines in order to keep the aircraft’s production line going. The new *Song*-class submarine uses a German-supplied diesel engine, while both the *Ming*- and *Han*-class submarines were reportedly upgraded with a French sonar and combat system. Chinese surface combatants incorporate a number of foreign-supplied systems, including Ukrainian gas turbine engines, French surface-to-air missiles, Italian torpedoes, and Russian ship-based helicopters.

Finally, and perhaps most significant, over the past decade – and particularly since the turn of the century – the PLA has increasingly favored imported weapons platforms over locally built counterparts. From this, one may infer that the Chinese military remains dissatisfied with the quality and capabilities of weapon systems coming out of domestic arms factories, or those local arms manufacturers are unable to produce sufficient numbers of the kinds of weapons that the PLA wants in the near future. In the early 1990s, for example, despite the fact that China already had four fighter aircraft programs either in production or development – the J-7, J-8II, JH-7, and J-10 – the PLA nevertheless decided to buy several dozen Su-27 fighters; this purchase was later supplemented by an agreement to license-produce 200 Su-27s and then a subsequent purchase of approximately one hundred more advanced Su-30 fighter-bombers. The PLA Navy is currently acquiring 12 *Kilo*-class submarines and four *Sovremenny*-class destroyers (armed with supersonic SS-N-22 antiship cruise missiles), even though Chinese shipyards are building the *Song* and several new types of destroyers. In addition, China has reportedly purchased precision-guided munitions, active-radar guided air-to-air missiles, AWACS, and transport aircraft from Russia, as well as acquiring several hundred S-300 and SA-15 surface-to-air missiles. Consequently, China has become one of the world’s largest arms importers, and between 2001 and 2004 Beijing has signed new arms import agreements worth \$10.4 billion.

Compounding these technological deficiencies was a number of structural and organizational/cultural deficiencies that impeded the design, development, and manufacture of advanced conventional weapons. Overall, arms production in China has largely been an inefficient, wasteful, and unprofitable affair. One reason was overcapacity: Quite simply, China possessed far too many workers, too many factories, and too much productive capacity for what few weapons it produced, resulting in redundancy and a significant duplication of effort, inefficient production, and wasted resources. The Chinese aircraft industry, for example, was estimated in the late 1990s to possess a workforce nearly three as large as it required. Within the shipbuilding industry, output during the same time period was only 17 tons per person per year, compared to around 700 tons per person in shipyards in more advanced countries.

By the mid-1990s as well, least 70 percent of China’s state-run factories were thought to be operating at a loss, and the arms industries were reportedly among biggest money-losers. As a result, most defense firms were burdened with considerable debt, much of owed to state-run banks (who were obliged to lend money to state-owned firms); at the same time, arms factories were owed money by other unprofitable state-owned companies, which was nearly uncollectible.

The creation of China’s “Third Line” defense industries – that is, the establishment of redundant centers of armaments production in the remote interior of southern and western China – in the 1960s and 1970s only added to overcapacity, underutilization, and unprofitability of the Chinese military-industrial complex. Estimates are that from 1966 to 1975, Third Line construction consumed perhaps two-thirds of all industrial investment. Even by the late 1990s, approximately 55 percent of China’s defense industries were located within the Third Line, yet most of these industries were much less productive than coastal area factories and continued operate in the red.

Another structural impediment affecting the Chinese military-industrial complex was the emergence of a highly compartmentalized and vertically integrated defense industrial base. Such a stovepiped and stratified environment, in turn, had several repercussions for the local defense industry. It restricted the diffusion of advanced, militarily usable civilian technologies to the defense sector. It limited communications between R&D institutes which designed the weapons and the arms factories that produced these systems, between defense enterprises when it came to collaborating on weapons projects, and even

between the defense industry and its major consumer, i.e., the PLA, when it came to requirements and specification. It also exacerbated redundancy and the duplication of effort within the arms industry, as each defense enterprise tried to “do it all,” resulting in the maintenance of expensive but underutilized manufacturing processes, such as dedicated second- and third-tier supplier networks, and the establishment of in-house machine shops for parts production, instead of outsourcing such manufacturing to other firms.

Finally, China’s military-industrial complex long functioned under an organizational and managerial culture that, in a manner typical of most state-owned enterprises, was highly centralized, hierarchical, bureaucratic, and risk-averse. This, in turn, stymied innovation, retarded R&D, and further added to program delays. In a study on Chinese capacities for innovation [Yuko Arayama and Panos Mourdoukoutas, *China Against Herself: Innovation or Imitation in Global Business?* (Westport, CT: Quorum, 1999)], two Western analysts argued that “Chinese managers do not have either the will, the expertise, or the freedom to take the risks and make the adjustment associated with innovations.” Consequently, production management was often highly centralized and “personality-centric,” with most critical project decisions being made by a single chief engineer. At the same time, lower-level managers tended to be “conformist, adhering to standard rules and procedures rather than to personal judgments based on their professional experiences.” Hence, they were usually reluctant to make “learning mistakes” or to act on their own to deal with problems that might arise on the factory floor, thereby inhibiting experimentation and innovation.

Overall, regarding China’s problems with armaments production in the 1990s, a U.S. aerospace industry representative perhaps summed it up best:

Part of the problem with Chinese [aircraft] manufacturing...is that industrial management in China still relies on 1950s Soviet styles. This involves "batch-building" a full order of aircraft in advance based on state-planned and dictated order for parts and materials. As a consequence of this system, there are no direct lines of accountability for quality control, and no cost-cutting discussions or steps available to mid-level management. There is no competitive bidding for contracts, workers are redundant, and schedules continually slip because state planning doesn't have a fixed required-delivery date for products...Young managers stay risk-averse and are reluctant to change or improve the system [Quoted in Larry M. Wortzel, *China's Military Potential* (Carlisle, PA: U.S. Army War College, October 1998), p. 20].

### **Reforming China’s Defense Industry, 1997 to the Present**

To be fair, the Chinese have long been aware of the deficiencies in their defense industry and have undertaken several rounds of reforms to improve and upgrade their defense R&D and production processes. The intention of this overall restructuring effort was to spur the defense SOEs to act as true industrial enterprises and therefore (1) be more responsive to their customer base (i.e., the PLA), and (2) reform, modernize, and “marketize” their business operations.

These goals in particular are central to the PLA’s new modernization strategy – as laid out in China’s 2004 defense white paper – of “generation leap,” that is, to skip or shorten stages of R&D and of generations of weapons systems. This process, in turn, entails a “double construction” approach of mechanization and “informatization” in order to concurrently upgrade and digitize the PLA. Part of this strategy also depends on China’s “latecomer advantage” of being able to more quickly exploit technological trails blazed by others, as well as avoiding their mistakes and blind alleys [You Ji, “China’s Emerging National Strategy,” *China Brief*, November 24, 2004].

In the early 1990s, in an effort to “corporatize” the defense industrial base, the Chinese transformed their military-industrial complex from a series of machine-building ministries into large state-owned enterprises (SOEs). The Ministry of Aerospace, for example, was broken up into the Aviation Industries of China (AVIC, aircraft) and the China Aerospace Corporation (CASC, missiles and space), while the Ministry of Atomic Energy was converted into the China National Nuclear Corporation (CNNC). Other “super-SOEs” within the defense industry included the China Ordnance Industry Corporation (COIC, ground combat

systems, often referred to as NORINCO) and the China State Shipbuilding Corporation (CSSC, naval systems). At the same time, control of individual production facilities, research units, and trading companies were transferred to these new corporations.

The most recent round of defense industry reforms began in September 1997, when the Fifteenth Communist Party Congress laid out an ambitious agenda for restructuring and downsizing the state-owned enterprise sector (including the defense industries) and for opening up SOEs to free-market forces – i.e., supply-and-demand dynamics, competitive products, quality assurance, and fiscal self-responsibility. The following March, the Ninth National People’s Congress further refined this agenda by announcing plans to reorganize the government’s defense industry oversight and control apparatus and establish new defense enterprise groups.

One of the most important decisions to come out of the 1998 NPC was the creation of a new Peoples Liberation Army (PLA)-run General Armaments Department (GAD), with the latter acting as the primary purchasing agent for the PLA, overseeing defense procurement and new weapons programs. As a recent RAND report put it, the GAD is part of a process “to create system that will unify, standardize, and legalize the [Chinese] weapons procurement process” [Keith Crane, et.al., *Modernizing China’s Military* (Santa Monica, CA: RAND, 2005), p. 165]. In particular, the GAD is supposed to ensure that local arms producers meet PLA requirements when it comes to capabilities, quality, costs, and program milestones.

Another key element of current defense reforms was the creation in July 1999 of ten new defense industry enterprise groups (DIEGs) (see Table 1). These DIEGs were supposed to function as true conglomerates, integrating R&D, production, and marketing. Breaking up the old SOEs was also intended to encourage the new industry enterprise groups to compete with each other for PLA procurement contracts, which it was hoped would pressure them to be more efficient and technologically innovative. At the same time, the government’s role in the daily operations of the defense industry was to be greatly reduced, and these new enterprise groups were given the authority to manage their own operations as well as take responsibility for their own profits and losses.

Another crucial aspect of these new reform initiatives was the declared intent to significantly downsize the Chinese military-industrial complex, including eliminating (through retirement, attrition, or even layoffs) as much as one-third of the defense sector’s workforce. The aircraft industry, for example, intended to downsize by 200,000 workers. The rationalization of the defense industry was also supposed to include factory closings and consolidation as a result of government-encouraged mergers, as part of the policy of “letting the strong annex the weak.”

At the same time, Beijing prodded local defense industries to move more into civilian production as a means of acquiring dual-use technologies that also could be used to support armaments production. This strategy goes back to the late 1970s and the enunciation of Deng Xiaoping’s so-called sixteen character slogan: “Combine the military and civil/combine peace and war/give priority to military products/let the civil support the military.” However, whereas earlier efforts at civil-military integration (CMI) tended to revolve mostly around conversion – that is, switching military factories over to civilian use – China’s approach to CMI after 1997 entailed a critical shift in policy toward promoting integrated dual-use industrial systems capable of developing and manufacturing both defense and military goods – or as one Western analyst put it, “swords into plowshares...and better swords” [Paul H. Folta, *From Swords to Plowshares? Defense Industry Reform in the PRC* (Boulder, CO: Westview, 1992), p. 1]. This new strategy was embodied and made a priority in the defense industry’s five-year plan for 2001-2005, which emphasized the dual importance of both the transfer of military technologies to commercial use and the transfer of commercial technologies to military use, and which therefore called for the Chinese arms industry to not only to develop dual-use technologies but to actively promote joint civil-military technology cooperation. Consequently, the spin-on of advanced commercial technologies both to the Chinese military-industrial complex and in support of the overall modernization of the PLA was made explicit policy.

The key areas of China’s new focus on dual-use technology development and subsequent spin-on include microelectronics, space systems, new materials (such as composites and alloys), propulsion, missiles, computer-aided manufacturing, and particularly information technologies. Over the past decade, Beijing

has worked hard both to encourage further domestic development and growth in these sectors *and* to expand linkages and collaboration between China's military-industrial complex and civilian high-technology sectors. In 2002, for example, the Chinese government created a new industry enterprise group, the China Electronics Technology Corporation, to promote national technological and industrial developments in the area of defense-related electronics. Under the Tenth Five Year Plan (2001-2005), many technology breakthroughs generated under the 863 S&T program were finally slated for development and industrialization. Defense enterprises have formed partnerships with Chinese universities and civilian research institutes to establish technology incubators and undertake cooperative R&D on dual-use technologies. Additionally, foreign high-tech firms wishing to invest in China have been pressured to set up joint R&D centers and to transfer more technology to China.

In this regard, China's military shipbuilding appears to have particularly benefited from CMI efforts over the past decade. Following an initial period of basically low-end commercial shipbuilding – such as bulk carriers and container ships – China's shipyards have since the mid-1990s progressed toward more sophisticated ship design and construction work. In particular, moving into commercial shipbuilding began to bear considerable fruit beginning in the late 1990s, as Chinese shipyards modernized and expanded operations, building huge new dry-docks, acquiring heavy-lift cranes and computerized cutting and welding tools, and more than doubling their shipbuilding capacity. At the same time, Chinese shipbuilders entered into a number of technical cooperation agreements and joint ventures with shipbuilding firms in Japan, South Korea, Germany, and other countries, which gave them access to advanced ship designs and manufacturing technologies – in particular, computer-assisted design and manufacturing, modular construction techniques, advanced ship propulsion systems, and numerically controlled processing and testing equipment. As a result, military shipbuilding programs collocated at Chinese shipyards have been able to leverage these considerable infrastructure and software improvements when it comes to design, development, and construction.

China's nascent space industry has also spurred the development and application of dual-use technologies that are basically commercial in nature but which serve military purposes as well. This includes telecommunications satellites, as well as China's rudimentary *Beidou* navigation satellite system and its *Ziyuan-1* and *Ziyuan-2* earth observation satellites. In addition, many of the technologies being developed for commercial reconnaissance satellites, such as charge-coupled device cameras, multispectral scanners, and synthetic aperture radar imagers, have obvious spin-on potential for military systems.

Finally, the PLA has clearly profited from piggy-backing on the development and growth of the country's commercial IT industry. The PLA is working hard to expand and improve its capacities for command, control and communications, information-processing, and information warfare, and it has been able to enlist local IT firms – many of which have close ties to China's military-industrial complex and were even founded by former PLA officers – in support of its efforts. Consequently, the PLA has developed its own separate military communications network, utilizing fiber-optic cable, cellular and wireless systems, microwave relays, and long-range high frequency radios, as well as computer local area networks.

### **A Disappointing Track Record**

Nevertheless, Chinese efforts since the late 1990s to reform its military-industrial complex have been disappointing. If the intention of creating new industrial enterprise groups was to inject greater competition into China's military-industrial complex – and therefore spur innovation and greater responsiveness to PLA systems requirement – then these restructuring efforts have largely been a failure. The General Armaments Department, for example, has yet to implement competitive bidding and market pricing into the overall arms procurement process; in particular, competitive bidding is still not apparently used when it comes to major weapons programs, as any purchases over 2 million yuan (less than \$250,000) are exempt.

There is also little evidence to suggest that recent institutional reforms have strengthened PLA oversight of armaments manufacturing, particularly when it comes to quality control. RAND notes that the military has long had a Military Representative Office (MRO) system in place in many factories to watch over production, but even it admits that this system is woefully understaffed and ineffective when it comes to

overseeing armaments production and quality control, and that the effectiveness of current reform efforts are “far from clear” [*Modernizing China’s Military*, pp. 172-173].

Moreover, at one time it was expected that the Chinese would create large trans-sectoral, cross-competing defense conglomerates, similar to the South Korean *chaebols* or, more specifically, to horizontally integrated defense companies like Lockheed Martin or Britain’s BAE Systems. Such a strategy would have entailed a much more complicated restructuring of the defense industry, crafting enterprise groups that would have competed with each other to produce a broad array of weaponry. Instead, all Beijing did was break up each of its former defense corporations into two new groups.

With few exceptions, too, China’s new DIEGs still do not compete with each other when it comes to defense materiel. Of the two new enterprise groups replacing the old Aviation Industries of China (AVIC), for example, all fighter aircraft production is concentrated within one DIEG, while all helicopter and trainer jet production is centered in the other. The nuclear industry will be split into separate enterprises for either construction or nuclear energy development, while the NORINCO appears to have been subdivided into one enterprise group mostly concerned with armored vehicles and ground ordnance, while the other is almost entirely civilianized, specializing in automobile and motorcycle production. In fact, Beijing appears to have *intended* that these new defense industries do not vie directly with each other. For example, the two new aerospace (missile) enterprise groups do not compete in terms of products, but rather “in terms of their systems of organization and their operational mechanisms” [“Applying Technology to National Defense,” *China Space News*, May 26, 1999].

Rationalization of the defense industry has also been much slower than expected. According to one Western estimate, no more than 20 percent of the labor force in the overall defense sector has been laid off [“Chinese Defense Industry: Chinese Puzzle,” *Jane’s Defense Weekly*, January 21, 2004]. AVIC, for example, has downsized by only 10 percent overall, and this was likely accomplished through retirement and job-leavers. At the same time, there have been few incidents of arms factories being closed or merged. Much of the defense industry continues to suffer from excess capacity, therefore.

It is also unclear how independent these new defense enterprises will be of government control or how responsible they will ultimately be for their own profits and losses. Beijing made it clear from the beginning that arms production is a strategic industry too critical to national security to be privatized, and that it will keep the new DIEGs under much stricter supervision than other types of reformed SOEs. At the same time these same rules will work in favor of the arms industries, as Beijing will likely feel pressured to continue to prop up unprofitable defense enterprises in order to preserve key arms programs.

Above all, the reform initiatives implemented so far do not directly address those impediments affecting technology absorption and upgrading of China’s defense industry – that is, the lack of advanced technical skills and expertise, compartmentalization and redundancy within the industrial base, and a bureaucratic/risk-averse corporate culture. As a result, it is doubtful that these reforms will go very far in injecting market forces that would, in turn, drive the modernization of the Chinese military-industrial complex and affect China’s ability to develop and manufacture highly advanced conventional weapons systems. It is also doubtful whether there really exists much of a latecomer advantage when it comes to extremely esoteric high-tech sectors such as arms production, where the technological demands are very high and the economic payoffs are very low. Even RAND noted that while “the technological gap between China’s military aviation industry and that of the United States and other major aviation producers will likely narrow in coming years, [it] will still remain significant unless China makes fundamental changes in contracting and enterprise management” [*Modernizing China’s Military*, p. 180].

### **Chinese Arms Production: Success In Spite of Reforms?**

Interestingly, despite making little progress on reforming itself, the Chinese defense industry appears to be booming. Production and sales are up – 19 percent and 14 percent, respectively, in 2001 (the last year for which we have reliable data) – and China’s military-industrial complex technically broke even in 2002 after eight straight years of losses. The missile and shipbuilding sectors have been particularly profitable in recent years [“Chinese Defense Industry: Chinese Puzzle”].

It is also increasingly evident that the Chinese have in recent years greatly added to their military capabilities in terms of power projection, standoff precision-strike, and improved C4ISR (command, control, communications, computing, intelligence, surveillance, and reconnaissance). China's defense industry has begun manufacturing and delivering to the PLA several new types of advanced weapons systems, including the fourth-generation J-10 fighter, an upgraded version of its JH-7 fighter-bomber, the HQ-9 long-range surface-to-air missile (akin to the U.S. Patriot air defense missile), the improved *Song*-class diesel-electric submarine, and the Type-052C destroyer (which incorporates low-observable features and a type of Aegis-type phased-array radar into its design). Moreover, the quality and capabilities of *some* Chinese weaponry has also apparently improved. Recent versions of the *Song*-class submarine, for example, are outfitted with a skewed propeller for improved quieting and are capable of carrying an encapsulated antiship cruise missile that can be launched underwater.

The shipbuilding industry has made particular progress in modernizing its design and manufacturing capabilities and in spinning-on commercial shipbuilding technologies to its naval construction side. Chinese shipbuilding is domestically and globally competitive, and seems to be profitable – so much so that it is the only sector in the defense industry that appears to *adding* productive capacity, i.e., new shipyards and more workers. This in turn has permitted a significant expansion in naval ship construction since the turn of the century, and since 2000, China has begun construction of least six new destroyers, seven frigates, and eight diesel-powered submarines – more than double the rate of naval ship construction during the 1990s.

Nevertheless, most progress in expanding armaments production, both quantitatively and qualitatively, seems to have come about *despite* defense industry reforms – or at least the more recent attempts at reform – than *because* of them. Many of the so-called successes in generating new-generation weapon systems actually have their genesis in design and development decisions made years, even decades, ago – that is, long before the reforms of the late 1990s were inaugurated. These weapons programs were already in the pipeline and on schedule anyway to enter production in the late 1990s and first decade of the 21<sup>st</sup> century, and while the most recent reform efforts may have helped to accelerate or expand production of these weapons systems, they certainly did not play any key role in their initiation. For example, the success of the Chinese shipbuilding industry appears to be more the result of decisions made back in the early 1980s to commercialize the shipbuilding sector, to open up the industry to foreign technology inputs, and to compete on the global market.

In addition, it is perhaps premature to make overly optimistic and sweeping statements about recent progress in modernizing the Chinese defense industrial base. In particular, the continuing lack of transparency on the part of the Chinese forces Western analysts to rely too much on scanty, often anecdotal, evidence and inference. Some new weapons systems and platforms may *appear* to be more modern and more capable, but absent sufficient and reliable information (which is perhaps collectable only by covert means), most of us can only guess at any true increase in the capabilities and quality of weapons systems presently coming off Chinese assembly lines. We also continue to lack detailed and consistent economic data regarding the Chinese defense industry (such as sales, profits, capacity utilization, productivity, etc.) when it comes to assessing the success of defense sector market reforms.

Moreover, rising defense spending also likely had much to do with the recent expansion in Chinese arms production as any reform efforts. Chinese military expenditures have nearly quadrupled in real terms since the mid-1990s; China's official 2006 defense budget is 281 billion yuan, or \$35 billion – a 14.7 percent increase over the previous year and thus continuing a decade-long trend of double-digit real increases in Chinese military spending. The annual procurement budget alone has increased from \$3.1 billion to an estimated \$11 billion between 1997 and 2006, and this does not include likely extra-budgetary spending on R&D and arms imports, which together probably total around \$3 billion to \$4 billion a year. It could be argued, therefore, that simply throwing more money at the problem has had the most impact on the local defense industry – that is, in increasing procurement spending and therefore production, and by providing more funding for R&D.

Finally, it is also important to note that the sharpest edges of the pointy end of the PLA spear are still mostly foreign – and particularly Russian – sourced, that is, Su-27 and Su-30 fighters, *Sovremennyy*-class destroyers, *Kilo*-class submarines, S-300 surface-to-air missiles, etc. They are, with few exceptions (such as tactical ballistic missiles or nuclear submarines), still the most critical force multipliers when it comes to calculating Chinese military power.

Overall, it appears that Beijing’s operational strategy regarding its defense sector is still mainly to muddle through with arms production, with some minor structural tinkering, a healthy increase in defense spending, and a continuing reliance on “pockets of excellence.” While past reform efforts have resulted in some technological and structural improvements in weapons R&D and manufacturing, China’s military-industrial complex remains in many respect an inefficient and less-than-optimal production model. This will continue to exert a drag on the Chinese military modernization process and make it harder for the PLA to close technology and capability gaps with its rivals.

**Table 1**  
**China Defense Industry Restructuring, July 1999**

<b>Old Corporate Entity</b>	<b>New Enterprise Group</b>	<b>Major Products</b>
Aviation Industries of China (AVIC)	China Aviation Industry Corp. I (AVIC I)	Fighter aircraft, bombers, transports, advanced trainers, commercial airliners
	China Aviation Industry Corp. II (AVIC II)	Helicopters, attack aircraft, light trainers, UAVs
China Aerospace Corp. (CASC)	China Aerospace Science & Technology Corp.	Space launch vehicles, satellites, missiles
	China Aerospace Machinery & Electronics Corp.	Missiles, electronics, other equipment
China Ordnance Industry Corp. (COIC)/NORINCO	China North Industries Group Corp.	Tanks, armored vehicles, artillery, ordnance
	China South Industries Group Corp.	Miscellaneous ordnance, automobiles, motorcycles
China State Shipbuilding Corp. (CSSC)	China State Shipbuilding Corp. (southern shipyards, based in Shanghai)	Frigates, smaller surface combatants, commercial ships
	China State Shipbuilding Industry Corp. (northern shipyards, based in Dalian)	Destroyers, commercial ships
China National Nuclear Corp. (CNNC)	China National Nuclear Corp.	Nuclear energy development, nuclear fuel and equipment
	China Nuclear Engineering & Construction Group Corp.	Construction of nuclear power plants, other heavy construction

#### **Panel IV: Discussion, Questions and Answers**

VICE CHAIRMAN BARTHOLOMEW: Thank you very much. Chairman Wortzel.

CHAIRMAN WORTZEL: Well, thank you very much for being here. Your testimony today about industry is the link between what we're doing in the hearing today,



talking about the PLA and what it's turning into, and what we're going to talk about tomorrow, when we begin to touch on the subject of viability of export controls, the sense of export controls and their utility.

What I would like each of you to do is to characterize China's systems integration capabilities in turning out finished complete, indigenous weapon systems in Chinese defense industries; whether there are areas or in the entire industrial base that are better than others; whether they are moving from acquiring weapon subsystems from abroad to developing them for themselves; or whether they're actually fielding integrated weapon systems that they can start and finish?

You talked about how Chinese defense industries are improving, moving from being single producers to industrial conglomerates that allow them to acquire advanced technology from abroad and move those technologies into weapon systems, improved quality control.

But what you didn't do and I'd like to hear, is talk about specific areas that have seen real improvement. Are there specific areas in the defense industry that cause the People's Liberation Army to become real problems for the American defense capability? Are there other specific areas where defense industries can really fall behind in China, and if so, what can we do to ensure that they continue to stay behind?

VICE CHAIRMAN BARTHOLOMEW: Anybody?

DR. CLIFF: All right. I will take the first stab at that. On the systems integration capability question--how strong Chinese systems integration capabilities have become--I would say the jury is still quite a bit out on that. What we're seeing now is--I was talking about a number of different types of systems that they're fielding, and I'll just take a couple of examples.

One is the J-10 light fighter and the other is the Luyang II Class air defense destroyers, and on paper these systems look quite impressive. And from what we can talk about here in terms of the performance of the J-10 and so on, it seems to be F-16 like. However, the question is are all the systems on that airplane well integrated, do they work well together, and that I think is too early to say because we haven't seen enough testing and, of course, it's going to be something that the intelligence community will have a much better handle on for quite sometime.

With the destroyers, again, very impressive on paper to have a destroyer that looks like it's comparable to a U.S. Aegis class system. Whether all the systems will work together or not is another question.

Then, if you break those two examples down, the J-10 fighter has a Russian power plant so the Chinese have not yet acquired the capability to build high performance turbofan engines. It has Russian fire control radar. Again, in the component area, there are clearly weaknesses. I think on the electronics and avionics side, the Chinese are getting stronger. On the power plant side, on the jet engine side, they continue to experience difficulties despite periodic claims that the Chinese are finally going to come out with a world-class turbofan engine.

On the Luyang class destroyer, it's significant that at the same time as they're building that ship, they're also building another ship that's comparable in capability. The only difference being that it will incorporate a Russian surface to air missile system instead of a Chinese one, and that may suggest some doubts on their part about the

performance of their own or the maturity of their own surface to air missile system technology.

So clearly there are areas in which they're not satisfied with where they are. If you look at just, to take one more example, anti-ship cruise missiles, the C802 missile in terms of its flight performance and so on, from what we can tell, it is comparable to an early Harpoon class missile. Well, an early Harpoon class missile is quite a bit different from a late current Harpoon class missile, and the difference isn't so much in how fast it flies, but in terms of the electronics and the electronic counter countermeasures that it employs and so on, and again it's a little hard to say how good the Chinese are in those dimensions, but I suspect weaknesses remain.

VICE CHAIRMAN BARTHOLOMEW: Dr. Segal, do you have anything to add?

DR. SEGAL: I don't have anything to add to that.

VICE CHAIRMAN BARTHOLOMEW: Mr. Bitzinger?

MR. BITZINGER: Yes, really quickly. Those are very good questions to ask and very good points for Roger to make, too. I look at this, particularly in the area of technological gaps, okay, and we talk a lot about this in are gaps closing/are gaps widening, et cetera, et cetera.

I think we have to look at this thing in two ways of gains. There's two types of gains: absolute gains and relative gains. Do I agree that the Chinese have made absolute gains in some of their capabilities? Yes. And particularly I think in the areas that we have long seen this as being those centers of excellence such as missile systems, particularly their ability to produce short-range and medium-range ballistic missiles.

I would also concede that it seems to be there are some improvements going on in the shipbuilding sector, particularly in the submarine business. Okay.

Now, as Roger points out, the J-10 is basically equivalent to an F-16. Well, we're getting in the process now of phasing out a lot of those F-16s, and those are basically mid-1980s-era fighters, so if you still talk about that, if you concede that possibility that the Chinese are finally in 2006 fielding a 20-year old version of a U.S. fighter, I can say yes, that still has some impact and certainly more impact than a MiG-21 or something like that. But does it significantly close the gap, especially as the U.S. moves on to F-22, the Joint Strike Fighter or some type of future UCAV?

Then finally one point. Where I really see a lot of skepticism, a lot of deserved skepticism, is in the future ability of the Chinese to engage in network-based warfare, not just simply improved command and control, but the ability to be able to link their disparate weapon systems with the kinds of sensors and shooters and types of information processing and information sharing that the United States and indeed other Western countries are moving toward.

I still think this is going to be a major and growing problem for the Chinese as they try to move into this area. Thank you.

VICE CHAIRMAN BARTHOLOMEW: Thank you. Commissioner Donnelly.

HEARING COCHAIR DONNELLY: Thank you, Madam Chairman. I'm particularly interested in the more flexible business management and particularly the importation of commercial practice type management to the defense industrial sector, what the Pentagon would have called a revolution in business affairs not too long ago before they were embarrassed to use the term.

So I would like to draw you out a bit on that and particularly offer up the exemplar or the case study of shipbuilding as a particular concern of mine in that regard.

The array of both surface combatants and submarines now in production or at least one off production is actually quite dazzling, and in some ways their cut and paste, like this ship will have this radar incumbent with this ship, but it will have a different fire control system, and it's kind of a mix and match approach, which has worked very well for the Indians, for example.

So the question that I would have is with, you know, again, more flexible management, is there a potential there that once they settle on things that seem to work for them, and then they can focus this enormous shipbuilding industry on, you know, one or two successful submarine designs or surface combatant designs and really begin to cut, push them out in a more traditional cookie cutter mass production kind of way, how rapidly they can make that transition?

As a related issue, what do we know about kind of the feedback loop from operational forces to the industry as informing those kinds of choices, kind of the customer to producer feedback loop, wherein people who are actually using these things in an operational circumstance can say, this system isn't working the way we thought it would, you've got to fix that?

Again, just their management flexibility in being able to move from kind of the engineering development phase into a real serial production posture.

DR. CLIFF: All right. I'll be the first person to run out into the open and get shot down here. A couple years ago I went to China as part of the study that Evan and I did, and Evan has done a similar thing on the shipbuilding industry. I haven't yet had a chance to talk to him about it, so I can't speak for the shipbuilding side. But I talked to people basically in the aerospace industry, and the people I talked to were not the Chinese managers because they wouldn't talk to me, but I talked to the people who head up Western aerospace companies that are doing business in China, airframe manufacturers, engine manufacturers, avionics manufacturers and so on, on the assumption that these people know their competition as well as anybody does, and they were pretty consistent in saying that the new generation of managers of the Chinese enterprises that they deal with, either in some cases as subcontractors or in joint ventures and so on, that the new generation managers that have appeared on the scene in the last few years are very impressive people.

They appear to be very smart. They understand Western management methods and they know how to run a business, and of course I think this is mirrored throughout Chinese industry, and Dr. Segal can probably speak to that more, but this is something that is sort of a systemic change that's going on in China.

Although these people are--obviously, they're appointed, it goes back to the "red and expert" arguments they used to have. These people are clearly politically well connected, too, but they are also--part of the criteria by which they're selected is their management capability, and so I would not underestimate the management capabilities of the new generation of defense industry managers in China.

On the question about the feedback loop from the military back to industry, I'm afraid I don't have anything good to say about that. It's a good research topic.

DR. SEGAL: I think we're clearly at an inflection point about this management and skills issue, and I think it's clear we're seeing increasing evidence, and the chip

industry is a great example of this, where they have managed to ramp up and become increasingly sophisticated in their management skills in a way we didn't expect three or four years ago where we thought they were going to be chasing some kind of DRAM or other kinds of technology that really don't have a future and now they're looking much more at fab and design and other areas where they're going to be increasingly competitive.

The other issue I think is that with more and more Chinese returning after time in the States, they're bringing a different skill set than the first wave of people did. The first wave in the '97, '98, and '99, during the Internet boom, most of those people just had MBAs. So they had some experience at business school, but no real experience in a full product cycle.

But people returning now have had eight or nine years experience in Silicon Valley or Route 128 and they have the full spectrum of management, production, commercialization skills that they didn't have before, and they are going to be able to migrate back and forth across the sector.

I do still think, though, it's a small inflection point in the sense we're still talking about pockets of excellence, and we don't know how broad those skills are going to be.

The only data point I have is the McKinsey report from last year that basically said only ten percent of local hires had the language and management skills that multinationals were looking for.

MR. BITZINGER: Just a quick point about the shipbuilding industry, because I think you make a rather interesting point. I think what's going on right now in the shipbuilding industry is that they're in the process of some really interesting experimentation.

It doesn't matter if they're only building onesies or twosies or different types. Each generation adds a little bit more, plays around with something to see if they're going to get the formula right. As I pointed out and as I think Evan Medeiros has pointed out in some of his writings, if you look at the pace of warship production, it has seen a very healthy increase.

So obviously the capability is there to ramp up military shipbuilding with an increasingly sophisticated shipbuilding industry because of foreign investment on the commercial side. I think it's an excellent example that we do see civil military integration working in some sectors.

I think that by the end of this decade the Chinese Navy might actually settle on some type of common design for a particular frigate or a particular destroyer, and begin cranking those out two, three a year or something like that.

Now they've got a lot of old destroyers and a lot of frigates to replace. But obviously that's an area of real concern.

HEARING COCHAIR DONNELLY: Does anyone have further insight on the feedback loop from the field to industry?

VICE CHAIRMAN BARTHOLOMEW: Okay. Commissioner Brookes.

COMMISSIONER BROOKES: Thank you. I'm not sure I'm going to get any more of an answer because I'm going down the road that Tom Donnelly was going down. But anybody who looks at the weapon systems cycle, acquisition and design and then fielding, the critical element is testing and evaluation. A couple of people have talked a little bit about that, but that's a really important question.

The issue is how rigorous is their testing and evaluation of their systems? How good is good enough for a Chinese system to be fielded? I have some experience with Soviet weapons systems, but that's going back and some of it sounds very familiar.

If you look at the Soviet submarine force, how they would develop one class and see how that went, and then they would move on beyond that, and it sounds very similar in that way, and that doesn't sound necessarily very modern or advanced.

I don't know if anybody can answer that, but I sense there's been some blank looks on the testing and evaluation thing. But it is critical because what happens is then the soldiers and sailors, marines and airmen end up with a system delivered to them that really doesn't work, and we know how important test and evaluation is here and how much we do want test and evaluation before we actually field a weapon system. So if anybody on the panel can answer that, that would be great.

The other question is, and I'm not sure if this is appropriate for this panel or the next panel, when do we expect to see the exporting of high tech weapons systems out of China? Or are we already? I'm not aware of it, but that might be a good question for the next panel. I'm not quite sure where it fits in between them.

But, first, if anybody can answer anything about test and evaluation, I think that would be important. Then, how good is good enough, and also when do we expect to see some high tech exports, weapons systems leaving China for other places? I'll open it up to anybody on the panel.

Is there anybody looking at testing and evaluation?

MR. BITZINGER: There probably are, but they're probably all probably somewhere in Langley or Bolling or something like that. No, I kid you not. This is the problem with China's lack of transparency. We just honestly don't know and a lot of the evaluation is probably something that's going to be made, as we say, at a pay grade way above mine. So it's really hard to say what is going on.

This idea of a feedback loop, I agree with you is very important, and one of the reasons why they set up the General Armaments Department, the GAD, which I would presume would be to have a hand in that feedback loop.

Now, is it too early to tell, or is it just not working? I think that the jury is still out on that, but every year that goes by that we *don't* seem to have the evidence of a feedback loop or at least nothing very clear and consistent makes me kind of be a little bit more skeptical.

But with regard to the point you're making about high tech arms exports: again I wrack my brains and still try to think what is it that the Chinese could offer out there on the market that would really draw in the people? Typically, the customers for Chinese arms exports have been the people who either no one else will sell to, like Iran and Iraq during their war in the 1980s, or the people who can't afford anything better or people under sanctions and things like that.

Otherwise, yes, they already sell C802s around the world, this new type of anti-ship cruise missile, although not particularly that new; it's about 15 years old. They're prohibited from selling missiles over a certain range because of their adherence to the MTCR, for example.

Of course there are certain ways of getting around that through. Yes, I know--

HEARING COCHAIR DONNELLY: In quotes, please.

VICE CHAIRMAN BARTHOLOMEW: Yes.

MR. BITZINGER: Legally speaking. Also, I'm not impressed by the new type of aircraft that are coming out yet. The J-10 may be okay, but if you have a choice between buying that or an F-16 or an F-18 or a Euro fighter, unless the Chinese can get the price down and sufficiently twist enough arms, I don't see what the advantage of something like that is.

The FC-1, that's just an F-5 if you ask me. So I'm still waiting to see what they have. Now, I've heard things about--supposedly the Pakistanis are going to buy some new frigates or something like that, but again--

COMMISSIONER BROOKES: Well, that's actually where the critical element is. Who will they sell to that *we won't sell to*, with more advanced technology.

MR. BITZINGER: Well, increasingly, there's nobody that we won't sell to. There obviously are, we have a few, we have a handful of proscribed countries, but those countries, by the way, don't have a lot of money to buy weapon systems. So, yes, what are you going to do if you've got a choice between a U.S. system and a Chinese system? So--

VICE CHAIRMAN BARTHOLOMEW: Okay. Commissioner Wessel.

COMMISSIONER WESSEL: Thank you all for being here. I wanted to follow up on some of the crossover issues and issues that were raised about the, not integration, the synergy between the private and the PLA companies. We've seen in the commercial side U.S. and other foreign nationals that have invested in China have helped to upgrade skills of the workers.

You've seen tremendous turnover as people have been trained by foreign invested enterprises and they moved over to indigenous Chinese enterprises. You've seen, of course, the migration of technology from the U.S. and other foreign invested enterprises into Chinese enterprises that they've been able to harness.

To what extent are we seeing this as a crossover between foreign invested enterprises and the defense arena? The question has been raised in the last couple of days about Airbus potentially setting up a production facility in China. To date it's primarily been kits that have been sent over there and not necessarily if you will the higher end integration that many believe could in fact enhance some of their know-how on what they may do for aerospace development on the military side.

If the panelists could comment on what they see as those synergies, how much are foreign invested enterprises becoming skills incubators if you will that those personnel are then migrating and helping to upgrade capabilities on the defense side?

DR. CLIFF: Let me take a first stab at that. One of the things is that it really varies by sector in China, so in the shipbuilding sector, I think there is some foreign investment. But basically this was something that China got in, starting at the very labor intensive low tech end, and they've gradually built it up, relying largely on indigenous capabilities.

In the aviation sector, what you see going on there is, as I said earlier, China doesn't make turbofan engines. There are no jetliners that are made in China, but all of the major manufacturers of engines and airliners get components from China, and so they've been subcontracting with Chinese enterprises in some cases, and in other cases have joint ventures. In the case of subcontracting, it's the Chinese job to provide the skills and the technology and so on, but what the Western companies are providing at

least is quality assurance saying, if this thing is going to be FAA certified, it's got to be well built, no cracks and that sort of thing.

So that has been, at least had a disciplining effect on the Chinese--

COMMISSIONER WESSEL: Disciplining in training, meaning I assume we're bringing in, you know, people to help them reach ISO 9000 and doing various other things that you don't just do your quality control and throw out every ten out of 12 engines because they're not up to speed. You're going to help train them to come up to speed.

DR. CLIFF: Yes. Well, I don't know how much of that actually goes on. There is sometimes a Western manager onsite at one of these Chinese facilities, if it's a wholly Chinese facility, there might be a Western guy there advising them and ensuring quality and so on.

I don't know how much direct training of, you know, machinists and managers and so on goes on in that specific sector. Certainly lots of general types of training are being acquired in China.

The other thing is joint ventures. I went to the joint venture by a Western engine manufacturer where they made certain components and although nominally a joint venture, this is basically an American facility in China. The general manager was an employee of the American parent company. The supervisor of production was an American, and the workers who were hired there were all local, of course, but they tended to stay there. They weren't being rotated back to the Chinese partner in the venture.

So if there were technology backflows occurring, it was probably mainly in the Chinese--there was a Chinese codirector along with the American director, and he was probably sharing what he saw about the management techniques and that sort of thing, but in terms of direct technology transfers, actually I was surprised to say I don't see how this is helping the Chinese a lot.

The stuff they were making was very low tech. They were doing it in China because it was labor intensive and the machine tools they were using, I was really surprised, were all Chinese made.

DR. SEGAL: I would echo the point that Dr. Cliff made that it's going to depend on the sector. On the commercial side it depends on the sector, how much foreign companies want to transfer, how much skill training they do. Clearly on the IT side, we've already seen on the commercial side a great deal of transfer of skills and technology, and because Chinese commercial firms like Huawei and the other telecommunication producers are so tightly linked to PLA R&D units, I don't think there's a question there. I think it's already happening. It's continuing to happen.

We're beginning clearly to see it in chip design, another place where Chinese are leaving after four or five years at a multinational R&D center and setting up their own company. Those skills are clearly migrating.

But I don't want think we want to look at it just one way. It's not just the U.S. companies or foreign companies training them and Chinese leaving. We also have to realize that there's an increasing competition for skilled workers. So the setting up of R&D centers in China is still the most attractive place to work for a young Chinese scientist or technician, and so in many ways, these R&D centers are pulling people away from state-owned enterprises in the defense sector.

MR. BITZINGER: Yes, that's a really good point, and just let me echo that. One of the things that's going to really have a major role to play in the ability of the defense industry to suck away some of these Western trained people is are they going to be able to provide the proper amount of rewards and incentives?

And barring, like I say, any major structural reforms in the defense industry, which I like to say, to repeat myself, I have yet to see. I still find that's going to be hard for them to do.

To echo some of the things that Roger said, yes, the shipbuilding industry has done quite well, in part because military shipbuilding is now so imbedded in what is basically a commercial shipbuilding industry. You buy 500 ton ship cranes, they can be used for both commercial and military purposes. Welding facilities, outfitting facilities, et cetera, et cetera, are also pretty interchangeable.

If you look at the aircraft industry, in China this is basically littered with the bones of failed joint ventures going all the way back to the MD-80 Trunkliner program and the AE-100 program that actually was going to be with Airbus.

So I'm still a little skeptical whether or not Airbus would actually follow through on a final overall manufacturing. It still might end up being that these people basically doing OEM [original equipment manufacturer] type of manufacturing, and a lot of the real important skills will still be black-boxed and kept from the Chinese, and with regard to the transferability, it's really going to be hard to say.

COMMISSIONER WESSEL: Thank you.

VICE CHAIRMAN BARTHOLOMEW: Thank you. I'll ask a couple of questions myself, starting with Mr. Bitzinger. I'm always struck still by Secretary Rumsfeld's comments that was on intelligence that we know what we know and we know some of what we don't know, but we don't know what we don't know, and I wonder how you reconcile what seems almost, and forgive me if I mischaracterize your views, a benign view of what we don't know about some of this stuff, and therefore it's probably not happening with things like the fact we were surprised by the 093 and the 094.

MR. BITZINGER: Well, I don't know. You knew that was coming. I'm sorry. No, you're right, you're right. I don't want to give you the impression that I've come to some kind of precognitive closure and I refuse to take in new evidence.

I guess what I'm trying to say is that, yes, there's a lot of stuff we don't know, and we should never stop looking. I think that looking at Chinese military modernization and modernization of the defense industry should continue to be a major focus, particularly of our intelligence community, and we should, we really want to keep our eyes open.

What I'm happy to say, though, is that I think that we may have some elements of *tactical* surprise, like, yes, the Type-093 submarine or this new Yuan-class submarine, but I don't believe it necessarily leads to a *strategic* surprise and that therefore we get caught with our pants down and then we have to worry about the inability to be able to be able to come up with countermeasures of this.

To echo something again that Roger said, it's obviously imperative upon the United States to maintain our own stalwart R&D and production capabilities.

So I don't want to give the impression that I'm not concerned, I'm not worried, I'm not watchful of the Chinese, I'm just not ready to be too alarmed at some of the things I'm seeing.



VICE CHAIRMAN BARTHOLOMEW: Okay. And then a question for all of you. Two parts, one of which is the Chinese economy is still a command economy. As we try to sort of grapple with the nature of commercial businesses that they're doing versus defense businesses, it's my understanding that even with the, quote-unquote, "purely commercial companies," there has to be Party officials on the boards of directors, and it's the Chinese government's ability direct some of what the commercial companies are doing that I think raises some of the concerns.

The second piece of it is we heard from Secretary Perry last year when we were out at Stanford doing a hearing that one of the issues, both for our defense industries here at home and also for our own innovation, the future of our innovation economy, is the fact that so many of our companies are focused not on basic research anymore but on product development.

I wondered if you could talk about either of those issues? Is this an issue that's happening in China? Is there more focus on basic R&D? Is there focus on product development that's going on and how do we reconcile the apparent freedoms of these commercial companies with the fact that Party officials sit on the boards?

DR. SEGAL: Well, I think we have to differentiate between the size of the company and the apparent importance of it. Clearly, having Party members on the board for CNOOC or some other large company I think has a greater degree of importance than a lot of these smaller technology companies where quite honestly those companies are begging--they would like to have more government attraction and attention.

Their problem is gaining access to money and resources and bank lending is still politically driven, and so even if they are a Party member, they still feel that they're not getting the support that they need, but clearly a company like Huawei, they're not going off on technology tangents that have not been seriously considered at all levels.

I think the question about basic R&D again you have to differentiate certainly on the government side, the government R&D research institutes, and then commercial companies. Commercial companies in China are doing very, very, very little basic R&D, much less than American companies.

Most Chinese companies are spending very little on any type of R&D. Huawei stands out because it's about ten percent. Nobody is really sure if that number is just made up or if, in fact, it represents anything. But the average is about 2.6 percent of sales on R&D and none of that is going to be basic. It's going to be all development and commercialization.

On the government side and state run research institutes, clearly more and more resources are going into R&D. The goal is to get up to 2.5 percent of GDP by 2020 so by next, by 2006, it will be about 140 U.S. a year in R&D, but again the problem with basic R&D is bureaucrats want to see outcomes, right. Policy planners want to see outcomes and basic R&D, there may not be any outcomes for a while and so I still think the greatest percentage of that money is in applied, not in basic.

VICE CHAIRMAN BARTHOLOMEW: Dr. Cliff.

DR. CLIFF: Yes, just to add a couple of things to that. First of all, on the presence of Party members on the boards of companies and so on, again, going back to some of the things Adam was saying earlier, most of, up until recently, all of China's defense production was by the state-owned defense company. So they were state-owned, Party-run from the beginning. What's changing now is they're starting to bring in some

non-state owned or at least state-owned companies that are nominally civilian, and so to me, whether or not there are Party members on the boards of those companies is kind of at the margins anyways.

What is significant is the amount of resources that the government directs to defense R&D, and Adam was talking about the 863 Plan, but I've, in some other work I've done, I've discovered if you add up all of China's officially acknowledged government-sponsored R&D programs and compared that number to the amount that the government says is spent on government sponsored R&D, it's only about 40 percent.

So about 60 percent of it is completely unexplained, and the assumption that I would have is that that's all going to defense R&D, and that's really, that's where you should be looking if you're concerned about defense related commercial R&D, and that's probably all done by the known defense companies and their associated research institutes.

On the R&D, as Adam said, a lot of the R&D is, the defense industries do a lot of R&D. Traditionally, the problem has been that the R&D institutes are separate from the production enterprises, so the R&D institute gets tasked by the central government to develop a certain technology. They develop it, throw it over the wall to the production guys and say here's the plan, go make it, and that has been a barrier that has existed.

What's happening now is those barriers are starting to break down, and the R&D institutes are becoming more closely integrated. So, yes, there is a lot of R&D, defense related R&D that goes on in China, probably much more than we've suspected in the past, and that is getting more closely linked to actual weapon system development and production in China.

VICE CHAIRMAN BARTHOLOMEW: Thanks.

DR. SEGAL: Just one extra point is that I don't know the specific point that Secretary Perry was making, but there was a great deal of concern that in the U.S. we weren't spending enough on basic R&D in the physical sciences, and it was clear, it's clear the Chinese are thinking a lot about interdisciplinary research at what may be the cutting edge of nano, bio and IT, so it may be that the focused money there is extremely important.

But with the president addressing of this question in the State of the Union, it may not be as big an issue as we thought it was going to be two years ago.

VICE CHAIRMAN BARTHOLOMEW: Interesting. Thanks. Mr. Bitzinger.

MR. BITZINGER: Yes. Well, Roger actually said everything I was going to say about the Chinese so good for him on that. I would just simply say this about the U.S. is I'm not necessarily downfallen about what's going on in the U.S. when it comes to R&D and S&T.

Just looking at the defense side of what we're spending on R&D in this country, this has gone up pretty amazingly under the current Bush administration, such that we're almost spending as much on military R&D as we are on procurement every year, and if you look at our R&D budget, it is five times what all of Europe is spending on military R&D, and if you look at our S&T budget like DARPA and homeland security S&T, this is still pretty healthy I think.

Of course, it's supplemented by a large amount of money that is being spent in the commercial sector on R&D as well. I suppose you can always argue about doing more,

and directing it to the right places, but I certainly think that the United States has got the wherewithal to put enough resources into this to be able to get the job done.

Thank you.

VICE CHAIRMAN BARTHOLOMEW: I think the point that Secretary Perry was trying to make, though I shouldn't put words in his mouth, was about investment in basic research, too. That so much of what is happening in this country, what our companies are doing, is they are focused on product development and the kinds of innovations that we have had in the past have come out of basic R&D, which you're right, you never know if you're going to get something out of it or not. So I think that was the point that he was trying to make.

Commissioner Mulloy.

COMMISSIONER MULLOY: Thank you, Madam Chairwoman. Thank you all for being here. This has been great. I've learned a lot. I want to just read something that Dr. Cliff put in his testimony on page three, follows up on the point that Commissioner Wessel was interested in, about the defense industries are benefiting from the rapidly increasing technological capabilities in China's broader economy and the improved knowledge of China's scientists, engineers and managers.

Dr. Segal, you make the same point on page 1 of your testimony that some of this improvement in high technology is brought in by the foreign investment community.

Then on page three of your testimony, Dr. Segal, you talk about the Torch Plan, which was initiated in May of 1988, to build these high tech science parks, and we went through one of those in Beijing last August, and they're really breathtaking in the scope of what is going on, and you mention that there are incentives in these parks to bring in the R&D and to attract it. So it's not just a market going on here. There are other things going on.

I was struck in a Wall Street Journal article on Tuesday, a big article on the front page about R&D moving out of the United States to China. For me, I'm worried about when we've got an \$800 billion current account deficit, increasing at quite a rapid rate, about what this means for us as a nation, and then the loss of these high tech jobs and what they mean for our tax base to pay off both that and our domestic budget.

Do you see any policies if the United States did not want this happening? How do we incentivize our corporations not to be doing this? Secondly, you talk about the increasing number of Chinese students who have been paid for by sometimes I think U.S. taxpayers to get a good education here in science and technology, that they're going back--more and more of them are going back home.

I expect there are some incentives involved in that as well. So I just wanted to get your view on those two issues and then see if either of you others want to comment on those points?

DR. SEGAL: Thank you. It's clear that tax incentives, breaks on water, office space, all of these play some role in foreign multinationals deciding to shift their R&D to China, but in most surveys, in fact, it is one of the least important factors.

In fact, the Kauffman Foundation just did a study maybe three weeks ago, and number one was access to talent. Number two strangely enough was university-industry collaboration. So companies wanted to have access to professors and to have a kind of very vibrant ecosystem of collaboration. Number three was access to the local market, and incentives was very low, maybe six or seven.

So I think it's clear that making the R&D tax break permanent is a move in the right direction. There are some things to do in that area, but I don't think this is a big factor. I think what's most important are some of the things that the president had already started by doing, which is ensuring the continued enrollment of Americans in universities in science and engineering and then also things we can do about business creation around universities, helping foment this kind of collaboration, these ecosystems that we've grown very dependent on in Silicon Valley and Route 128.

So I think the policy tools are much more kind of the things that we've always done to encourage business and business creation, not necessarily these things focused on tax incentives or incentives for location.

There are clearly incentives for Chinese to return. Cities like Shanghai and Beijing, if you are returning to set up your own company, again, you get office space for free for three years, you get tax breaks, you get all those other incentives.

I think on the U.S. side, part of it is opportunity as well. I think that's a harder thing to compete with is that--a similar thing with Indian scientists now. There's a sense that you can go home and make your own business and be close to your family and be in a culture you're comfortable with and so policy I don't think is going to play a large role in that.

Clearly we've made some improvements on getting visas for scientists and making it more comfortable when they get it. I think going further than that clearly would make things better. We have to be worried about espionage and spying, but I think some of the controls on deemed exports and what scientists are going to have access to in the United States might be counterproductive, may make it more likely for scientists to return home. But clearly that's the balance that has to be worked out.

I think long term, again, it's not a specific policy, our greatest strength is that people want to be here and they want to stay. So for the Chinese scientists and Indian scientists that want to stay and set up companies, we should make it as easy as possible.

COMMISSIONER MULLOY: Thank you very much. Does anybody else have a comment? Dr. Cliff?

DR. CLIFF: Let me just add a couple of quick points. I think a lot of what we're seeing with the phenomenon of, first of all, U.S. companies setting up R&D centers in China and the Chinese former students in the U.S., who have worked in U.S. companies or gone to graduate school here, going back to China, is a result of really increasing quality of education in China, which at their own universities are turning out much better graduates now, improving standards of living and quality of life in Chinese cities so that a Chinese person now actually can live comfortably back in China, and so it's going to be very difficult to prevent those things.

While those people are in the U.S., although they may contribute to China's technological advancement in the future, while they're here, they're making a huge contribution to the U.S. innovation and technological progress, so I think it's not clear to me what the balance of that is in crafting policies. As Adam said, it would be very difficult to collect one type of person and not the other.

The other thing is, is if they don't come here, they will be going somewhere else. They'll be going to Europe and so on, and so the question is it's hard for the U.S. by itself to isolate China.

The final point is over the long term, is that something that's really in our strategic interest? If we had a more restrictive policy toward China, will that exacerbate tensions between the U.S. and China in the future or, and will it make it less likely for China to be a country that's friendly towards the U.S.?

I don't know what the answers to all those questions are, but I think those are all considerations that have to go into it.

COMMISSIONER MULLOY: Thank you.

VICE CHAIRMAN BARTHOLOMEW: Great. Thank you. And with the forbearance of our panelists, Commissioner Blumenthal has some questions, and we have a couple of follow-up questions. I don't know how your schedule is. We're actually running a little bit over. If you guys can stay for a little while and our next panelists don't mind the fact that we might bleed into their time just a little, we can carry off.

Commissioner Blumenthal.

COMMISSIONER BLUMENTHAL: Thank you very much to all of you. I'll make my questions brief. And that's on the question of education and personnel within the defense industrial complex, let's call it, because we're still talking about the GAD and COSTIND more than some of the smaller private defense industries. I'm wondering if you've seen or can track changes in a guy going into the Chinese military, where a career track that is attractive and can really make a career in issues of acquisition and technology, R&D. I know that we see a lot more Chinese officers being trained at civilian technical universities.

Is it something that we can see and track both the changes in education and the personnel system because it does sound still, even though Dr. Segal mentioned or somebody mentioned that eventually the defense industry, if there is a real defense industry, it's going to have to have the right incentives for people to join. In terms of the military track, are we seeing substantial changes in the way that you can make your career and make a very good career in the way that we see here?

A related question is, are they following a particular model of a defense industrial complex? Are they looking at us very carefully? Are they trying to create this kind of flow back between military officers who have been in the field and then go out and work in the defense industries? So those are two interrelated questions.

MR. BITZINGER: I wish we had information on that. I've never seen any data, particularly on like turnover in the defense industry, because that would be an interesting thing to look at to see how much hiring are they doing now if they're over-capacitized in the first place, and how much are they doing the training to try and bring people up and everything on the civilian defense industrial side?

On the PLA side, about professional training, I really am not qualified to talk about that. Sorry.

DR. CLIFF: Just a couple of data points. The Chinese, I don't know if it's true or not, but the Chinese self-reporting on the civilian defense industry side is that conditions have improved, that the very high turnover rates that they experienced in the 1990s have diminished and now you have people staying on, turnover rates have fallen back to normal levels that they're able--

COMMISSIONER BLUMENTHAL: You're talking about the GAD or COSTIND?

DR. CLIFF: I'm talking about the defense industries on the civilian side. Again, I don't have a lot of information on military side. The one thing on the military side is they have started to hire people or to recruit people who have graduated from civilian universities, and that's something--that's a recent change in the last couple of years.

It used to be all officers were trained exclusively in the Chinese military educational system, and now they are taking university graduates, like an ROTC program, and they're willing to take them in and train them and put them as officers in the Chinese military, and that is at least something that's new.

COMMISSIONER BLUMENTHAL: Have you seen them go into the fields of technology and testing and acquisition or--

DR. CLIFF: I think that's where the emphasis has been to try to get people with technical training as opposed to people like political scientists like me. I think the idea is to try to recruit people who have received technical training outside of the military system.

MR. BITZINGER: Let me just make one point to what Roger said. If it's really true that turnover in the defense industry has gone down, that's just as bad as having overly high turnover.

Overly high turnover is usually an expression of discontent and disaffection, but low turnover is often a case where you're not bringing in a lot of fresh blood into a system or you're not encouraging the deadwood to leave or something like that. So I don't know if that's good or bad.

DR. CLIFF: What they say is they're able to attract--university graduates are now willing to go work for the defense industry. What's less clear is the degree to which they're hiring people out of civilian industry into the defense industry because those are the really valuable people, people with managerial experience or technical experience in cutting-edge civilian industries. I don't have any data on that.

VICE CHAIRMAN BARTHOLOMEW: Excellent. Commissioner Wortzel and Commissioner Donnelly both have follow-up questions. I think they will make them brief.

CHAIRMAN WORTZEL: I'll make it as brief as I possibly can, but I want to pushback a little bit on all three of you on mobility within industry. First of all, it's a command economy. You don't just pick up and say, "I don't like Norinco, I'm moving over to the Fourth Aviation Industry." The Communist Party runs your dossier.

Second, when you look at Caijing (Finance and Economics) that the Chinese publish on their business practices, when you look at case studies in Harvard Business Review, when you look at Jim McGregor's *One Billion Customers*, what strikes me is that excellent managers who have come from China and are working in Western or American companies, that go back to Chinese companies, or who are working in Western companies in China and move laterally, revert to authoritarian Party-structured hierarchical command management when they get back in that culture.

That flies in the face of what you guys are arguing, that there's going to be this huge sea change in how China's industries perform. So I guess I'd ask you to respond to that.

DR. SEGAL: On the commercial side, I think there is greater flexibility. Even with your dossier, there are a lot of ways of people getting around it, taking it with them.

If you look at turnover in software in IT companies in Shanghai and Beijing, I think it's a different system. I won't speak about Norinco. I think you're exactly right there.

I think it's an excellent point. Right. The incentive structure is in large part determined by what type of firm it is. Management skills are either thwarted or in some cases supported by the structures there and in some ways in my written testimony the doubt I have about the Chinese being able to create this innovation system comes from an inability from a top down system to say, all right, for tomorrow everyone is going to be innovative and then the day after, let's all get back to following Party commands.

I don't think until they really have a true systemic reform that includes political issues, they're really going to be able to create a truly innovative system. But I think we are talking about, even if they are in a much more restricted environment, they're still bringing in a set of skills and knowledge and networks that they didn't have before. So are they now Western managers in a Chinese company? No. But do they still have a greater skill set? I think probably.

MR. BITZINGER: Really quickly, I think you hit the head on the nail, sir. In fact I think this is the fundamental thing that the Chinese have to reform if they really want to have real meaningful reform in the defense industry, and that is, they've got to change the corporate culture because this is fundamental to all the other changes they're going to make.

As long as it's a system which is basically one where you're held in this big giant warm embrace and everything is taken care of, and also if you look at the fact that a lot of these industries are rather isolated in their own little pockets, if you're working for Chengdu Aircraft Corporation, if you want to pick up and go somewhere else, to Shenzhen, you've got to go thousands and thousands of miles and probably leave family and friends behind and things like that and I don't think people would want to do that.

So I think this is going to be a real, this is *the* fundamental reform that needs to be done, and I think it's going to be the hardest to do, and I think it's also the area where I see the least being done.

If I can just add, I know I criticize anecdotal evidence, but I just love the one anecdote that somebody told me, which is back in the early 1980s when McDonnell-Douglas actually contracted with I think it was Chengdu to build nose sets for MD-82s, and they said as long as the American manager was there, they did a great job, but if he went off on vacation, then the quality control slipped back to the usual. So it took a long time for them to finally get that inculcated into the workforce.

Thank you.

VICE CHAIRMAN BARTHOLOMEW: Dr. Cliff, did you have something to add? No?

DR. CLIFF: I was going to agree with everybody, so--

VICE CHAIRMAN BARTHOLOMEW: I'm just going to take the prerogative of the chair and make two comments and then we'll have Commissioner Donnelly complete one. Mr. Bittinger, my former boss used to say the plural of anecdote is not data. I think one or two anecdotes is just fine. It's just when we try to draw large conclusions out of it which many people do.

But it seems to me the point on command economy, the concern of the question about command economy is not that people say tomorrow you will be innovative, but that there's the possibility and the ability of the Chinese Party structure to say to a commercial

company even tomorrow you will take your innovation and focus it on Project X or Project Y or this pillar of what's going on.

It seems to me that's one of the pieces that is still missing in our understanding of that interrelationship between the commercial and defense sectors.

DR. SEGAL: I think for the vast majority of firms that just doesn't happen. When I first went to China to do the research for what eventually became my book, that was the question I wanted to ask basically because so many of these small companies that had first started out, the people that started these companies had been student dissidents in Tiananmen, and they had been so involved in anti-state activities that it kind of boggled my mind. What was the state going to do with these people if it wanted to develop one type of technology, but they went off in a different direction.

And very badly, I asked a question of all these people that I met with, and they looked at me with disbelief because as I said earlier, they feel like they don't get enough government attention. All right. What they want is access to money; right. That's their biggest concern, and to get that they need some official, maybe a local official, maybe a provincial official to pay them attention.

So they're all struggling to get that. Now, Huawei, there may be three or four big exceptions to that, where they clearly are at a level of critical technology and innovation, but the vast majority of firms, they're looking at direction of the state. They're clearly reading signals, but I don't think in this case command economy is the exact description we want to use.

Clearly, it's still state-owned and state directed, but I think actually a lot of them would prefer it was more directed and commanded.

VICE CHAIRMAN BARTHOLOMEW: Commissioner Donnelly.

HEARING COCHAIR DONNELLY: Thank you. I will be brief and pose a very narrow question which is really a follow-on to my initial question I want to know if we have any information about the increasing ability to upgrade and to extend the life of current weapons platforms the way Americans do? You know, an F-15E is very different from an F-15A.

Do we have any information or data about again both extending the life and upgrading the capacity of current weapons platforms?

DR. CLIFF: In terms of extending the life of a particular design, the Chinese are probably the world masters at that. They're still building MiG-21s, but whether or not, if you're talking about a particular airframe--

HEARING COCHAIR DONNELLY: How does that compare to the original?

DR. CLIFF: It's much better, but it's still a MiG-21. They've been very good at that. If that's what you're talking about, yes, they've done that, but you're always going to be limited by the fundamental design parameters of that aircraft.

If you're talking about extending the lifetime of a given airframe, I don't have any data on that.

HEARING COCHAIR DONNELLY: I think particularly about the aircraft and destroyers, for example, acquired from the Soviets, which might, are obviously more modern designs than a MiG-21 so to increase their capacity as a residual benefit decades and decades from now which obviously you could never get from a really ancient design?

DR. CLIFF: I think there is some potential of that for them to upgrade the avionics and so on. There's been talk about replacing the engines on the flankers that



they've been coproducing with Chinese built engines at some point, and so, yes, that's a possibility.

But I would say that's really been a trap from them up until now, that they've been trapped in past designs and unable to modernize the underlying design.

MR. BITZINGER: Let me just say, the analogy I always like to use is you could turbocharge a Model T, but what do you really get out of it? You get a faster Model T.

You can put a new radar and a new engine in a MiG-21, but the radar is still going to be constrained by the size of the area that you can put in there. So, for example, there's limitations to what you can do with the avionics upgrades.

Now, they've done certain things like the new JH-7 fighter bomber, well, not particularly new, but they've upgraded this thing with navigation and targeting pods so it gives probably an improved capability for ground attack. There are things that you can do to the equipment, but there are also limitations, and after a while it just becomes kind of a false economy to try and upgrade old systems. Instead, you want to put your money into something new like a J-10.

HEARING COCHAIR DONNELLY: I would just say that converting a tactical aircraft from a real fighter to a strike aircraft makes a huge difference.

VICE CHAIRMAN BARTHOLOMEW: Excellent.

DR. CLIFF: That's the type of thing that they can do. The other example is the A-5 attack aircraft which was basically a modified MiG-19. That was something they did quite some time ago, but that's something they can probably do in the future with their flankers, although it looks like, right now, it looks like they're just negotiating directly with the Russians to be able to build--

MR. BITZINGER: And to buy SU-30s.

VICE CHAIRMAN BARTHOLOMEW: Excellent. Thank you very much. Thank all of you for your patience and your wisdom and your advice to us. We look forward to having more contact with you.

We're going to take a five minute break and then we'll move to our next panel.

[Whereupon, a short break was taken.]

## **PANEL V: FOREIGN MILITARY ACQUISITIONS AND MILITARY-TECHNICAL COOPERATION**

VICE CHAIRMAN BARTHOLOMEW: Let's get started again. Thank you, gentlemen, for your patience. We really appreciate your willingness to listen to the previous panels and to offer your thoughts to us.

This panel is on foreign military acquisitions and military-technical cooperation, and we're pleased to have Rick Fisher, who has come and testified in front of us before, who is the Vice President of International Assessment and Strategy Center, and Dr. Bernard Cole, a Professor of International History at the National Defense University.

Welcome. Dr. Cole, do you want to start?

**STATEMENT OF DR. BERNARD D. COLE  
PROFESSOR, NATIONAL DEFENSE UNIVERSITY**

DR. COLE: Certainly. Thank you. I'm honored to have been asked to participate in today's hearing. This is the third time I've had the honor. I consider myself still to be a student of China's military, as I try to continue to learn about their capability.

In that light, let me note some difficulties I think we all have in assessing China's military equipment, budget, infrastructure and capabilities.

First, I'll note the difficulties posed by language. Those of us without fluency in Chinese are forced to rely on translations and obviously this can lead to various interpretations. Another factor we have to bear in mind is just the dynamic nature of Beijing's military modernization efforts. It's very much a moving target, a target that's not always being tracked accurately by the Chinese themselves.

I'll also note the secretiveness that's so inherent in the People's Liberation Army. I think frankly they have such a sense of secretiveness that it sometimes hinders their own efforts and it certainly does make it more difficult for us to assess their capabilities, and as so many administration officials over the last several years have emphasized, it causes a lot of problems in the long run, not only for us in the international arena, but for China as well.

Nonetheless, obviously questions of military capability are questions we have to continue to pursue because they're so important to our own well-being and future of ourselves and our friends and allies in East Asia.

Let me start by noting that during the last decade and a half or so, China has been building a new navy which we call, of course, the People's Liberation Army Navy or the PLAN.

Let me just offer a couple of remarks before I turn to the five questions that I was provided before today's hearing, that in the near term at least, this new navy China is building is intended to deter, intimidate and if necessary attack Taiwan.

But I don't think China is going to decommission the navy once the Taiwan issue is resolved, however it's resolved. They're not going to tie it up. It's not going to go away and I think we have to anticipate how to deal with the question of what next for the PLAN, what next for the PLA, after Taiwan?

I am engaged in two U.S. government studies right now which are looking at that very question in connection with other issues. That is what is China's long-term goal for its military in East Asia and really around the world?

Turning more to the issue today of foreign technology and technical assistance, let me note that I think it's very significant that Beijing is drawing on both indigenous and foreign sources of material, technology and expertise at the same time.

What they're aiming for is a military that will be able to operate successfully in the 21st century, and I think the goal against which they're measuring the prospect is the United States military, not that they intend building a military that's able to go one on one against us, but nonetheless I think we provide the goalposts.

While China is expanding domestic shipbuilding and other capabilities, it's also buying expensive component systems and indeed complete combatant platforms from foreign suppliers.

I hope that I can contribute something to the commission's understanding of the second factor, and let me turn now to the five questions that were posed.

First is, quote: "What quantity and quality of equipment and technical support is China receiving from foreign nations?"

Beijing has long obtained military equipment from foreign sources, certainly going back to 1950 when the first Soviet naval delegation arrived. This has included outright purchase, covert purchase through front organizations or third-party nations, and even theft via espionage.

Technical expertise has been similarly obtained including that through national level agreements, corporate cooperation and probably individual contacts.

Beijing is continuing to pursue all of these routes. Military equipment and expertise has been obtained primarily in the past from the Soviet Union and its Cold War era Warsaw Pact allies, but the United States, Israel and various Western European nations have also been sources of military systems at various times.

Detecting, tracking and understanding the effects of such equipment and technical expertise transfers is much more difficult today than it was previously I'd submit due primarily to the increasing dual-use character of the elements of science, technology, and engineering that contribute to both nominal civilian and military systems.

Computer technology may be the best such example. Even when a technological advance or a piece of equipment is suspected or known to have military applications, it may also have legitimate civilian design and usage which complicates controlling its transfer with post-transfer employment even more difficult to track.

China is still obtaining the vast majority of its foreign purchases of military equipment and technology from Russia with former Soviet states such as Ukraine providing specific important systems. The latter has been the source of China's acquisition of the Soviet-designed Shkval torpedo, for instance, and as well as the most recent marine gas turbine engines purchased by China.

I think that the most important or most effective military capabilities being acquired by China, especially given the inherently maritime nature of the East Asian region, is its already capable and growing submarine force.

China's current inventory of attack submarines is formidable and growing more so. The most capable, the newest boats being built by China, the nuclear-powered attack and fleet ballistic missile submarines, are almost certainly being built with extensive Russian engineering and technical expertise including Russian designed nuclear power plants.

Israel has continued to supply some equipment while some of China's newest guided missile frigates are powered by German designed diesel engines. These, however, may be the product of diesel manufacturing plants built as joint ventures before the imposition of sanctions following the 1989 Tiananmen Square massacre.

This is a demonstration of the nature of dual-nature technology. There are also reports of China equipping its new indigenously produced family of SONG class submarines with French sonars, more likely than transfer of the sonar itself is the transfer of French technology, ceramic engineering perhaps, and engineering methods in producing these systems.

This again illustrates the complexity of technology transfer. Chinese warships that we're seeing emerge today are equipped with many systems of foreign design

including in the past Italian designed torpedo tube systems firing American torpedoes, French anti-air warfare systems, tactical command systems, and helicopter designs.

In other words, the entire phenomenon of technology transfer and acquisition from foreign sources continues today to fuel Chinese military modernization, particularly with respect to naval expansion and aircraft expansion.

I won't take the time here to try to list all of the systems that are so involved. My colleague Rick Fisher here does an unparalleled job in compiling that data that fuels analytic attempts by me and others who try to observe the Chinese military.

As far as deliberate transfer of technology by our NATO and European Union friends, I have certainly seen no evidence that this is consciously occurring, but I do believe that based on the profit motive and the availability of hiding, if you will, behind dual use technology that I can rather cynically observe that such transfer is certainly occurring.

Let me also note that I'm sure that if the post-Tiananmen Square sanctions were lifted, that not only would we see an increased flow of military technology and even complete systems from European nations, but also from American manufacturers who might see an opportunity there to increase their profit margin.

Let me stop there to allow maximum time for questions and turn the floor over to Mr. Fisher.

[The statement follows:]

**Prepared Statement of Dr. Bernard C. Cole  
Professor, National Defense University**

[This statement represents only my own views and may not represent those of the National Defense University or any other agency of the U.S. government.]

I am honored to have been asked to participate in today's public hearing of the Commission. This will be my third appearance before this distinguished panel and I always approach these events with some trepidation because of the expertise of panel members such as Dr. Larry Wortzel, who continues to serve as a de facto but important teacher as I continue to try to learn about Chinese national security capabilities and infrastructure. I also want to note some difficulties in assessing China's military equipment, budget, infrastructure, and capabilities. Those American observers who profess to know with certainty China's military capabilities and intentions should be viewed with skepticism. Among the difficulties facing analysts of the PLA are, first, the difficulties posed by language; those of us without fluency in Chinese are forced to rely on translations and this can lead to different interpretations. Another factor we must bear in mind is the dynamic nature of Beijing's military modernization efforts; it is a moving target. Finally, we face the secretiveness that is the goal of the People's Liberation Army (PLA), a secretiveness that also evidences itself internally: several years ago I asked the Shanghai Naval Garrison Commander how many surface combatants were then operated by the PLA Navy, or PLAN. He professed not to know the exact number, and indeed he may not have known. Even today, I can name several sources of information about relatively simple issues concerning the PLAN, how many submarine squadrons that navy includes, for instance, and find several different answers. But these are questions that we must continue to pursue, for they are important elements in our attempts to try to gain an understanding of Chinese military capabilities and intentions.

*Introduction*

China has designed, built, and deployed navies during several periods of its long history. Historians are familiar with the maritime prowess of the Yuan and especially the Ming Dynasties, for instance. The latter

regime in the early 15<sup>th</sup> century dispatched the Muslim Admiral Zheng He on a series of far-ranging voyages that reached at least to the east coast of Africa and the Persian Gulf. These navies typically were allowed to deteriorate into ineffectiveness following their accomplishment of specific national missions.

During approximately the past decade and a half, China has again been deploying a modern, capable navy. The People's Liberation Army Navy, or PLAN, of the 21<sup>st</sup> century appears to be of a different character than its predecessors.

First, the navy China is currently expanding and modernizing is, in the near term, almost certainly being designed to deter, intimidate, and if necessary attack Taiwan. But almost certainly, contrary to what happened during past dynasties, China is not going to decommission the PLAN once the Taiwan issue is resolved. Hence, the assessment process for the new Chinese navy currently under development must deal with at least two strategic levels of analysis. The first of these is the capabilities, strategy, operational intent, and tactics envisioned for a Taiwan scenario. The second may best be framed as "what after Taiwan for the PLAN"? In other words, THIS navy represents something of a break with traditional Chinese military developments.

Second, Beijing is drawing on both indigenous and foreign sources of material, technology, and expertise as it attempts to build a combat-effective navy for the new century. Late 19<sup>th</sup> century China drew on foreign sources during naval modernization efforts, but today's effort appears far more coherent and carefully planned. And while China is expanding domestic shipbuilding facilities and weapons systems development capabilities, it is also buying expensive components, systems, and complete combatant platforms from foreign suppliers.

Assessing this second factor is the subject to which I hope I may contribute today, in particular by responding to the five questions posed to me before today's hearing.

The first of these is "what quantity and quality of equipment and technical support is China receiving from foreign nations"? Obtaining military equipment from foreign sources is not new for Beijing, as indicated above. This has taken several forms since 1950, including outright purchase, covert purchase through front organizations or third party nations, and theft via espionage. Technical expertise has been similarly obtained, including through national level agreements, corporate cooperation, and probably individual contracts. Beijing has continued all of these routes into the 21<sup>st</sup> century. Historically, military equipment and expertise has been obtained from a range of countries, including the Soviet Union, Cold War-era Warsaw Pact states, the United States, Israel, and various Western European nations. Detecting and analyzing such transfers of equipment and technical expertise is much more difficult today than it was in previous decades, due primarily to the increasing dual-use character of the elements of science, technology, and engineering that contribute to both civilian and military systems. The universality of computer technology is perhaps the best such example. And even when a technological advance or piece of equipment is suspected or known to have military applications, its legitimate civilian design and intended use complicates controlling its transfer, with post-transfer usage even more difficult to track.

Today, China is obtaining the vast majority of its foreign purchases of military equipment from Russia, with former Soviet states such as Ukraine providing specific, important systems. The latter has been the source of China's acquisition of the Soviet-designed *Shkval* torpedo, a system originally intended as an anti-aircraft carrier weapon armed with a nuclear warhead and designed to take advantage of the principle of hydrocavitation to travel at very high (~200 knot) speeds. I suspect the Chinese have bought the *Shkvals* not to employ them in their original design, but rather to reverse engineer their most advanced technological features for newer, more capable weapons. Ukraine has also provided China with gas turbine engines for its newest warships.

Beijing continues to obtain many state-of-the-art weapons and sensor systems from Moscow. I will not attempt to present a complete list of these equipments, which increasingly form the core of the PLA Navy and Air Force, but note first the Su-27 and Su-30 tactical aircraft, and the advanced sensor and weapons systems with which they are equipped and armed. Russia also supplies the Chinese Navy with its most advanced, capable helicopter, the Ka-family of shipboard, multi-mission helicopters. The Chinese Navy

has acquired four *Sovremenny*-class destroyers armed with the world's most capable anti-surface ship cruise missiles, the SS-N-22 ("Sunburn") and follow-on missiles, the SS-N-26 ("Yakhont") and SS-N-27 ("Club") series. Russia also provides the anti-air warfare weapons and sensors with which China is equipping its newest warships.

Furthermore, Beijing continues to consider purchase of long-range, nuclear weapons-capable strategic bombers from Moscow; the Tu-160 ("Blackjack") and Tu-22 ("Backfire") aircraft are sometimes mentioned in press reports. Additionally, China has acquired more than two dozen of the Russian-produced Il-76 family of airframes, aircraft used for transport, aerial tanker, and "AWACS" missions.

I think that the most effective military capabilities being acquired by China—especially given the inherently maritime nature of the East Asian region—is its already capable and growing submarine force. China's current inventory of attack submarines includes dozens of old, conventionally powered Romeo-class submarines, based on a Soviet design. These boats are reaching the end of their useful life, but are being replaced with far more capable submarines, both conventionally and nuclear powered. China has acquired a dozen *Kilo*-class submarines from Russia, and there is no announced end to that supply line. The *Kilo* is one of the world's most capable attack boats, especially when armed with the anti-ship cruise missiles noted above. China also has underway a program to build a number of nuclear powered attack boats and ballistic missile armed submarines. These are almost certainly being built with extensive participation by Russian engineers and technicians, taking advantage of Russian-designed maritime nuclear reactors for propulsion.

Israel apparently has also continued to supply some equipment, with the recent "Harpy" incident fresh in mind. The J-10 fighter currently under production in China also appears to draw on Israeli "Lavi" technology, which in turn appears to draw on the U.S. F-16 fighter aircraft.

Some of China's guided missile frigates are powered by German-designed diesel engines, but these may be the product of diesel manufacturing plants built as joint ventures before the imposition of sanctions following the 1989 Tiananmen Square massacre. This demonstrates the nature of dual nature technology. There have also been reports of China equipping its new indigenously-produced family of *Song*-class submarines with French sonars; more likely is the use of French technology and perhaps engineering methods in producing these systems. And this illustrates the complexity of technology transfer, which does not necessarily involve the acquisition of complete, recognizable systems. The 1990s generation of Chinese warships are equipped with many systems of foreign design, including Italian-designed torpedo tube systems firing American torpedoes, French anti-air warfare systems, tactical command systems, and helicopter designs, American electronic warfare/decoy systems, and two are powered by U.S.-supplied gas turbine engines (provided before the 1989 sanctions). And Great Britain continues to provide jet aircraft engines to the PLA Air Force.

The second question posed by the Commission is "which foreign nations provide weapons systems and other military support to China, what is the level of assistance being provided, and how successful has China been in integrating the new weapons into its forces"? These points are addressed in part above, but I want to make a few remarks on the most important point in this question: "how successful has China been in integrating the new weapons"? As a former naval officer who served on surface combatants and aircraft carriers, I think that the issue of integration is the key point in assessing PLAN capabilities. A colleague of mine, retired Rear Admiral Eric McVadon, made the point several years ago that one of China's newer warships, the *Luhu*-class, incorporated approximately three dozen systems of foreign origin. Operating a ship with this complexity poses very difficult supply, maintenance, and training challenges, as I have heard first-hand from China's naval officers. But the PLAN has been successfully operating these ships for many years. I assume then, that while integrating diverse systems onboard a single ship remains a significant challenge for China's navy, it is one that is being met.

At the next level of operations, between and among different surface ships, submarines, and aircraft, indeed between the different military services, integration remains the most difficult challenge for China's military as it does for any operational force. Here, China is also making progress, as evidenced in open-source reports of naval and air exercises, but remains far behind the integrative operational capability of U.S. and allied military forces. But the challenge is recognized by Beijing and strong efforts are being made to

attain the level of operational synergy resulting from thorough integration of air and naval systems and platforms.

Third is the question “are EU members adhering to post-Tiananmen moratorium criteria? and “what assistance is China receiving from EU and NATO partners”? Although information is offered above about systems and technology apparently originating in Great Britain, France, Germany, Italy, and other U.S. allies—and the United States itself—I have no reason to doubt that the EU and NATO governments themselves are not adhering to post-Tiananmen moratorium criteria. But the insidious character of dual-purpose technology and the primacy of the profit motive at the commercial level leads me to perhaps cynically assume that indeed technological and scientific knowledge is indeed being transferred to China. Such transfer may come through impossible to halt scholarly and scientific exchanges or through more nefarious commercial exchanges.

The fourth question the Commission posed is “what countries are providing Mil-Tech Cooperation to Chinese defense industrial plants and research institutions? and “what is the level of that support and what are the ramifications”? Here, I possess no factual information, but assume that Russian engineers and technicians are playing a strong role in the Chinese construction of the Type-093 and Type-094 nuclear powered submarines currently underway. The first of these is an attack submarine bearing a strong resemblance to the Soviet “Victor III”-class submarines. I further assume that while China is educating and training an increasing number of engineers and scientists—both in domestic and foreign institutions of higher education (especially American institutions)—it has had available a number of former Soviet Union personnel seeking employment.

Finally, and most significant is the question of “why is it essential that the EU Moratorium and U.S. export controls remain in place”? There is no doubt that Beijing is well into a decade’s long process of modernizing its military capabilities. This will include increasing the overall number of air and naval platforms, but will focus more on improved combat effectiveness by deploying state-of-the-art systems across the spectrum of warfare mission areas. I also think that China is proceeding along this path at a measured pace, and has not launched “crash” programs and has not set its goal as matching the United States or any other nation, per se, as a military competitor. Rather, I think that Beijing is focusing its military ambitions on specific scenarios; the most immediate of these would involve the use of military force against Taiwan, of course, but I also think that Beijing is beginning to focus on scenarios in a post-Taiwan issue world. In other words, China is not building a military either just for a Taiwan scenario or for a global challenge to the United States.

China’s military modernization efforts—and obviously I am best qualified to address naval improvements—are benefiting increasingly from that nations’ improving military-industrial complex, drawing on the scientific, technological, and engineering advancements that are part and parcel of China’s expanding, improving economy. But despite the increasing personnel and economic resources available to China’s military modernization efforts, Beijing would still benefit from a lifting of the EU Moratorium and U.S. export controls. These controls do not preclude the transfer of significant knowledge, procedures, and equipment to China, but they do serve as a check on the transfer of complete systems and significant components.

VICE CHAIRMAN BARTHOLOMEW: Thank you, Dr. Cole.

**STATEMENT OF RICHARD D. FISHER, JR.**  
**VICE PRESIDENT, INTERNATIONAL ASSESSMENT AND STRATEGY**  
**CENTER**

MR. FISHER: Madam Chairwoman, distinguished commissioners, thank you for this invitation to address your very important commission one more time. I'd also like to reemphasize my thanks for the previous support this commission has given me to pursue one of my favorite topics. My presentation today hopefully builds on my 2004 report for the commission with the benefit of many previous or many subsequent travels.

Let me get right to the meat. China remains in my opinion the world's largest importer of foreign-made weapons, foreign military technologies. The numbers that I use are provided by the Stockholm Institute. I don't have reason to question them. And as the point has already been made, that procurement budgets are rising along with military budgets, the Chinese will have more means to support their foreign weapons purchases.

In outright terms, we've seen an emphasis from China on aerospace systems that has shifted over the last two years including this year to naval systems, but over the next several, this could shift back to aerospace as the Chinese acquire more IL-76s and look toward the possibility of buying Russian carrier fighters.

One trend that has really taken off, I'd say, in the just completed Tenth Five Year Plan has been the trend to try to purchase components to make new weapon systems in China, not entirely indigenous Chinese made, outsourced if you will, looking for expertise, design consulting, and also component manufacture all the while trying, the Chinese trying to absorb as much information about how to actually make the essential components in order to prepare the way for the next generation.

I've listed many such component-based programs and I view this as part of China's ongoing learning curve as they purchase things to try and leap ahead one or two generations in technology. They are also trying as best they can to obtain, borrow, steal the technology so that they can learn all of the nitty-gritty to begin making, and in my opinion, to begin innovating in the not too distant future.

We've spoken about how the information capabilities of the PLA have risen along with the rise of the domestic IT sector. I won't belabor that other than to say that many types of Russian radar have been acquired as part of this. Electronic warfare equipment, Russian electronic warfare equipment as well. And that in terms of applying information technologies to leverage that into new capabilities, I think that the Chinese very importantly have been following the American example: studying what we do; how we've employed the lessons we've learned; where we've failed. They are very good students in that regard.

One new important trend that I would point out, that has arisen in the last year or three has been a shift on the part of the Chinese to purchase more systems that we would associate with power projection. I am becoming increasingly convinced--I'd say 90 percent convinced that the Varyag acquired in 2002 that is in Dalian harbor is going to be China's first aircraft carrier. Whether that aircraft carrier will carry aircraft or not remains to be seen. Whether it will be used as a glorified target to hold annual sink the carrier exercises off the coast of Taiwan or whether it will actually train the first cadre of Chinese carrier pilots, all that remains to be seen.

But it is being outfitted. It is being modified. It's going to be doing something for the PLA. Last August at the Moscow Air Show, two conversations with two different Russian companies led me, convinced me that indeed the Chinese were interested in the aircraft to put on an aircraft carrier. Three, two types of Russian aircraft, carrier aircraft, and the engine in a thrust vector set to modify the J-10 for carrier purposes.

To boot, they're also, in my opinion, working on their own carrier based AWACS aircraft that will have other applications, so I conclude that this is coming together. And if we take the very recent statements in a Hong Kong newspaper on March 9 or 10, General Wang Zhiyuan who is a Deputy Director of the Science and Technology Committee of the General Armaments Department that China will have its first aircraft



carrier in three to five years, then I think we can at least ask very pointed questions to our leaders about what are China's intentions in this regard?

Second, the Chinese or the Russians, at least, are now marketing bombers, Tupolev, the Tupolev family, Backfires, Bears and the long-range maritime patrol variant.

Large transport aircraft. I had a conversation at an arms show in India just last, in late January, with Ukrainian sources who explained how they've proposed an expanded jet-powered variant of the Antonov-70 propfan. It will have a 50 to 60 ton capacity. We've learned in the last week that large jumbo aircraft are part of the next Five Year Plan. I think that the civil component of that, possibly a 150-seat airliner, will form the basis of AWACS, tanker, other applications.

When the Chinese were trying to copy the Boeing 707 in the 1970s, they produced a wind tunnel model of that aircraft in AWACS configuration. I think that should be instructive as to how they're taking all the civilian sector knowledge that they're learning and applying that to the future.

A very dangerous trend in my opinion is that the Russians in addition to transferring hardware are now in the business of transferring software. That's the whole point of the Peace Mission 2005 exercises, not only selling, trying to sell the Chinese more equipment, but actually teaching them how to use it.

I think there will be more to Peace Mission 2005. It will become a centerpiece of Shanghai Cooperation Organization activities, and Mr. Rodman will have more opportunities to complain about being kept away.

I'm exceeding my time limit, but just let me very quickly mention military space, future Chinese reconnaissance, electro-optical, radar, satellites, current Chinese military communication satellites, future military micro and nano-satellites, all have a strong basis in Russian or European satellite technologies.

If the Chinese opt for manned military space adventures, which is a precedent that is to me suggested by using all of the manned Shenzhou missions so far for military missions, then that ought to be considered in our consideration of foreign transfers into future military capabilities.

Looking at air forces, across the board, China has used access to Russian fighters to leapfrog into the current generation of technology. Buying 300 or maybe more planes of the Sukhoi 27 and 30 family really matters a lot in the Taiwan Strait considering that they barely have only 200 fourth generation fighters on the other side.

The 100 Sukhoi 30s all use advanced precision guided air-to-air, air-to-ground weapons. The JH-7A is now back in business. Yes, it's a 1970s design, but it's low level, supersonic, and it's armed with almost the same weapon kit that the Russian SU-30s carry, and to boot, Rolls Royce has finally transferred the wherewithal for the Chinese to make the engine themselves, which is a big deal.

The future of the indigenized J-11 at Shenyang, the future of the J-10 as a future export item, depends on China finally mastering the WS-10A turbofan project. And Russians I've been talking to have reduced their projections from ten years to five years for success here. Anecdotal evidence off of the Chinese Web suggests that it's reached a basic level of certification, and a very well placed Chinese source last year told me that the Chengdu J-10s indigenized engine version will be coming very soon.

So I view this, the J-10, as something that will be entering the market soon. Pakistani sources have told me that it's been test flown by their pilots. It's getting some serious attention.

Force multipliers. We stopped the Falcon A-50 Beriev deal in 2000. That was the work of the Clinton administration. Today, there are three similar aircraft flying. My sources tell me that the radar signals are very similar to what you'd expect from a Falcon phased array, active phased array radar.

How did that happen? I don't know. I have some ideas, but there we are. The Chinese have modified a new version of the Y-8, which is Antonov-12 upgraded with the help of the Antonov engineers into another kind of active phased array AWACS aircraft. There's a command and control version of this airplane that is being tested and other electronic warfare versions. SAMs, I believe that China is actually a major investor now in Russia's SAM sector, surface to air missile sector, in that new Russian SAMs, like the S-400 or what will follow will happen because of Chinese investment and that information in that technology will go to China.

A thousand of the S-300 family in my opinion are due to be purchased off the top. That's a fantastic number of a very deadly system.

Looking at the navy systems, again, I apologize for exceeding, I have reason to suspect that the Chinese may be acquiring some Russian fourth generation submarine, nuclear submarine technologies for the 093 and the 094 SSBN. If my suspicions are correct, then that constitutes a major advance for the Chinese and ought to be a very high concern for us.

The technology that may have been transferred in connection with the Yuan class, which looks to be a dead ringer of the Rubik AMUR or LADA. Again, very concerning. The Chinese are very interested in air independent propulsion technologies. They've been working with German engineers to learn more about that. I expect they'll have that capability in the not too distant future.

Surface warships, there's been a lot of discussion about that. All of China's new destroyers rely on the Russian Mineral-ME targeting radar which is a unique radar that combines an active and a passive radar and a data link. All ten of the new Russian destroyers have that.

They go out in force. They're a data linked force that is on the prowl. That's very important I would suggest. A data link, not just between each other but what's in the air and what's on the ground.

In terms of weapons, the Chinese are not just buying the RIF-M which is the naval equivalent of the S-300, but they may even be buying the latest modified version that carries an active guided SAM as opposed to a semi-active guided SAM that relies on the ship that can be taken out.

VICE CHAIRMAN BARTHOLOMEW: Mr. Fisher, we're going to have to ask you to summarize the rest.

MR. FISHER: Okay. Just army systems as well, there are many examples of ongoing areas where the foreign technology continues to have a large impact, especially helicopters. I've outlined in my paper how this impacts the region, and I think I'll just stop there and answer your questions.<sup>9</sup>

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<sup>9</sup> [Prepared statement of Richard D. Fisher, Vice President, International Assessment and Strategy Center](#)

## Panel V: Discussion, Questions and Answers

VICE CHAIRMAN BARTHOLOMEW: Thank you very much. Thank you, gentlemen. Rick, as always, it's interesting and of concern the issues that you raise.

Dr. Cole, I'd like to acknowledge particularly one of the points that you made which is the beyond Taiwan point. Everybody is very focused on build-ups right now that have to do with Taiwan and we are indeed very concerned about that, but I think it's a serious exercise we need to be engaged in as what happens next, however the Taiwan issue is resolved, so thank you very much for putting that on the table.

We'll move to questions. Commissioner Brookes.

COMMISSIONER BROOKES: Thank you very much. I have one question for Bud Cole and one for Rick Fisher. Bud, a lot of people have been talking about the, and you mentioned it briefly, about the growth in Chinese submarine capability, and you're a Navy man and have a greater understanding of this than most.

We can obviously look at the hardware as we see things change through information gathering, but what is their strategy? Where are they going in terms of their submarine force? A lot of people here in the United States are very concerned. Sometimes they're from districts that build submarines. Have you done any net assessment on the direction of American submarine production as versus the Chinese?

And for Rick, you have answered this question, but I'll just ask it anyway again. What do you see as the next significant weapons systems transfer from Russia? A lot of people have said that the Peace Mission 2005 was an arms sales show or an arms show for the rich Chinese generals who are Russia's best customers, and there was some concern that the Russians might decide to open up strategic bombers to Chinese sales.

I'm not sure if that's part of the Chinese military strategy, having bombers, and if you know anything about that. So those are the two questions. If you could answer them, I'd appreciate it.

DR. COLE: This is really a great question because I'm convinced that right now that China is viewing its submarine force as the center of its naval effort.

I still believe it's important that we look beyond Taiwan but for Taiwan purposes, I think this is the primary mission, the immediate mission of the submarine force is sea denial. The idea being that if some sort of conflict does break out over Taiwan and the U.S. chooses to intervene that any U.S. naval effort to intervene is going to be slowed considerably if China, for instance, has a couple dozen submarines at sea, the location of which we're not aware.

It's easy to deride the old Romeo class submarines that China has, assuming they can find crews to put them to sea. Any unknown submarine is an unknown submarine, and it still has to be a matter of concern for any naval forces entering a particular theater.

Beyond that, however, China is modernizing its force, not only with the Kilo class submarines, a dozen of which they have acquired or are acquiring from Russia. They will eventually I'm sure acquire air independent propulsion plants for some of their conventionally powered boats, and they are going to, I'm sure, build at least half a dozen or so nuclear powered attack submarines, the chief significance of which is their longer range and endurance at sea.

If we're looking beyond Taiwan, then conventionally powered submarines are extremely limited in say ranging from the Malacca Straits to the Persian Gulf, and we can

look at the long sea lines of communication over which China imports much of its petroleum supplies as a logical extension of a possible naval mission in the future.

This is where you would need nuclear powered submarines. To use conventionally powered submarines beyond the Malacca Straits, one needs to establish bases ashore, build tenders that are anchored in various places and so forth, things we saw the Soviets do with relatively little success frankly during the latter stages of the Cold War.

So I think that the submarine force remains an important focus for the Chinese. Let me take this opportunity to note, however, that I think the most important acquisitions of the PLAN that Rick mentioned are the underway replenishment ships.

Once again, if you're going to have small naval task forces ranging the Indian Ocean, you need means to supply them independent of land. China has recently deployed an additional two underway replenishment ships, which gives them a total of five. I suspect that we'll see that trend continue until each fleet has at least two modern underway replenishment ships.

I'm happy to address specific submarines, questions about specific submarine classes, but just let me note that strategically, I think the submarine force is a phase one system. This is pre the resolution of the Taiwan issue and out of the East Asian waters. If we're talking about moving into the Indian Ocean and beyond, now I think we're talking about nuclear powered submarines and additional surface force combatant groups.

MR. FISHER: I'd like to take a crack at both questions if you don't mind. I'm particularly concerned about not only the growth of both the nuclear and conventional submarine force but how it may be deployed in the future.

I've spent some time over the last several years trying to get to the bottom of whether they're building a new specific nuclear submarine base in or near Yulin on Hainan Island and whether that will become a focus for deploying future SSBNs and SSN escorts.

It strikes me as logical because it offers immediate access to deep waters that are needed to protect the SSBNs. There's just too much vulnerability in the Bohai Gulf in the Yellow Sea because it's shallow. And when that happens, commissioner, I think that naval and air forces are going to follow. Carrier, very likely. That will create a concentration, create a sensitivity, impel the Chinese to crack down on their territorial claims, maybe even attack Taiwan holdings in the Spratly's, the Pratas, even as far as the islands in the Strait.

Looking into the future, the PLA is very interested in putting its next generation land attack cruise missile on its attack submarines, and that would probably in my opinion be the first globally deployable non-nuclear Chinese strike platform that they'll use. They'll use them eventually just like we do, only they'll be supporting bad regimes staying in power whereas we don't.

As to the next major purchases, well, I think that the Russians view the future Chinese carrier fleet as their next golden goose. The Varyag may or may not be the template for the future Chinese aircraft carrier. It remains to be seen, but Chinese interest in the Sukhoi-33, in the Sukhoi-33-SUB twin seat version, to me are very instructive, very interesting. Interest in acquiring the wherewithal to make large transports, C-17 class transports potentially from extensive consulting by the Antonov bureau is also to me very disturbing.

I'd also continue to look at this broad range of outsourcing and component manufacturing, and the degree to which that process as the Chinese get deeper and deeper into these sub-system companies in Russia and potentially elsewhere, how much are they acquiring and bringing home to enable next generation systems.

VICE CHAIRMAN BARTHOLOMEW: All right. Commissioner Wortzel.

CHAIRMAN WORTZEL: Mr. Fisher, Dr. Cole, thank you very much for your work and your testimony here. I've got questions for each of you. One of them is a little narrow on technology for submarines. If you look at something like helping China control its emissions problems and its pollution by working on better storage batteries for hybrid cars, can you talk about how that translates into better storage battery systems for longer range diesel electric submarines?

Second, you and Paul Godwin in 1999 did a book chapter for one of the PLA conference books that dealt with the student study that examined where the People's Liberation Army and its defense industrial support base is doing pretty well and where there are huge gaps. Have you updated that and do you intend to update it? I think it's worth updating. I hope you'd consider that. I think it's something we really need, particularly if we're going to get to export control.

Rick, one of the things that I think would be useful to help people understand the dangers and how latent these dangers are when China's technicians examine foreign systems is what I'd call "flash to bang time." In other words, from the time China begins to show some interest in acquiring some new system, when they examine the capability at an air show or a defense exhibition, how long does it seem to take for them to acquire specific components of a system, and then possibly acquire manufacturing capability, then to put it on a platform and experiment operationally, and then finally to reach a fielded capability.

If you look at something one year at an air show and the next year you field the system, we have a real problem. If it's ten years, we've got a little time. So I wonder if you have done that or if you think about things in those terms?

DR. COLE: I'm afraid I just don't know enough about batteries to give an intelligent--it does seem logical that there would be technical transfer there. I think this goes to the dual use technology problem that I mentioned earlier. It's really difficult to tell how that would translate.

As far as the article I did with Paul Godwin, this was a DoD study that was published and it listed 82 critical technology areas, MCTL or something. It has not been updated, at least not been made public as far as I know. [An update to this study can be found at: [http://www.onr.navy.mil/sci\\_tech/33/332/docs/060307\\_chinese\\_sci\\_tech.pdf](http://www.onr.navy.mil/sci_tech/33/332/docs/060307_chinese_sci_tech.pdf) ]

It was an extremely valuable subject, and as of 1998, out of these 82 areas, China--you were rated one through four with four being the highest as I recall. China was given a four in only two of the 82 areas, and lots of zeros. I suspect that a similar study today would significantly raise the numbers of capability. It only makes sense if you look at the increase in engineering and science Ph.D.s that have been turned out in China and the Chinese students that have earned advanced degrees and done advanced work elsewhere in the world and then returned to China, that the technological capabilities in these various areas, and I'm talking about ceramic engineering, metals technology, metallurgical advances and so forth.

I'm sure that China has improved significantly in that. But I have not seen an advanced study.

Let me just refer back to something we discussed earlier, and that is of all the advances we can talk about in Chinese military development in the last decade and a half, I don't think we should be surprised by anything we've seen. The chief or maybe the most important factor in the foreign acquisition of technology and systems is the time and money it saves the Chinese.

When I was working R&D issues for the Navy and the Pentagon 15 years ago, we used to think that from the time I would get a phone call from some scientist out at China Lake that he just reinvented a wheel until the time that I had a box to put on a ship, it was probably going to be ten to 15 years.

Now, by buying complete systems or buying somebody else's technology, the Chinese obviously can save considerable time and money in that very long process, but I'll let Rick carry on further with that question.

MR. FISHER: Yes, also to take a cut on the fuel cell question, I was very taken to discover on the Web about three years ago an agenda for a conference between fuel cell engineers from Germany and from China. And all of the Chinese it seemed were coming from Dalian. What's in Dalian? Well, the institute that studies fuel cells for submarines.

And here they were sitting down probably having a good old time with beer and all in Germany learning about fuel cells. The agenda that I had discovered I think was the second agenda. I would imagine that this conference has continued and the transfer of knowledge and innovation continues.

As for flash to bang, it really varies, Commissioner Wortzel. You can look at the three new classes of destroyers and I think what you have to look at those as having evolved over two Five Year Plans, the previous Five Year Plan, the wherewithal, what to do, how to do it, lining up all the contracts and all. And the second Five Year Plan, the one that has just completed is when they put it all together and pretty soon, we'll start seeing what the last Five Year Plan had in store for the next four years.

And then you look at let's say the JH-7A, that was really a product of one Five Year Plan. We learned back in '98-99 that Rolls Royce had been finally convinced with enough money to go teach them finally how to make the Spey engine, and we started asking questions about this at successive Zhuhai air shows, and got the story by about, well, by 2004 we knew that the--by 2003, we knew that the engine was working, it was being integrated. We could see on the Web the new aircraft coming off the line in 2004. That year we discovered that it was not just going into the Navy as the previous Chinese engine or used Spey engine powered airplanes were going, they were going into the Air Force. The priority, in fact, is for the Air Force.

VICE CHAIRMAN BARTHOLOMEW: Okay. Commissioner Donnelly.

HEARING COCHAIR DONNELLY: Thank you. I'm tempted to go into a long exposition on the strategic importance of batteries, but it's not just submarines. I think if you looked in the rucksack of most of the infantry platoons in Iraq, you'd find more laptop batteries than grenades.

DR. COLE: And emergency generators on warships.

HEARING COCHAIR DONNELLY: Exactly, true. And if we think that we'd like to divorce ourselves from dependence on Middle East oil, I think the Chinese would

like that even more. So an electric drive People's Republic is something that might make me a little bit nervous.

But I wanted to ask two questions, one follow-up to things we've discussed earlier since you suffered through previous panels. Are there any insights that you might have on the feedback loop from operational testing or operational experience to technological innovation obviously is something that we're pursuing?

Dr. Cole, you opened the question of beyond Taiwan. If both of you would address that briefly, I think that would certainly be useful to me.

DR. COLE: Thank you, sir. The feedback loop is a really interesting question. I can speak to it a bit in the Navy and I think the loss of the Ming class submarine a couple years ago, perhaps helped bring home to the Chinese some of the shortcomings in this area.

What we saw after the loss of that Ming is a pretty significant reorganization of the Navy. It was fairly undramatic. I'm talking about if you are a submarine maintenance facility commander who you reported to and who you were responsible to, these dull administrative details that really lay out new lines of responsibility.

I think part of that is this feedback loop, how do they learn lessons from their experimentation? At one level, the Naval Command College in Nanjing contains the personnel who are supposed to develop new systems and new tactics taking basic technology from the Naval Research Institute in Beijing.

There is in the East Sea fleet headquartered near Shanghai what we used to call in the U.S. Navy a tactics and development group. They take these ideas that developed in the systems in Nanjing and then they basically test them out at sea.

I think, but I have not been able to confirm that, there are similar tests and development cells in the North Sea fleet and the South Sea fleet. It would just make sense.

HEARING COCHAIR DONNELLY: Would you regard these as experimental units or just pretty narrow testing of particular systems?

DR. COLE: I think it can be both of those, sir. I think that there are probably, within each fleet, there's a designated, perhaps a senior captain or a captain who is responsible for conducting these tests. He probably doesn't have his own platforms. I'm sure he has to task the fleet commander with providing ships and aircraft and submarines and so forth to test out a wide range of--it could be a tactic, it could be a new box, it could be a complete new system or a complete new ship. When they launch these new ships, they go through a test and development stage, the same as we would do.

The feedback loop is not clear to us, but I think it's certainly significant. I think it's one of the areas in which China is trying to develop further.

As far as beyond Taiwan is concerned, this is really an interesting topic. It's certainly something I've only recently started thinking about. It's been too easy frankly, too comfortable, to focus on a Taiwan scenario.

I mentioned earlier naval missions along sea lines of communication. I'm convinced that we're going to see, for instance, air capable ships. I hesitate even to use the term aircraft carriers, but certainly more extensive air capable ships in the PLAN.

These, again, are ships that are going to be best utilized not in a Taiwan scenario. There's not much point in developing aircraft carriers for Taiwan when it's right next to

the mainland, but rather for extended operations. Again, the Indian Ocean seems to offer the most logical theater for such extended operations.

In addition, we also have the possibility of naval forces being tasked with defending the extended maritime sovereignty claims of China. Obviously, the East China Sea sovereignty dispute with Japan comes to mind, as does possibly the South China Sea.

Let me note parenthetically, as far as building the submarine base at Yulin is concerned, I don't for a minute doubt Rick's intelligence in that matter. I just point out that while the South China Sea does offer deeper waters than the Bohai does, that there are also an awful lot of islands and land features that would restrict deep water operations in the South China Sea and the Straits, the necessity to pass through the Straits of Luzon or the Taiwan Strait would provide nice data checkpoints for any forces opposing FBMs that might be home-ported in Yulin.

I'm afraid that's not a very good answer with respect to beyond Taiwan because again, frankly, this is an area that we're just starting to think about, but I would note again maritime disputes and sea lines of communication over extended distances.

HEARING COCHAIR DONNELLY: Thanks.

MR. FISHER: Just to add to what Bud said, I mean I think Hainan Island is a suboptimal choice for China. The optimal choice for a future SSBN base is the east coast of Taiwan underground next to the underground bases at Hualien. And that, the global significance of that move on the American situation in Asia is just phenomenal to think about it.

But just to continue, I agree with Bud that, yes, the Chinese Navy is going to be moving out a lot faster than we may have estimated. The next decade I think is going to be a time when blossoming of naval diplomacy. What actually is going to happen in Gwadar, the port that Chinese companies are building up in Pakistan, is to me an interesting question.

And the aircraft carrier. I think the aircraft carriers are coming and they will be armed with Russian aircraft that will be about as good, maybe in some instances better, than the ones we have on our aircraft carriers now, and in some scenarios, especially when it may just be a one on one confrontation, that's not good enough. That's dangerous.

But to get to your other question about feedback loop and response times in terms of weapons development, I would point to the FC-1. I would respectfully disagree with Rich Bitzinger that this is just a warmed over F-5. The FC-1 is going to be a big problem for us.

This is an F-16 light. It's a multi-role fighter. It will carry precision guided air to air, air to ground munitions. It will have a multiple target, simultaneous air to air engagement capability off the bat.

The radar, the avionics are good enough for the Pakistani Air Force to opt with the Chinese kit, not the Italian radar and avionics kit that they were considering, and the FC-1's kit is based on that of the J-10. And the Chinese advertise their AMRAAMSKI, the PL-12, as being capable of four simultaneous engagements. Russians dispute this, but this is a pretty sophisticated capability in the air-to-air arena, and the J-10 is also, in my opinion, being looked at.

Senor Chavez is apparently interested in it. Apparently the FC-1 as well. The FC-1 has been improved. Three prototypes have been built, two flying, and the fourth



prototype is going to incorporate aerodynamic and avionics improvements before it moves into initial production, coproduction in Pakistan and very likely in China as well.

The J-10 has been improving all along as it's been moving along. The SONG class submarine went through a protracted gestation period in the 1990s, but when that was all settled by the end of the decade, they've produced 12-14 to date.

VICE CHAIRMAN BARTHOLOMEW: Commissioner Blumenthal.

COMMISSIONER BLUMENTHAL: Yes, thank you both very much for a very interesting presentation. I have a question I'd like both of you to try to tackle and you both seem to agree that the air capable ships or aircraft carriers are coming. I wonder, this would be quite a leap in terms of also training, training how to do operations off of these ships, doctrinal changes. This would be quite a feat.

Who do you see helping with this? Are the Russians going to actually deliver the full package, as it were, or do you see the Chinese Navy being able to complete this move on their own? Obviously this is quite a leap from littoral defense, and I wonder how you see that playing out in terms of the technical assistance that they would need to accomplish that?

DR. COLE: Thank you, sir. Let me note that when they acquired the former Australian aircraft carrier, Melbourne, a very long time ago, they've been messing around with aircraft carrier operations and strategy and so forth. In fact, at one point back in the late '70s, early '80s, there was a mock aircraft carrier flight deck built down in South China that supposedly they were training pilots on complete with arresting gear and so forth.

My own view is that the reason we haven't seen a Chinese aircraft carrier by now has very little to do with external reasons, but rather that within the People's Liberation Army, the Navy hasn't been able to get the budget and the support to build the thing. The Air Force obviously doesn't want it. It's very similar to what we see in India where the Air Force and Navy are constantly at loggerheads about how many carriers the Indians are going to have.

So air capable ships are a different story and by this I mean if we look at the DDHs that the Japanese Maritime Self Defense Force deploys, for instance, ships that are capable of carrying maybe half a dozen large helos or half a dozen jump jet type aircraft, I think we are going to see that before we see a flat deck carrier because this would give the PLA some more extensive experience in operating air capable ships and might be something they're able to sell at the daily PLA budget battles.

As far as garnering the technology, I think the only obvious source to me seems to be Russia. Russia's progress in developing air capable ships beginning with the early, the Moskva was the first class back in the '70s, and going up through the Varyag and her sister ships, never included catapults and arresting gear, but rather relied on the ski jump bow technology and vertical takeoff and landing or short take off and landing capable aircraft.

Nonetheless, capable platforms. I don't mean to sell them short. So I think that the Chinese will develop a lot of the airmanship themselves. If you go back and you read American Air Force accounts of what they might expect by the Chinese Air Force in Korea in 1950, you find some very disparaging remarks that turn out to be not very accurate.

The Chinese are fully capable of developing very fine pilots, as we saw, in fact, and as the Taiwan Air Force has also done. But as far as the technical data and systems are concerned, I see Russia as the primary source of that for more developed air capable ships.

Let me just refer to one thing that Rick said, the port of Gwadar in Pakistan that China is busily helping the Pakistanis modernize and enlarge. It's now capable of handling four large tankers, not super tankers, but perhaps 150,000 ton displacement tankers, but it's also located in Balochistan, which is probably the area, the one of Pakistan's four provinces that is most torn by nascent and actual insurgency. So I suspect we'll see Beijing go rather slowly in further investment in that place.

Thank you.

MR. FISHER: I would agree in the main with what Bud has said. Chinese have invested tremendous amount of effort in researching, understanding aircraft carriers, also in trying to learn how to sink them, and to organize new forces, arrays of forces to try to sink them.

But in terms of the incipient I would say carrier capability that is probably just over the horizon, that has come about primarily because of Russian help.

The Chinese have some choices to make. Do they want to do this Russian style? Do they want to configure the carrier the same size, which would be smaller than the American example, but perhaps more tailored for a pro-submarine doctrine, a Gorshkov doctrine versus a real power projection doctrine.

Nevertheless, even the Kuznetsov has a very useful limited, if you will, power projection role, especially a diplomatic role to play in three, maybe four Kuznetsov size, Varyag size carriers in the Chinese fleet, will have a very definite political impact, political-strategic impact on the region.

But I would agree with Bud. Probably they will buy some Sukhois in addition to modifying the J-10 for carrier purposes. The real question I would have is how quickly are they going to get over this wrangle that is going on between Sukhoi and Shenyang over the work share of the next version of the J-11. If it goes Shenyang's way, that means Sukhoi is going to be competing against its own airplane very, very quickly.

The Russians have been trying to avoid that, but I view the Chinese as trying to apply weight from any other directions to force the Russians to concede that rook, if you will.

COMMISSIONER BLUMENTHAL: Do you see, not just in technical assistance, but do you agree with Dr. Cole in terms of being able to carry out the actual missions that Chinese aviators will be able to train themselves to do this, or do you think it's going to require Russian training in terms of actually doing carrier operations or operations off of carriers?

MR. FISHER: Well, I think the Russians would be more than happy to provide initial training provided the Chinese pay the price. I see them as being willing to pay the price, and once you have the first cadre of pilots out of the Russian schools, maybe another class is needed, but after that, you're more or less on your own.

I see the Chinese as having choices of training aircraft as well. They, I believe that the SU-33UB was modified and taken out at the last Moscow air show specifically to be demonstrated to a group of Chinese visitors at the end of the airfield.

I just happened by chance to be walking down the sidewalk when that was flying. I recognized it immediately. Snapped some pix and later found out that this was a specific demonstration for them. It only spent a few hours on display on the flight line and I missed it there, but the L-15, a product of collaboration between the Yakovlev Bureau and Hongdu, twin engine, supersonic training aircraft, had its first official flight on Monday, probably not its first exact flight, but this airplane is very interesting.

It has the potential of being a future single seat attack airplane and it is very well configured, wide landing gear, high wing, to become a carrier-based trainer as well. So, Commissioner, I see the Chinese as being able to do this job after just some initial training, technical help.

VICE CHAIRMAN BARTHOLOMEW: Okay. We've got questions still to go by Commissioner Mulloy and Commissioner D'Amato.

COMMISSIONER MULLOY: Thank you, Madam Chairperson. Dr. Cole, in the last paragraph of your testimony, you say: China's military modernization efforts are benefiting increasingly from the nation's improving military-industrial complex, drawing on the scientific, technological and engineering advances that are part and parcel of China's expanding and improving economy.

What I understand from that, is that they're moving up the food chain in terms of their own capabilities, right? But then you persuade me that export controls are probably still worthwhile because you want to use them to prevent the transfer of significant knowledge, procedures and equipment to China.

You want to use them as a check on the transfer of complete systems and significant components. In other words, these are very narrowly focused export controls, as opposed to the larger transfer of resources that is going on, that is helping them move up the food chain.

Now, I was reading this publication that was given to me at today's hearing called "China's New Great Leap Forward" by the Hudson Institute. And on page six, they tell us, quote:

"The Chinese government offers generous tax and other financial initiatives to foreign high tech firms. It also puts pressure on foreign firms to do R&D and higher technology production in China."

So in other words, we're going to use export controls to prevent the components. What strategy do you think the United States should have in place to prevent the wholesale movement of higher technology, R&D and other things, to China? That's an issue that I don't think we're quite wrestling with enough as a community to think about that larger issue. I think they do have clear strategies to help move this stuff there.

Some of it is incentives. But some of it is pressure, do you share that and do you have any ideas on what we ought to be doing in that area? And then, Rick, do you have anything you want to add to that?

DR. COLE: Thank you, sir. In addition, I'll just note that in addition to what I said in this last paragraph, they simply have more money to spend. The military and what we would call the military-industrial complex just has more resources.

As far as your specific question is concerned, I still go back to James Mann's book Beijing Jeep that he wrote a long time ago about when Jeep opened its first plant in China they were forced to give up their technology, give up the R&D, exactly what you're talking about, and China is still doing this, I think, with foreign investors, although

it's much more complex now, particularly when you read some of the news accounts of Chinese American company heads in China or returned Chinese in China who are heading up some of these plants and some of these R&D efforts.

It really goes back, I think, if I understand your question correctly, to this whole question of dual use technology.

COMMISSIONER MULLOY: Yes.

DR. COLE: I'm not enough of an engineer or a scientist to give you a reasonable answer about how you can possibly control this sort of thing.

When the Chinese buy a complete Ford manufacturing plant from Brazil and move it to China, obviously there is dual use implications for that. But I don't think you can go to Ford and say no, you can't sell them that plant, let alone go to Brazil and tell them they can't sell it. So I'm afraid I just don't have a good answer for you, sir.

COMMISSIONER MULLOY: Thank you.

VICE CHAIRMAN BARTHOLOMEW: Rick, any comments?

MR. FISHER: I certainly believe the effort has to be made, and the effort has to be made to try to understand the enormity of the challenge at every point on the food chain starting with the student that comes here to study advanced aerospace engineering and what that student does throughout their career.

The degree to which global knowledge, dual use technology is being funneled into the China's effort to modernize and improve and to create an innovative modern superior military, I believe is serious and deliberate and one that has to be examined and understood so that we can try to create incentives to try to control and to make decisions. No, you're not going to get this.

No, you're not going to send your students there. I believe that we are reaching in the next decade a point where the effectiveness, the capabilities of our weapons compared to what the Chinese will be deploying in their forces and selling to other countries will be such that we will be under significant pressure and it's not just a matter of trying to convince Russia not to sell weapons.

We have to examine the whole range of access to militarily relevant information that China has and seek to understand it and if necessary control it.

I'll just conclude with an anecdote and anecdotes have not been well regarded today, but I'll just say that the last Moscow air show, I had to wait about 15 minutes as a group of Chinese students worked over this single Russian expert in the whole show there to talk about hypersonic missile engine technology. Now, I'm sure you understand that hypersonic missile air-breathing hypersonic missiles are a key transformational technology that we're looking at.

The difference between a missile going Mach-2 and Mach-6 or Mach-7 is phenomenal. And the country that masters those technologies is going to have that kind of phenomenally greater advantage in the future. The Europeans understand this. The Indians understand this. The Chinese understand this.

Here I was waiting in line behind about five or so students who were talking to this poor Russian, had to be in his seventies, and they were working him over, just this, that, question, here, here, the guy was being badgered. So they finally finish and started walking down the hallway with frowns on their faces, this was fascinating, and I wanted to get his reactions and his, what did these guys want, what did you think? Oh, they're looking for one of my professors.

They're looking for someone who was even more well-grounded in the basic technologies of hypersonic propulsion than this very senior guy, and they knew he existed somewhere and they were here, they were all students in Moscow. They were studying at some Moscow University aerospace department.

So I was getting the reflections of this older Russian engineer and towards the end of the conversation he looked at me straight in the eye and said in 20 years these guys are going to be the best, better than you, better than us.

VICE CHAIRMAN BARTHOLOMEW: All right. Chairman Emeritus D'Amato, last but not least.

COMMISSIONER D'AMATO: Thank you, Madam Current Chairman. I'll be very quick. I have a question that's a perennial question, an important question, and that has to do with your assessment of the capacity of the Chinese to complicate and/or deny a U.S. battle carrier group's access in a timely way to a Taiwan scenario.

Now, this morning I think Assistant Secretary Rodman talked about upgrading U.S. forces in the Pacific to include a sixth carrier fleet, which I believe would mean the ready availability of two battle carrier groups in the Taiwan Straits at all times or at about all times, I think.

Question: given that situation, and forgetting about space assets for the moment, what is your assessment of the Chinese naval capability over the next two or three or four years, particularly their submarine capability, to actually complicate, deny or make more difficult, much more difficult, the accessibility of a two battle carrier group operation scenario dealing with a fairly real-time if not immediate Taiwan scenario?

DR. COLE: I think, sir, that they already have that capability. Now, let me immediately caveat that, of course. If a Taiwan scenario were to occur and if China had deployed without our knowledge say two dozen submarines of various classes out to sea, and we decided that we had to at least have some locational data on three-fourths or 80 percent or 90 percent of those submarines, it would take not a matter of hours or days, it would take a matter of weeks. That's one scenario.

If the Chinese really wanted to play hardball, they would pick a time when the aircraft carrier, home-ported in Yokosuka, Japan, was in port, and they would put a couple of torpedoes into it as it exited Tokyo Wan. It wouldn't sink it, but it would certainly stop it from going anywhere.

So there's a whole range of capabilities that they possess today if they wanted to exert them. Now, having said that, the aircraft carriers are certainly never going to go into Taiwan Straits and in fact don't even have to be particularly close to Taiwan.

We used to practice long range air strikes. You need air-to-air tanking, of course, but you don't need to have the carriers very close to Taiwan. So that limits the ability of sea denial.

Having said that, I think we often overestimate the fire power carried by an aircraft carrier. If it can only put, perhaps, two dozen FA-18s up in the air, and they have to fly long distances using lots of fuel, the amount of explosive they can put on a target that can be not perhaps as extensive as we sometimes believe.

So I do believe they already have the ability in the People's Liberation Army Navy to significantly affect the speed with which we could react with ships to a Taiwan scenario.

Let me just note, though, if this is going to be my last opportunity, that to repeat that nothing the Chinese are doing certainly in terms of naval development should surprise us at all. And if, as we look at imbalances, I don't dispute for a minute the things Rick has pointed out about emerging imbalances in naval power for instance or air force power in the Western Pacific and East Asia.

But this is not China's fault. This really demands that we spend more time developing our own conventional naval and air forces to be able to respond to those situations that the National Command Authority has deemed to be vital U.S. national interests.

VICE CHAIRMAN BARTHOLOMEW: Dr. Cole, could I ask a question about that comment, which is nothing that they're doing us should surprise us. On the economic front, I suppose the surprise has been that things are moving much more quickly than previously predicted, expected, previous trade paradigms would have ever acknowledged. Is that true on the military front, too; do you think?

Is there any surprise in the fact that they're moving faster and they've gotten further than we might have thought at one point?

DR. COLE: I think it reflects again the increased amount of engineering and technical knowledge they have and the increasing amount of budget that is being allocated to these new systems. But when you look, even with the advent of the 51-C and the 52-B guided missile destroyers and the Ma'anshan class frigates and so forth, from a naval perspective, China hasn't altered their national priorities, I don't think, in a way that would lead, that should surprise us really.

Even if they were to develop aircraft carriers, I don't think that should surprise us. If we look back throughout history and the history of various emerging nations developing, building new navies, I don't think the Chinese are doing anything particularly unusual. The difference, of course, as Rick referred to earlier, has to do with those areas in which our interests conflict.

VICE CHAIRMAN BARTHOLOMEW: And that budget, of course, is built on the back of our consumption and the trade deficit that we are running with China, an issue which has not come up at all today.

DR. COLE: Yes, ma'am, perhaps we'll see a Wal-mart navy one of these days.

VICE CHAIRMAN BARTHOLOMEW: Rick, did you have comments on the question?

MR. FISHER: Just briefly. Commissioner, I've always been very taken with the potential challenge of Chinese special forces activities in Japan and in Okinawa as a prelude to Taiwan operations. In the 1990s, the Russians were marketing EMP grenades. Who's cleaning the bathrooms on our carrier? And how close are those bathrooms to the combat control center? You flush one of those grenades down a pipe and it explodes and it takes out the electronics. Why even, you can't even sail probably. That's something that concerns me.

But, yes, it's been very impressive to watch the PLA acquire really several layers of counter-carrier capability that can be coordinated in increasingly creative ways from the ballistic missile capabilities that we mentioned today to several types of cruise missiles, the stuff that the Russians are selling very interesting.

The layers of different submarines in the differing capabilities that they bring. And including the various layers of attack aircraft, 100 Sukhois. Probably in the not too

distant future, an equal number of JH-7As, all coordinated by probably two types of, at least two types of AWACS over the horizon radar, and the space stuff which the Russians have sold to the Chinese as well, which they're in the process of making.

COMMISSIONER D'AMATO: Thank you very much. That confirms to me something that is in the open source material, that CINCPAC's restructuring of air power in the Pacific is an appropriate response to this particular issue.

Thank you very much.

VICE CHAIRMAN BARTHOLOMEW: Excellent. Thank you. Thank you to our panelists. This has been very interesting and you provided a nice segue for tomorrow's hearing, which I'll note is starting at nine o'clock in a different building, different room, 366 Dirksen.

Before we close, I just wanted to express appreciation to the staff of the commission for all of the work that they have done on this hearing:

Kevin Lanzit, who has moved on to greener pastures; Scott Allan who picked up and ran--what's the phrase you use--ran us to the goalposts, something like that--and Linden Zakula and Nicole Lobaugh who have both been very helpful. So thank you everyone; and thank you, gentlemen.

[Whereupon, at 4:00 p.m., the hearing was recessed, to reconvene at 9:00 a.m., Friday, March 17, 2006.]

# **CHINA'S MILITARY MODERNIZATION AND U.S. EXPORT CONTROLS**

**FRIDAY, MARCH 17, 2006**

U.S.-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION

*Washington, D.C.*

The Commission met in Room 366, Dirksen Senate Office Building, Washington, D.C. at 9:00 a.m., Chairman Larry M. Wortzel, Vice Chairman Carolyn Bartholomew and Commissioners William A. Reinsch and Fred D. Thompson (Hearing Cochairs), presiding.

**CHAIRMAN WORTZEL:** Good morning, ladies and gentlemen, and welcome back to the U.S.-China Economic and Security Review Commission's Hearing on China's Military Modernization and U.S. Export Controls.

Yesterday's hearing walked us through the changes going on in China's military and how China's defense industry and foreign assistance and investment is building that military. Today, we focus on the utility and effectiveness of United States national security controls on the export to China primarily of dual-use technologies, technologies with both military and civilian application.

Commissioners Bill Reinsch and Fred Thompson will cochair the panels today. And as all of you know, commissioners have extensive experience with export controls, so it's especially helpful and appropriate that they be the people doing this.

Senator Enzi will not be with us. He will be submitting a written statement, and following our three witnesses from the executive branch, we'll have people from the non-government side and industry to talk about both the effectiveness of export controls and how they impact on American industry.

So I'll turn the microphone over to Commissioner Reinsch now. Thank you.

## **OPENING STATEMENT OF COMMISSIONER WILLIAM A. REINSCH HEARING COCHAIR**

**HEARING COCHAIR REINSCH:** Thank you. Those of you that know this field know that there is more than a small amount of irony that Commissioner Thompson and I are cochairing this hearing, although on the whole I'd rather be here sitting next to him than out there sitting in front of him, having done both.

But it should be interesting. I think there are different views on the commission, and I suspect there are different views, perhaps not amongst the first panel, but between the first and second panels, that will be enlightening for the commission, so I'm glad you're all here.

The substantive comment I'd make is that I'm concerned that we are locking ourselves into a chain of logic that demands closer examination than it's gotten so far. The chain seems to be, there is a Chinese military build-up, we don't like that, therefore it's bad, therefore we have to do something about it, therefore we have to do something



on export controls, which is everybody's favorite target when things like this roll around. The Administration has either announced or indicated privately that it has a number of reviews, initiatives, projects underway, that I assume our witnesses will elaborate on, to do just that.

I hope that as those go forward, we can, you know, flesh out that logical chain a little bit and give it a test to make sure that we're not going to do something that will be counterproductive in the end, not only from a commercial standpoint, which I personally care about, but more importantly from a security standpoint, which we all care about. We don't want to do something that's going to make our security worse rather than better in the process.

I am eternally but naively optimistic that our witnesses in the first panel will answer the question that I've been asking them privately for four months, which is what exactly is it that we want to control to China that is not already controlled that we don't want them to have?

It seems to me that we need to show in the process of enhancing controls or expanding them, if that's the road we're going down, that there are things that we don't want them to have that they're not currently getting from us that are not controlled, that need to be placed under control. I'd like to see some answers to that.

If we can identify those things or those categories of things, then there's a whole bunch of subsidiary questions that are the standard questions that export control officials and government policymakers always ask, the main two being do they already have it, in which case we might want to rethink our policy; and second, probably more important, can they get the same thing from somebody else that is not maintaining the same level of control that we are?

Related to that, if so, can we talk that other country into maintaining their regime as strictly as ours, because if we can't, then we end up with a policy that is self-defeating. We don't achieve our security goals because the Chinese are getting whatever it is that we care about from someone else, and we do a lot of damage to our critical industry companies in the process.

That's the last substantive point I'd make because the primary goal, I think, for everybody that we all share is making sure that we remain strong and that we remain secure.

One of the things that I spent a great deal of time trying to advocate when I was in the government was that one way that you do that is to make sure that our companies that make critical technology that our military needs stay healthy. In a globalized economy, the way they do that inevitably, is through exports.

So there is this constant tension and balance between permitting exports so they make money which they put back into R&D, which allows them to produce next generation products, and by the way, run faster than our competitors, which is an important issue in this kind of economy, and letting too many exports go out, or certain kinds go out, in which case we do some damage to our security.

That's the tension that I hope our panels will explore. I hope particularly the Administration witnesses will be as specific as they can be about what they are contemplating and what it is that we care about that is not already securely fastened to our shores. As I said, I'm optimistic about that, but probably naively so.

I want to welcome the panel and we have indeed, let me say, speaking from personal experience, a panel of real experts on exactly this subject. We're going to hear from Frank Record, the Principal Deputy Assistant Secretary of State for International Security and Nonproliferation, and if you thought that title was long, wait until you hear the next one.

We're going to hear from Beth McCormick, who is the Deputy Under Secretary of Defense for Technology Security Policy and National Disclosure Policy (Acting), and Director, Defense Technology Security Administration (Acting).

The only person whose title can be said in one breath, Darryl Jackson, who is the Assistant Secretary of Commerce for Export Enforcement. Welcome to all of you.

After them, there will be a private sector panel, composed of William Hawkins of the U.S. Business and Industry Council; Chris Hankin, who will be testifying in his individual capacity and sharing insight he gained in his former role as a government official, and perhaps he'll tell us what that role was; Edmund Rice of the Coalition for Employment Through Exports; John Tkacik of The Heritage Foundation; and Edward Markey of NABCO, Inc.

In addition, the former Counsel to the EU Presidency, Dr. Takis Tridimas, currently of the Dickinson School of Law, will share his perspectives on the EU arms embargo that has been in place since the 1989 Tiananmen crackdown.

Finally, I'd like to ask our witnesses to confine themselves to seven minutes for their oral testimony. Your full written statement will be entered in the record and then each commissioner will have five minutes for Q&As after we complete each entire panel, and with that I turn it over to Commissioner Thompson.

#### **OPENING STATEMENT OF COMMISSIONER FRED D. THOMPSON HEARING COCHAIR**

HEARING COCHAIR THOMPSON: Thank you very much, Bill. It's a pleasure to be here with you again and discuss some of the issues that we've been discussing off and on for a period of years now. I'm sorry we're going to miss Senator Enzi, who has been a leader in the export administration issues, but I understand he'll be submitting a statement for the record. You have already welcomed our witnesses.

I want to reiterate that and especially welcome Dr. Tridimas, who has flown in from his teaching duties in London to discuss the EU's arm embargo aimed at China. We're here, as has been stated, to discuss what our export policies should be. I went back and reviewed ancient materials that I used to ponder, and it struck me that back in 1999, the Deutsch Commission pointed out that we had no clear policy in this regard and no strong consensus.

Part of my interest today is to find out what's happened since then, but I suspect that we're somewhat close to where we were back then. I know we'll continue to argue over the Export Administration Act and whether or not that should be renewed and if so how?

The question or the issue is usually posed as one of balancing economic interests with national security interests. I know we all agree that in a head-on confrontation of those two concerns that national security would come out on top for all of us.

So the issue is really whether or not export policy is even relevant to national security? I think some would say it's becoming less and less so, and it doesn't really matter; everybody has got everything, so why bother in any case except the most obvious ones where you would be sending dangerous materials directly to a rogue nation or something of that nature.

But if it is relevant, as I believe that it is, we need a fair and effective procedure and process whereby we can pass judgment on items, pass judgment on countries, and a consensus on how much we should expect to accomplish by doing what we're doing. In effect, a cost/benefit analysis of exactly what we're doing.

When it comes to China, of course, we know certain things. We know of their military build-up as was discussed yesterday. We know that according to the Cox Committee back a few years ago anyway that they were using high performance computers to improve their nuclear weapons design and stockpile maintenance, to improve their intelligence collection capabilities and cryptology, to improve their manufacturing of missiles and weapons of mass destruction, and to improve their ability to accomplish complex control tasks with regard to that.

We know that they have a history of diverting sensitive items from commercial uses over to military uses. They've been caught doing that more than once. We know that they have a history, according to our CIA, of being a repetitive proliferator with regard to countries like Iran and Pakistan and Saudi Arabia.

Therefore as we look at that situation, our export, our dual-use export policy, toward a country like China, I think the burden is on those who would decontrol. Some say that decontrol is a futile exercise. Some way that we're decontrolling the wrong things. Instead of trying to control the hardware, that that horse is out of the barn, that we need to focus on other things.

But they never point out really what those other things are. I find it interesting that we're in a flap now on the Dubai Ports issue where we apparently don't want an Arab country having anything to do with our ports even after a exhaustive investigation by our administration as to what the significance of that would be, while at the same time we're urging some almost total decontrol of sensitive dual-use items to a country like China with no analysis at all as to what the significance of that would be with regard to our national security.

That to me is the bottom line and has been for years--that is we don't have an answer to the question of what is the impact of our policies on national security. We pass a law from time to time, these defense authorizations bills that require such an analysis, and every administration basically seems to ignore it. As far as I know, unless something has been done fairly recently, there has been no real analysis getting past all the arguments about commercial damage or market availability or anything that, but really making objective analysis as to when it comes to changing the MTOP level control levels and things of that nature, as to what impact that is on the national security and what standard are we using.

Is it worth the effort if we can merely slow down a competitor like China? Can we slow them down? When we talk about things like foreign availability, are we talking about the same quantity items? Is it really out there that much? Do they have an indigenous manufacturing capability yet? Why is it that they're looking to us so strongly for their high performance computing capabilities?

Again, can we slow them down, and if we can, is it worth slowing them down, knowing or assuming or conceding that eventually that everyone will probably have everything? Is it worth trying to keep other countries like that behind us somewhat? Those are the questions that I've had and have always had, and perhaps some things are happening that I'm not aware of.

I'm looking forward to hearing from our witnesses today with regard to that and other issues, but something that's been with us, been debated for many, many years. We're struggling along on the basis I presume of still executive orders. We can't get together on reauthorizing something as important as this. Our relationship with China continues to get more and more integrated from an economic standpoint and more and more of concern to many people from a military build-up standpoint.

This issue is kind of a sleeping one off on the side that not many people keep up with, but I think is extremely important for us to get a hold of and really try to come to some consensus in this country as to how much we can do and what's worth trying to do.

So, welcome to the witnesses. I'm sure you'll have answers to all these questions.

**PANEL VI: ADMINISTRATION PERSPECTIVES: Efficacy of U.S. Export Control Regimes**

HEARING COCHAIR REINSCH: Why don't we get started? I realize there are very touchy issues of protocol as to who goes first, but I will assume goodwill on all of your parts and just suggest that perhaps we go in the order in which I introduced you, if that is acceptable to everybody, in which case we will start with Mr. Record and then go to Ms. McCormick and then go to Mr. Jackson. Frank.

**STATEMENT OF MR. FRANCIS C. RECORD  
ACTING PRINCIPAL DEPUTY SECRETARY OF  
COUNTERPROLIFERATION, U.S. DEPARTMENT OF STATE**

MR. RECORD: Thank you. Thank you, Commissioner Reinsch and Commissioner Thompson for those remarks and I look forward to trying to respond, at least in part, not to disappoint you, Bill, on your naive assumptions as we go along.

It's a pleasure to be here and have an opportunity to address the U.S.-China Economic and Security Review Commission today, and to provide answers to some of the questions that you've raised in your invitation letter to the department.

In September of last year, in remarks to the National Committee on U.S.-China relations, Deputy Secretary Zoellick noted that most of the last three decades since Chinese leaders made the decision to embrace globalization rather than detach themselves from it, the U.S. has worked to integrate China as a responsible member of the international system.

As Deputy Secretary Zoellick went on to call for a new posture, that is, quote, "It is time to take our policy beyond opening doors to China's membership in the international system. We need to urge China to become a responsible stakeholder in that system."

Whether through increasing transparency in its military modernization or helping to halt the proliferation of weapons of mass destruction and their means of delivery or

bringing its human rights practices into conformity with international standards, China can play a constructive role in the international system.

We welcome cooperation with China on matters important to us and the peace and stability of the global community. However, as Deputy Secretary Zoellick also said and as the National Security Strategy Report released just yesterday made clear, even as we encourage China to make the right strategic choices for its people by continuing down the road of reform and openness, we must hedge against other possibilities.

Secretary Rice this week noted that China's military build-up continues to proceed in a largely nontransparent manner, and we know from experience that some entities within China continue to be engaged in improper proliferation activities.

So our prudent policy of hedging means that we will continue our dialogue with Beijing on the threat from WMD and missile related proliferation while pressing for improvements in the transparency, implementation and enforcement of China's export control system.

It means that we will continue to restrict U.S. exports to military end-users and end uses in the PRC even as we seek to expand our exports for legitimate civilian purposes, and it means we will continue when warranted to use sanctions pursuant to U.S. legal authorities against proliferating entities.

In your letter of March 6, Mr. Cochairman, you noted that this panel would examine questions related to U.S. government's concerns regarding China's access to sensitive military equipment, dual-use technologies and other sensitive items should the EU lift its arms embargo on weapon sales to China.

These are indeed very important issues that I'd like to address in part. The EU embargo is, as you know, politically binding commitment adopted for human rights reasons by the European Council in June of 1989 in the wake of Tiananmen to establish an embargo on trade arms with China.

Its scope has actually never been defined, although all EU governments seem to accept that it bans lethal equipment exports. Over the years, since the embargo was enacted, EU nations have approved significant nonlethal military exports to China including helicopters, radar, engines, et cetera.

In 2004, these EU governments approved more than 200 defense export licenses worth more than \$400 million. Should the arms embargo be lifted, we believe these export would increase. We believe China would look to Europe, not so much for weapons, but for the software and technology that allows them to organize and deliver military force and increase power projection, among them systems integration electronics.

These capabilities would have an effect on cross-Strait issues in China's favor. For the past two years, the United States has made clear to the EU and its member states our view that lifting the embargo would send the wrong signal to China.

Secretary Rice and the President have both raised our concerns during their trips to Europe and meetings with European officials here in Washington.

Several rounds of demarches and joint staff briefings have taken place in a number of EU capitals. Our reasons for opposing a lift to the embargo are well known, and we've given European governments a strong consistent message that lifting the embargo would undermine the efforts of the international community to encourage China to bring its human rights practices into compliance with international standards.

China has made some progress including expanding the rule of law, but it has a long way to go in its human rights record as documented by the Annual Human Rights Report.

We remain deeply concerned that China insists on retaining the option to use force to block Taiwan independence. While the U.S. does not support Taiwan independence, we have consistently and since the first Joint Communiqué with China in 1972 opposed any use of force or even the threat of use of force to coerce a resolution of cross-Strait differences.

Were the EU to lift its embargo, particularly in light of the passage of the PRC's anti-secession law in 2005, it would, in our view, send an inappropriate signal to the PRC regarding its build-up of missiles across from Taiwan and its continued insistence on reserving the right to use force.

Finally, we are, of course, concerned that any possibility that technologies could be transferred that could ultimately enhance potential threats against U.S. forces in the region. China is rapidly modernizing its military, but the lack of transparency in its modernization has left many of its neighbors uneasy. So in light of these issues, we have conveyed our concerns to our European allies that they don't take any action that would increase the potential for military use technologies to be transferred to China for military end uses.

We believe that Congress has made very clear its views regarding lifting the embargo and we believe that the clear statement of congressional views in this area has been an important factor in prompting key EU governments to consider delaying a lift to the embargo.

We would not want EU actions to have an adverse impact on trans-Atlantic cooperation including efforts to coordinate our common defense, and we plan to continue our efforts with the EU governments to promote better practices in the area of defense trade controls.

I want to note that while our opposition to a lift of the EU embargo has been firm, it should be seen in the context of our overall relationship with China, and as Secretary Rice said last year, we have no problems with a strong, confident, economical, powerful China, and China continues to play a key role in hosting six-party talks on the North Korean nuclear issue and will continue to play a critical role in the stability of the Asia Pacific region.

I have a number of comments as well regarding our export control policy. I notice I have 20 seconds left. I don't want to go over my time, but I'd be glad to expand on those in the course of my questioning.

Thank you.

[The statement follows:]

**Prepared Statement of Mr. Francis C. Record  
Acting Principal Deputy Secretary of Counterproliferation  
U.S. Department Of State**

Good morning, Cochairmen and Commissioners. I am pleased to have the opportunity to address the U.S.-China Economic and Security Review Commission today and to provide answers to important questions that are being raised in this hearing.

In September of last year in remarks to the National Committee on U.S.-China Relations, Deputy Secretary Zoellick noted that for most of the last three decades -- since Chinese leaders made the decision to embrace globalization rather than to detach themselves from it -- the U.S. has worked to help integrate China as a responsible member of the international system. Deputy Secretary Zoellick then went on to call for a new posture:

*“...it is time to take our policy beyond opening doors to China’s membership into the international system: We need to urge China to become a responsible stakeholder in that system.”*

Whether through increasing transparency in its military modernization or helping to halt the proliferation of weapons of mass destruction and their means of delivery, or bringing its human rights practices into conformity with international standards, China can play a constructive role in the international system. We welcome cooperation with China on matters important to us and to the peace and stability of the global community. However, as Deputy Secretary Zoellick also said, and as the National Security Strategy released yesterday made clear, even as we encourage China to make the right strategic choices for its people by continuing down the road of reform and openness, we must hedge against other possibilities.

Secretary Rice this week noted that China’s military build-up continues to proceed in a largely non-transparent manner, and we know from experience that some entities within China continue to be engaged in improper proliferation activities. So our prudent policy of “hedging” means that we will continue our dialogue with Beijing on the threat from WMD and missile-related proliferation while pressing for improvements in the transparency, implementation, and enforcement of China’s export control system. It means that we will continue to restrict U.S. exports to military end-users and end-uses in the PRC, even as we seek to expand our exports for legitimate civilian purposes. And it means that we will continue when warranted to use sanctions pursuant to U.S. legal authorities against proliferating entities.

In your letter of March 6th, Mr. Cochairmen, you noted that this panel would examine questions related to the U.S. Government’s concerns regarding China’s access to sensitive military equipment, dual-use technologies and other sensitive items should the EU lift its embargo on weapons sales to China. These are indeed important questions which deserve careful examination and which are being addressed among a range of offices and bureaus within the State Department. For purposes of our discussion today, I will attempt in an abbreviated way to describe some of our thinking in responding to the Commission’s questions.

#### The EU Embargo

The EU embargo is a politically binding commitment adopted for human rights reasons by the European Council in June 1989 in the wake of Tiananmen to establish “an embargo on the trade in arms with China.” Its scope has never been defined, although all EU governments seem to accept that it bans lethal equipment exports.

Practice varies widely among the EU nations. Some major arms suppliers do not approve any military exports to China. Others approve little. The three EU members approving the bulk of EU military exports to China are France, the UK, and Italy.

Over the years since the embargo was enacted, EU nations have approved significant non-lethal military exports to China, including military helicopters, fire control radar, aircraft engines, submarine technology, and airborne early warning systems. In 2004, these EU governments approved more than 200 defense export licenses worth more than 400 million U.S. dollars (340 million euros). Should the arms embargo be lifted, we believe these exports would increase. We believe China would look to Europe not so much for weapons but for the software and technology that allows them to organize and deliver military force and increase power projection, among them systems integration and electronics. These capabilities would have an effect on cross-Strait issues in China’s favor.

For the past two years, the United States has made clear to the EU and its member states our view that lifting the embargo would send the wrong signal to China. Secretary Rice and the President both raised our

concerns during their trips to Europe and in meetings with European officials here. Several rounds of demarches and joint State/Joint Staff briefings have taken place in a number of EU capitals. We have made intelligence-based presentations to all EU member states in Brussels.

Our reasons for opposing a lift of the embargo are well known. We have given European governments a strong, consistent message that lifting the embargo would undermine the efforts of the international community to encourage China to bring its human rights practices into compliance with international standards. China has made some progress, including expanding rule of law, but it has a long way to go and its human rights record remains poor, as documented in our annual Human Rights report published last week. It is not the right time for the EU, the U.S., or any country to suggest that international concern over China's human rights practices has eased.

We also remain deeply concerned that China insists on retaining the option to use force to block Taiwan independence. While the U.S. does not support Taiwan independence, we have consistently – since the first joint communiqué with China in 1972 – opposed any use of force, or even the threat of force, to coerce a resolution of cross-Strait differences. Were the EU to lift its embargo, particularly in light of the passage of the PRC's "anti-secession law" in 2005, it would send an inappropriate signal to the PRC regarding its buildup of missiles across from Taiwan and its continued insistence on reserving a right to use force. Given U.S. commitments under the Taiwan Relations Act and our military presence in the Pacific, we have much at stake in ensuring that cross-Strait issues are resolved through peaceful dialogue and we have asked our European allies to take that into account.

And finally, we are of course concerned over any possibility that technologies could be transferred that could ultimately enhance potential threats against U.S. forces in the region. China is rapidly modernizing its military, but the lack of transparency in this modernization has left many of its neighbors uneasy. In light of this, we have conveyed our concerns to our European allies that they not take actions that would increase the potential for military-use technologies to be transferred to China for military end-uses.

The joint statement issued following the September 6, 2005 EU-China summit notes that "the EU side reaffirmed its willingness to continue to work towards lifting the embargo." Nevertheless, we have seen no indication that the embargo will be lifted this year under the Austrian and Finnish EU presidencies. In fact, there have been signs that some EU member states have reconsidered their positions on the issue and now are less supportive of lifting the EU embargo. For example, German Chancellor Merkel last fall said publicly that Germany no longer supported a lifting of the arms embargo. And following a February 3 meeting with the Chinese, Austrian (EU Presidency) Foreign Minister Plassnik stated clearly that there is no consensus on this topic within the EU. We believe this change has come about because the EU has taken the time to consider the larger security and human rights implications of lifting the embargo.

Over the past year, we have begun a Strategic Dialogue with the EU on the security situation in the Asia-Pacific region, with a special emphasis on China. There have been two meetings of senior officials under this dialogue, in May and November of last year, and an experts' working group meeting in December. An extremely fruitful conversation has developed. Set in the context of a broader discussion of the region as a whole, it is a means to increase understanding among EU members of the concerns we have regarding the possible lifting of the embargo.

Over the past two years, the United States Congress has made clear its strong feelings on this issue as well.

Last year, for example, the House of Representatives passed a State Department Authorization Bill which included the "East Asia Security Act." The Act was aimed at protecting U.S. military technology by cutting defense cooperation with Europe if there is a danger that technology could be transferred to China. Although the Act did not become law, it sent a clear signal of Congressional concern and suggested that similar action could be taken, should the EU lift its embargo.

We believe that this clear statement of Congressional views has been an important factor in prompting key EU governments to consider delaying a lift. We would not want EU actions to have an adverse impact on transatlantic cooperation including efforts to coordinate our common defense.



We plan to continue our efforts with EU governments to promote better practices in the area of defense trade controls. In 2004, for example, a U.S. delegation visited Brussels to explain how we monitor military exports to ensure they go to the proper end users. Projects such as these serve U.S. interests by encouraging allied countries to develop better military capabilities and contribute to mutual security.

I want to note that, while our opposition to a lift of the EU embargo has been firm, it should be seen in the context of our overall relationship with China. Secretary Rice said last year that “We have no problems with a strong, confident, economically powerful China.” China continues to play a key role in hosting the Six Party Talks on the North Korean nuclear issue and will continue to be critical to the stability of the Asia-Pacific region. We welcome as well China’s continuing efforts to address global concerns about Iran’s nuclear programs.

However, we remain concerned by certain elements of China’s military buildup and by ongoing human rights abuses and the continued, total lack of accountability for Tiananmen. As our relationship with China develops, we are addressing these questions constructively with China through bilateral engagement and our longstanding commitment to a peaceful resolution of cross-Strait differences.

#### U.S. Export Controls

I would like to conclude with a few remarks about the broader context of U.S. –China export controls consistent with our economic and security concerns over proliferation. To put the extent of our export controls in context, in 2005, we licensed \$2.5 Billion of potential exports (not all licenses are fully utilized). Our total exports to China in 2005 were about \$38 Billion. For the first eight months of 2005, only \$10.7 million worth of potential exports were denied licenses. There is in fact no basis to Beijing’s claims that we could significantly reduce our trade deficit overnight by simply liberalizing our controls on sensitive items.

I want to emphasize, however, that we will continue to oppose the approval of export licenses for items that we assess will enhance Chinese military capabilities, threaten global security or could contribute to the proliferation of WMD and their means of delivery. Since 2001 we have sanctioned 68 Chinese entities for proliferation-related transfers. The U.S. also is particularly concerned about the activities of serial proliferators. In 2005 we held three lengthy, senior level discussions with PRC officials to discuss these problems, urging the Chinese to take concrete actions to hold serial proliferators accountable for past proliferation behavior and to prevent future exports of concern. Rigorous implementation and enforcement by China of its own nonproliferation policies and regulations would go a long way to eliminate the need to impose such sanctions.

In addition to our frank proliferation discussions, the International Security and Nonproliferation Bureau continues a broader exchange with the Chinese government. For example, in 2005 Acting Assistant Secretary Stephen Rademaker met twice with his Chinese counterparts to discuss a wide range of international security, arms control and nonproliferation issues, including export controls, strategic stability, and regional proliferation concerns. While there undoubtedly were differences of view, there were more areas of common interest and shared objectives. We will continue to discuss these issues with China at a high level, with a view towards encouraging the Chinese to implement and enforce vigorously their export controls and nonproliferation policies in a manner that enhances regional and global security.

We are also working directly with China to improve its export control system. The U.S. has conducted two training events focusing on nuclear export control licensing and enhancing Chinese Customs ability to identify controlled commodities. We are prepared to step up our export control outreach efforts with China. We have funds to provide appropriate exchanges and training focusing on strengthening licensing processes, harmonizing national control lists with international control lists; improving enforcement capabilities, and enhancing industry outreach programs.

We continue to have a constructive bilateral nonproliferation dialogue with China as well as working on issues of proliferation concern with Beijing in multilateral fora such as the ASEAN Regional Forum (ARF), Asia Pacific Cooperation Forum (APEC), and the International Atomic Energy Agency.

I can assure you we will continue to stay fully engaged bilaterally with China, with the EU, other countries, and through all appropriate international regimes to ensure that China undertakes those policies needed to become a responsible international stakeholder.

HEARING COCHAIR REINSCH: Thank you. Ms. McCormick.

**STATEMENT OF MS. BETH M. McCORMICK  
DEPUTY UNDER SECRETARY OF DEFENSE FOR TECHNOLOGY  
SECURITY POLICY AND NATIONAL DISCLOSURE POLICY (ACTING) AND  
DIRECTOR, DEFENSE TECHNOLOGY SECURITY ADMINISTRATION  
(ACTING)**

MS. McCORMICK: Mr. Chairman and the commissioners, thank you for the opportunity to provide the Department of Defense's perspective on the export control process and the implications of the export of defense related and dual-use articles on China's military modernization.

The People's Republic of China continues to strengthen its political and economic influence as a regional power. Our relationship with China is complex; we share common goals of peace, stability, and security and prosperity, but have notable differences between us.

With respect to China's military modernization and increase in military power, we are concerned about regional stability and the implications of China's growing military strength.

We believe that greater transparency in China's military modernization is highly desirable. At the same time, we ourselves must continue to monitor the direction, objectives and intent of this modernization and particularly with respect to China's quest for advanced technology for military purposes and toward that end increasing military capabilities.

As China looks to close its technology gap with the West and to alter in its favor the military balance in the Asia Pacific region, we expect China will continue its concerted effort to acquire asymmetric and "leap-ahead" technologies from the United States through legal and illegal means as well as from direct military sales from other foreign sources.

China's military seeks to expand its capabilities in long and short-range ballistic missiles, cruise missiles, submarines, advanced aircraft and other modern military systems. This expansion will be derived through indigenous development and acquisition of foreign weapons systems and dual-use technologies that will be exploited for military use.

We are concerned most about China's efforts in the following areas: strategic missile force modernization; research, development, production, and weaponization of biological agents and an advanced chemical warfare program; preemptive long-range precision strike capabilities, information dominance, command and control, and integrated air defense; proliferating technologies used in military and missile systems and weapons of mass destruction related components, including nuclear and ballistic missile programs; coordinated strategic effort to obtain dual-use technologies through trade, joint ventures and corporate acquisitions, such as software and integrated circuit industries

vital for information technology and network-centric warfare; development of an indigenous microelectronics industry in support of military and commercial modernization, such as integrated circuits for future military systems like advanced phased-array radars; and the intent to acquire Western state-of-the-art thermal imaging night-vision infrared technologies.

The U.S. export control system aims to prevent the transfer, migration or illegal exploitation of sensitive technologies to unauthorized entities. The licensing system employed between the Departments of State, Commerce and Defense provides a means to monitor and control dual-use commodities that could be used for military purposes.

The bulk of our license reviews for China are for dual-use items falling under the purview of the Department of Commerce which maintains the entity list. This list identifies foreign entities deemed to pose a proliferation risk and is a key means for regulating the flow of technology to China.

Currently, there are 19 Chinese entities on that “entity list.” Through multilateral regimes such as the Missile Technology Control Regime, the Australia Group, Nuclear Suppliers Group, and the Wassenaar Arrangement, we help establish international standards and safeguards to prevent the proliferation of weapons of mass destruction components and delivery systems and exploitation of dual-use systems.

As a partner in the interagency export control process, the Defense Technology Security Administration, acting on behalf of the Department of Defense, reviews all sensitive munitions and dual-use license applications referred to us under the provisions of the International Traffic in Arms Regulations and the Export Administration Regulations.

DTSA licensing, technical and policy experts review and recommend technologies from a national security perspective and determine which are acceptable to transfer to foreign entities.

This review includes comprehensive end-user checks to ensure accurate and appropriate end-use while minimizing the risk of diversion. In terms of the volumes and types of licenses, DTSA has recommended approved for only a few munitions export license applications for China in the last two years. These recommended approvals included an explosive ordnance disposal containment vessel for Chinese security training in preparation for the Beijing Summer Olympics and several commercial satellite licenses.

These commodities do not reveal any dedicated Chinese effort to exploit specific U.S. munitions list controlled equipment or technologies.

In the past four years, for dual-use license applications for China, DTSA has seen on average over 1,000 license applications per year for China. Of these, roughly 70 percent have been approved and the remainder denied or returned without action.

The commodities span each of the Commerce Controlled List categories, but are concentrated in several areas:

Chemical manufacturing equipment facilities and toxic gas monitoring system; equipment facilities used in handling biological materials and technology; electronic computer and semiconductor; navigation; machine tools; and others.

I'm going to jump ahead because I've been watching my time here. China's actions and intentions are sometimes at odds with U.S., allied and international security objectives, but its market opportunities cannot be ignored.

Beyond Chinese military modernization, we remain concerned about Chinese weapons proliferation, support and sponsorship of regimes hostile to U.S. interests. Finding the balance between legitimate trade and minimizing the risk of Chinese export migration from dual-use to military end uses is why China represents one of our most significant policy challenges.

A key step in the way forward is working with other countries through bilateral and multilateral channels to convey U.S. concerns about Chinese military modernization and why it should matter to other countries.

Russia, Israel and European countries have supplied advanced military technology to China. Beijing will continue to press the European Union to lift its arms embargo and rely on Russia as a mainstay supplier.

In 2005, Israel began to improve governmental oversight of military and dual-use exports to China, but these improvements require legislation, reorganization within the Israeli Ministry of Defense, and enhanced roles for other parts of the Israeli government.

The United States government must strike a balance between national security and trade to protect sensitive technologies and facilitate U.S. competitiveness in international markets.

Mr. Chairman and members of the commission, as we address these challenges posed by China, I appreciate and continue to draw upon the insightful counsel of this commission. Thank you for the opportunity to appear before you today, and I welcome your questions and discussion.

[The statement follows:]

**Prepared Statement of Ms. Beth M. McCormick  
Deputy Under Secretary of Defense for Technology Security Policy and National  
Disclosure Policy (Acting), and Director, Defense Technology Security  
Administration (Acting)**

Mr. Chairman and Commissioners, I am grateful for the opportunity to present my remarks to you today along with those of my colleagues from the Departments of Commerce and State, representing our respective roles in the United States export control process. Today, I will provide you the Department of Defense perspective on this process and implications of the export of defense-related and dual-use articles on China's military modernization.

**China's Rise**

As you are well aware, the People's Republic of China continues to grow in strength as a regional power with increasing political and economic influence. The United States and China have a complex relationship, one conducted on a number of different levels. Despite some notable and important differences, we continue to share common goals of peace, stability, security, and prosperity.

With respect to China's military modernization and increase in military power, we seek greater transparency and continue to monitor the direction, objectives, and intent of this modernization in terms of its quest for advanced technology and, toward that end, increasing military capabilities.

China's expressed concerns over its technology gap with the West will continue to have an impact on its desire to alter the military balance and developments in the Asia Pacific region to its favor. To close this technology gap, we expect China to continue making a concerted effort to acquire asymmetric and "leap ahead" technologies from the U.S. through legal and illegal means - as well as from direct military sales from Russia and other foreign sources. As we monitor these developments, the Department of Defense -

and the Defense Technology and Security Administration (DTSA) in particular - recognizes the importance of our role to:

- Preserve critical U.S. military technological advantages.
- Support legitimate defense cooperation with foreign friends and allies.
- Control and limit transfers that could prove detrimental to U.S. and allied security interests.
- Prevent proliferation of weapons of mass destruction (WMD) and their means of delivery.
- Prevent diversion of defense-related goods to terrorists, potential adversaries, or regimes that are hostile to U.S. and allied interests.
- Assure the health of the U.S. defense industrial base.

We continue to see China's People's Liberation Army (PLA) concentrate its actions to expand its capabilities in long and short-range ballistic missiles, cruise missiles, submarines, advanced aircraft, and other modern military systems. The PLA continues to improve its capabilities by acquiring foreign weapons systems and developing domestic weapon systems and military technologies. These trends are further complicated by China's ability to maximize to its advantage the acquisition of dual-use items to further enhance their military.

We are concerned most about China's efforts in the following areas:

- Modernizing its strategic missile force with improved survivability, reliability and accuracy.
- Technology for research, development, production and weaponization of biological agents and an advanced chemical warfare program.
- Pursuit of a viable indigenous space force, along with its satellite launch capability, and C4ISR enhancements relative to space.
- Aspirations for its pre-emptive long-range precision strike capabilities, information dominance, command and control, and integrated air defense.
- Serving as a key source of proliferating technologies used in military and missile systems and WMD-related components – including nuclear and ballistic missile programs.
- Coordinated strategic efforts to obtain dual-use technologies through trade, joint ventures, and corporate acquisitions, particularly in the area of software and integrated circuit industries that are vital for information technology and network centric warfare.
- Development of an indigenous microelectronics industry in support of military and commercial modernization – particularly sophisticated integrated circuits with applications in future military systems, such as advanced phased-array radars.
- Intent to acquire Western state-of-the-art thermal-imaging, night-vision, and infrared technologies.

### **Effective Export Control System**

The United States employs an effective export control system to prevent the transfer, migration, or illegal exploitation of sensitive technologies to unauthorized entities. In conjunction with these efforts, we engage in bilateral partnerships and multilateral regimes to encourage similar approaches among allies and international partners.

Although the Departments of Commerce and State will address their respective roles in our dual-use and munitions regulatory systems, I want to share DoD's observations of recent trends in export control matters relative to China. The bulk of our license reviews for China are for dual-use items. The interagency export licensing community of the Departments of State, Commerce, and Defense provides us with an effective means and well-established procedures for monitoring and controlling dual-use commodities that could be used for military purposes.

The Export Administration Regulations for dual-use commodities fall under four categories: 1.) national security, 2.) nuclear nonproliferation, 3.) missile technology and 4.) chemical and biological weapons. Under this arrangement, we employ a policy of license denial for such commodities making "direct and significant" or "material" contributions to Chinese military capabilities.

Another means of regulating the flow of technology to China is the “Entity List” under the Department of Commerce. This list specifically identifies foreign entities the U.S. government deems as posing proliferation risks; currently, 19 Chinese entities are on that list. Additionally, to establish international standards and safeguards to prevent the proliferation of WMD components and delivery systems and exploitation of dual-use items, we leverage our participation in multilateral regimes such as the Missile Technology Control Regime, the Australia Group, the Nuclear Suppliers Group, and the Wassenaar Arrangement.

With respect to the Wassenaar Arrangement, we are working with the Departments of Commerce and State to finalize language for the implementation of a “military catch-all” regulation for China. This regulation will clarify our national policy to limit exports for military end-uses in China and will supplement our implementation of a 2003 Wassenaar Arrangement Statement of Understanding to control non-listed, dual-use items when intended for military end-uses in embargoed destinations. Once implemented, this regulation will allow us to carefully scrutinize a broader range of exports to China and will provide the regulatory framework to preclude those exports determined to enhance the military capabilities of China. We are pressing for implementation this year. One noteworthy caveat is that, with regard to the EU arms embargo on China, such a “military catch-all” may not necessarily apply for EU members should they decide to lift their embargo on China.

### **DoD’s Role**

As a partner in the interagency export license process, DTSA experts, acting on behalf of the Department of Defense, review all sensitive munitions and dual-use license applications referred to us under the provisions of the International Traffic in Arms Regulations (ITAR) and Export Administration Regulations (EAR).

Through this review, we provide our defense and military expertise in crafting conditions and provisos to appropriately address national security concerns for export license applications. We accomplish this mission through the expertise and diligence of our personnel - roughly 200 military and career civilian members of the DTSA who represent a cadre of diverse and well-experienced subject-matter experts in the areas of science, technology, engineering, and manufacturing, as well as the fields of regional, functional, and regulatory specializations.

Additionally, in this process for license applications, we conduct corporate due diligence and comprehensive end-user checks to ensure accurate and appropriate end-use while minimizing the risk of diversion. We achieve this through our assessments unit which is augmented by a cadre of reserve intelligence specialists.

In our review of license applications, we closely consult and coordinate with the military services, the Joint Staff, and regional and functional offices in the Office of Secretary of Defense and, as required, other DoD components.

Additionally, we continue to improve our license turn-around times to maintain an appropriate balance of providing adequate time and treatment to scrutinize licenses to protect national security interests without unnecessarily delaying the process that might otherwise impede U.S. industry business interests.

In terms of volume and types of licenses, DTSA has provided a DoD recommended position of approval to the Department of State for only a few munitions export license applications for China in the last two years. The applications include an explosive ordnance disposal containment vessel for Chinese security training in preparation for the Beijing Summer Olympics, and several commercial satellite licenses. These licenses do not reveal any dedicated Chinese effort to exploit specific U.S. Munitions List controlled equipment or technology.

In the past four years for dual-use export license applications for China, DTSA has seen on average over 1,000 license applications per year for China. Of these, roughly 70% have been approved; and the remainder denied or returned without action. The export license applications for China ranged across each

Commerce Control List (CCL) Category. However, our review of these license applications reveals the following concentrations of CCL-controlled equipment and technology exported to China:

- Chemical manufacturing facilities and equipment, chemical manufacturing equipment related technology, chemical resistant materials, and toxic gas monitoring systems;
- Facilities and equipment used in handling biological materials and related technology;
- Electronic equipment, semiconductor manufacturing equipment, and systems with encryption;
- Navigation equipment for safety-of-flight considerations on commercial aircraft;
- Materials used in the semiconductor industry;
- Machine tools;
- Alloys and composite materials and technology; and,
- Thermal imaging systems.

Although there have been a large number of export licenses applications in which DTSA has provided the DoD recommended position of approval to the Department of Commerce for technology, most have been for “deemed exports;” that is, approval of Chinese foreign nationals working in U.S. companies. Areas of concentration include:

- Electronics and semiconductor technology;
- Computer-related technology;
- Encryption technology; and,
- Telecommunications and information security technology.

Thus, our assessment of the overall trends with respect to export licenses for China indicates the items appear to enhance a wide variety of Chinese industries and provide upgrades to their technology in general with a minor concentration in upgrading their electronics and semiconductor industries.

## **Our Way Ahead**

China continues to pose challenges as it represents an attractive and vast market for the U.S., while simultaneously its actions and intentions are sometimes at odds with U.S., allied and international defense and security objectives.

Naturally, our main concern stems from China’s support and sponsorship of regimes hostile to the U.S. or regimes that are a party to the proliferation of weapons of mass destruction and the means to deliver them. Thus, our concern is manifest in the potential of U.S. or Western technologies that could migrate to these regimes via Chinese entities. This poses one of our most significant policy challenges with respect to China.

With regard to this, we believe China will continue to press the European Union to lift its embargo on the sale of arms to China. As you are well aware, such a decision by the EU to lift this embargo – established in response to the Tiananmen crackdown in 1989 – would eliminate the symbolic statement and moral obligations on EU member states to refrain from such sales that could potentially lead to greater Chinese access to advanced technologies the embargo precludes.

In addition, we note that along with Russia, Israel has been a key supplier of advanced military technology to China. Though in 2005, Israel began to improve governmental oversight of exports to China, particularly in the areas of military and dual-use items. These improvements will require legislation by the Knesset, re-organization within the Ministry of Defense and enhanced roles for the Ministry of Foreign Affairs and Ministry of Industry, Trade, and Labor.

It is an exceedingly difficult challenge to strike a balance between national security and trade – specifically, the need to protect technology in defense of our national security interests, and our desire for U.S. industry to compete internationally in China. China is well aware of our difficulties and actively seeks to leverage its position to exploit potential differences between U.S. allies, partners, and other nations. Yet, we are

realistic in understanding this is not a zero-sum game. We can strike such a balance with these issues as long as China is willing to abide by international standards and established regulatory rules of engagement. Therefore, it is critical for the U.S. to pursue our commercial interests and defense relationship with China in the context of adherence to appropriate international practices of transparency, fairness, and reciprocity.

Our policies and practices must strive to minimize transfers of technologies that could contribute to potentially destabilizing or threatening military modernization efforts. Constant vigilance in our export licensing process must remain one of our top priorities while ensuring U.S. competitiveness, as we make our decisions in consideration of foreign availability, level of technology, and a clear understanding that - at the end of the day - the export of a technology is truly in the best interests of U.S. national defense.

### *Conclusion*

Our export control process is a model for how well U.S. government departments and agencies work collectively and collaboratively toward a successful national security strategy in protecting our defense technology interests.

As we work toward the correct balance between free markets and national security, we must approach export issues with China deliberately and carefully, while engaging other nations - notably, our European, Asian, and Middle Eastern partners - to ensure we do not compromise security interests with respect to exports to China in the rush to do business there. Until we know the magnitude and intention of China's military modernization and increasing power in the region, we must be mindful of our shared international security interests and the U.S. intent to guarantee international peace and stability that directly contributes to economic prosperity for all - including China.

Mr. Chairman and members of the Commission, as we address the challenges posed by China, I appreciate and continue to draw upon the insightful counsel of this Commission. Thank you for the opportunity to appear before you today, and I welcome your questions and discussion.

HEARING COCHAIR REINSCH: Thank you. Mr. Jackson.

### **STATEMENT OF MR. DARRYL W. JACKSON, ASSISTANT SECRETARY FOR EXPORT ENFORCEMENT, U.S. DEPARTMENT OF COMMERCE**

MR. JACKSON: Chairman and members of the commission, thank you for the opportunity to speak with you today about the Bureau of Industry and Security's role in the important economic and security issues raised by trade with China.

The mission of BIS is to advance U.S. national security, foreign policy, and economic objectives by ensuring an effective export control and treaty compliance system and promoting continued U.S. strategic technology leadership.

As the Assistant Secretary for Export Enforcement, it is my responsibility to support this mission by overseeing the enforcement of the laws and regulations governing the export of dual-use items including commodities, software, technologies and also overseeing the anti-boycott laws.

Today I will address U.S. policy regarding the export of dual-use items to China. I will also outline BIS's efforts to protect important U.S. national security, foreign policy and economic interests in the U.S.-China economic relationship.

As you know, dual-use items are those that are designed for civilian uses, but also have the potential for misuse by foreign countries or terrorists as weapons or as weapons components.



Because of the possibility of such misuse, BIS regulates the export of these items to ensure that they do not fall into the hands of dangerous parties.

The sensitive dual-use items that are regulated in this manner appear on the Commerce Control List, which is a part of the Export Administration Regulations. That list categorizes the controlled items and identifies the reasons why they're export-controlled.

Based on how the item being exported is controlled and the destination country, the regulations specify when an export license is required.

BIS is responsible for licensing the export of dual-use items in circumstances where licenses are required. In the licensing process, BIS carefully considers the item involved, who the end user is, and how that end user intends to utilize the item.

Licenses are granted only where BIS and its interagency partners are satisfied that the export will not pose a threat to U.S. national security or foreign policy. These licenses often contain conditions that regulate or restrict the use of the exported item.

In addition, BIS vigorously investigates possible violations of dual-use export laws and regulations through a network of investigators and field offices throughout the United States, as well as five export control officers who are stationed abroad.

BIS works closely with the Departments of State, Defense, Homeland Security, Energy and the Department of Justice to administer and enforce the export control system.

BIS's goal in performing these licensing and enforcement tasks is to support legitimate commercial exports by U.S. companies while deterring exports that could threaten U.S. national security or foreign policy interests. We believe that security is the foundation for safe and robust international trade that benefits the U.S. economy.

With that as an overview of BIS's mission and responsibilities, I'd like to turn my attention to the subject that has brought us together today. Regarding China, BIS's mission is the same as its overall mission: to protect important U.S. national security, foreign policy and economic objectives in the context of the U.S.-China economic relationship.

As China further opens its economy and pursues foreign investment, it is a large and growing market opportunity for American business. China's economy is growing at the extraordinary rate of approximately nine percent a year.

China is our fourth-largest export market, behind Canada, Mexico and Japan, and ahead of the United Kingdom and Germany. It is the fastest growing major U.S. export market.

Last year, U.S. companies exported almost a total of \$42 billion worth of goods to China, many of which have technical applications. Aircraft-related industry exports totaled nearly two billion. Electronics information and communications products accounted for nearly \$5 billion in U.S. exports to China.

In fact, China is one of the fastest-growing markets for U.S. technical goods such as computers and electrical and electronic equipment. China is unquestionably an important market for American industry and it's growing more important every year. However, China is also in the midst of an accelerated expansion and modernization of its armed forces, as you've heard, and it has a mixed record on nonproliferation of weapons of mass destruction issues, as you've heard.

With those concerns in mind, BIS has taken several steps in both its licensing and enforcement efforts to promote legitimate civilian trade of dual-use items with China, while working to prevent the diversion of dual-use items to military or other undesired end uses or end users.

From a licensing perspective, BIS, in cooperation with the Departments of State, Defense, Energy, and the intelligence community, carefully reviews applications of export controlled dual-use items to China. BIS assesses the nature and reliability of the end-user as well as the appropriateness of the item for the stated end use, to ensure that the item will not be diverted to uses contrary to U.S. national security or foreign policy interests.

BIS does not support the export of items that will directly enhance China's military capabilities. In that regard, BIS is currently working with its interagency partners on a new regulation that will require a license to export otherwise uncontrolled items to China when the exporter knows at the time that the export will be destined for military use in China.

The regulation will be designed to control exports that could make a significant contribution to China's military modernization in a way that minimizes the compliance burden on U.S. industry. At this point, we do not anticipate having a draft rule ready for public comment before late spring.

BIS also actively enforces the export control laws to prevent illicit exports to China and to prevent the diversion of controlled dual-use items to military or other unlicensed end uses.

Of particular interest to BIS investigations are Chinese efforts to obtain U.S. technology to further its command, control, communications, computer, intelligence, surveillance, radar systems and maritime programs. BIS has prosecuted a number of cases involving items that fall into those categories.

In addition, as a part of its enforcement activities, BIS conducts what are known as pre-license checks as well as post-shipment verifications of goods that go to China.

For the sake of time, I will leave further questions concerning that to the question and answer period and thank the commission for the opportunity to testify today, and I look forward to responding to your questions.<sup>10</sup>

## **Panel VI: Discussion, Questions and Answers**

HEARING COCHAIR REINSCH: Thank you and thank you to all of you for tailoring your testimony so precisely to the time available. That leaves us plenty of time for dialogue and we'll begin with Commissioner Thompson.

HEARING COCHAIR THOMPSON: Thank you very much. These are complex issues and we have very limited time, so we'll just skip over the surface as best we can here and maybe at the end of the day together we will have learned some things.

My recollection is that the typical situation on a dual-use item comes into Commerce, you take a look at it, and when it's appropriate; refer it to the other agencies and Defense and State. Others come in and take a look at it. You have a process if you disagree whereby you can appeal the disagreement. Part of the conditioning sometimes

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<sup>10</sup> [Prepared statement of Mr. Darryl W. Jackson, Assistant Secretary for Export Enforcement, U.S. Department of Commerce](#)

for the granting of a license is a consideration of the end user and then you try to protect yourself on the other end by post-shipment verifications. Is that part of the picture, is that accurate as far as it goes?

MR. JACKSON: That is correct.

HEARING COCHAIR THOMPSON: In terms of the process?

MR. JACKSON: That is correct, Senator.

HEARING COCHAIR THOMPSON: I think with regard to a lot of people we're talking about a process. I don't think it's so much that a lot of people don't think we're necessarily too liberal as we are now perhaps, but that the Export Administration Act, the last time I saw it being proposed, it always is trying to go the other way. It's trying to liberalize and decontrol some things that are controlled now.

A lot of people think that the situation we've got now is better than it would be if we had that act passed. And the last iteration I saw of it still gives more and more power to Commerce at a time when the national security aspect of things and the Defense aspect of things I think are becoming more and more important, but some would continue to give more authority and final say to Commerce.

So I think that is kind of the political backdrop of what we're dealing with here, and a lot of it is indeed procedural because it's the procedure that decides finally how a particular item is going to be treated.

Do you have any figures as to with regard to China, with regard to, you can pick any particular sensitive item, high performance computers, for example, how many post-shipment verifications have been made over the last period of time, year, two years, any given period of time?

Mr. Jackson, would you be the one to answer that?

MR. JACKSON: Well, we do have an export control officer stationed full time in Beijing assigned to the embassy who regularly conducts post-shipment verifications consistent with the understanding we have with the Chinese government.

We believe that that end use visit understanding is working very well and furthering our national security interests.

HEARING COCHAIR THOMPSON: Well, I'm interested in particular numbers. Because I went to Beijing and talked to the people back during the prior administration about this very issue, and I think they had three people in total there to deal with these matters.

We requested the Inspector General to look into it in a little bit more detail--that was in 1999--on end user checks of high performance computers, —and over a period of time they looked at it, they exported 191 computers and there was one post-shipment verification.

I came to the conclusion that the post-shipment verification process was pretty much of a sham, that we really don't have any effective way of knowing what happens to these goods once they get there. The Chinese for years, unless this has changed recently, the last few years, let's say, for years would just say no and just shut the door in our face and refuse to allow us to come in and make post-shipment verifications time and time and time and time again.

So if you could furnish to the commission, if you could go back and check on post-shipment verifications of high performance computers, over any period of time, how many really have been conducted and carried out and ones that we could verify that have,

in fact, taken place, I would appreciate it because I think it's the basis on which we operate. On paper it says we'll go back and check and make sure everything is all right.

My experience was, up until those experiences anyway, that it wasn't like that at all.

MR. JACKSON: I would be happy to do that, Senator, obviously. I will say that we are aware of the report that you mentioned, and it is fair to say that things have changed over time, that we took into account the concerns that were expressed in that report, and the status, as we speak, has improved significantly.<sup>11</sup>

HEARING COCHAIR THOMPSON: I'd be glad to see where we are on that now. I guess my time is up here.

HEARING COCHAIR REINSCH: Perhaps we can come back, but let's continue through the list, if we can. Commissioner Wortzel.

CHAIRMAN WORTZEL: I appreciate all three of you being here and testifying. It's very useful testimony. I have one question for each of you if that's all right, Mr. Cochairman.

Mr. Record, in 1989, human rights were the consideration after the Tiananmen massacre. Since then, China's military threats against Taiwan and its military build-up really changed the entire security climate in the Asia Pacific region.

So I'd be interested if you could describe the actions that the Department of State is taking in Europe to address those concerns you express here in the hearing, the actions you take with our NATO allies to ensure that they understand how their exports changed the security climate in the Asia Pacific region and to inform them about how the United States responds and must respond to its obligations under the Taiwan Relations Act.

Mr. Jackson, I appreciate your testimony. How much time do your officers spend traveling around China outside the office actually physically conducting post-shipment verification?

HEARING COCHAIR REINSCH: Why don't we respond in the order in which he asked the questions?

MR. RECORD: Commissioner, I'm not really sure that I can fully answer your question this second, so I'd be glad to provide additional information about all elements of our human rights dialogue that might have happened. I am not the person who gets directly involved in that.

All I can tell you, though, is that we have begun over the past year a strategic dialogue with the EU on a number of, on the security situation in the Asia Pacific and also on other related matters.

CHAIRMAN WORTZEL: Actually I am interested in the human rights dialogue. I care deeply about the human rights dialogue. I'm interested in what we're doing to advance this toward recognition in Europe that there's a security problem.

MR. RECORD: Well, this is the forum that I mentioned, that is, in fact, where it's happening and during the discussions that it took place under the leadership of the Political Military Bureau, there were a number with civilian and military officials. There were a number of bilateral discussions that I heard about--I sat in on one or two--that directly related the strategic and security concerns that we have directly in the Straits and our concerns that any lifting of the embargo could adversely impact those.

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<sup>11</sup> [Additional information submitted by Darryl W. Jackson in response to questions raised by commissioners.](#)

If you want, I can try and give you more of a listing or summation of those, but those will pick up or continue as we need it, but I think as I mentioned, and perhaps as I didn't have enough time to elaborate, based on our soundings with the Europeans in recent weeks and months, it does not look like any lifting of the embargo is imminent, but it's an issue that we continue to focus a lot of attention on. Thank you.

MR. JACKSON: Mr. Chairman, you are correct that we will have to provide actual figures if that's what you're interested along with those asked for by Senator Thompson. It is fair to say, however, though, in characterizing what we'll provide that the duties of the Export Control Officer are significantly occupied by conducting the post-shipment verifications in China. They do have other responsibilities, of course, that go along with that. Some of their time is taken up by the Foreign Commercial Service, although a very small proportion of that time, but we'd be happy to provide you with that information.

MS. McCORMICK: Just an add on to a comment, particularly from Commissioner Thompson, I can tell you that the Defense Department is often the one in the interagency process that's asking an awful lot of tough questions and actually causing a lot of these licenses to be elevated up through review mechanisms that we have, and actually adding a lot of additional provisos to these licenses.<sup>12</sup>

HEARING COCHAIR THOMPSON: I want to congratulate the chairman on the way he asked his questions. You get a lot more time that way; don't you? I don't know why it's taken me so long to catch on to that.

HEARING COCHAIR REINSCH: There's a lesson there for all of us. Commissioner Wessel.

COMMISSIONER WESSEL: Thank you. I'd like to key off of the opening comments of Commissioner Reinsch, and look at press reports that were reported this morning on the new methodology that's going to be used with regard to computers, and as I understand it moving to weighted teraflops, and based on the president's notice to Congress that those will be put, I guess, into effect on April 6, just prior to President Hu's visit.

In the testimony that was given, it indicates that much of the discussion that's taking place on this issue is occurring or some of it is occurring within the context of JCCT, which is primarily a commerce and trade discussion forum. Recent press reports indicate that the Chinese in light of our \$200 plus billion deficit with them last year have been arguing that we should be liberalizing our export controls as a way of addressing that bilateral trade deficit, that if we'd only change our standards, that the opportunity to dramatically increase exports was there and this is a ripe area for doing that.

So you have this April 6 effective date. What other changes have the Chinese been looking for? What other changes do you anticipate will be discussed during the upcoming state visit of President Hu, and how do you address the tension between trade and security?

MR. JACKSON: Thank you, commissioner. I've seen some of the press reports that have mentioned the Chinese argument that we should liberalize our export controls as a way of addressing the trade deficit.

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<sup>12</sup> [April 12, 2006 letter from Beth McCormick to Chairman Wortzel clarifying the Department of Defense's position on exporting an inertial reference system used in railway track curvature measurements to China.](#)

Let me start off by saying that what we control has a very, very small impact on that deficit, so that certainly isn't a way to go about it. In terms of the high performance computers and the upcoming JCCT, I think that what is happening there is certainly a matter of transitioning from what is widely acknowledged as an outdated mode of measuring these computers to what is now, I think, commonly acknowledged as the proper way to conduct that measurement.

So we don't see that as in any way responsive to the concerns that the Chinese raise in that regard.

COMMISSIONER WESSEL: The advance agenda I assume is already well underway for the state visit. Are export controls on that agenda? Are there discussions going on either in the context of JCCT or in other bilateral venues with the Chinese?

MR. JACKSON: I don't know that I can speak specifically to the upcoming agenda, commissioner, but export controls are always a topic of discussion in the JCCT and I certainly would anticipate that they would be one for the upcoming meeting.

COMMISSIONER WESSEL: Thank you.

MR. RECORD: Could I add something here, commissioner?

COMMISSIONER WESSEL: Please.

MR. RECORD: I happen to have a couple of statistics here that I think relate to one of the points you mentioned or actually the Chinese mention that you did make reference to as well. It's my understanding that putting export controls in context, in 2005, the U.S. licensed about 2.5 billion of potential exports, and not all those licenses were fully utilized as well.

Our total exports to China in 2005, the number has already been quoted by my colleague, a little over 40 billion, I believe, was the estimate. My understanding is for the first eight months of 2005, only about 10.7 million worth of potential exports were denied licenses.

So the point is here that there is very little basis to Beijing's claims that they make very often that if we could simply reduce our trade deficit overnight by simply liberalizing our export controls on sensitive items.

COMMISSIONER WESSEL: We're talking a very small percentage.

MR. RECORD: So I don't think that's the case.

COMMISSIONER WESSEL: At the 2.5 million, I guess that's what--or billion--that would be one percent. We're talking about a pin prick on overall trade.

MR. RECORD: This is not going to make a macroeconomic impact. That's all.

MR. JACKSON: That's correct, and I believe the Secretary of Commerce had some rather stiff words earlier this week concerning what might address that, and frankly it is the area of intellectual property, and China's approach when it comes to that. That's a huge area, both in China as well as here. If the Chinese were to conduct themselves appropriately in that area, it would make a tremendous difference. That's the area, rather than export controls, that China needs to be concerned about.

COMMISSIONER WESSEL: Thank you.

HEARING COCHAIR REINSCH: Thank you. I only comment that I think that Frank's general point is correct, but the data is not a good way to measure that. You really have to look at things that don't happen as opposed to things that are denied. The denial number is always going to be a small number. It's really a question of what transactions don't go forward, which is hard to measure.

That said, I think, nevertheless, the point is correct, that you don't address the trade deficit through changing export controls.

Commissioner Blumenthal.

COMMISSIONER BLUMENTHAL: Yes. Thank you very much both for your testimony and for your public service. I have two questions for you. One is I believe the number \$400 million worth of defense related exports from Europe happened in 2004. I might get my number wrong, but I'm wondering if the strategic dialogue that has been begun with Europe, if you're seeing any discernable lessening since that time of exports from Europe.

I think clearly that the embargo issue may be off the table for now, but it seems like the issue of dual-use technology and what Europeans define as nonlethal technology is really more of the issue. I'm wondering if you can comment on inroads made with Europe on that issue?

The other question I had relates to what you mentioned as the main target of export controls which is the denying of C4ISR related technologies. So much of C4ISR is things like switchers and routers and things that you get from Cisco Systems and Sun Microsystems and things that are available commercially.

How is it possible to besides Supranet type of C4ISR means being able to network. I don't have to tell you that, but networks have different platforms. How can we possibly affect China's ability to acquire C4ISR related capabilities without essentially stopping some of our largest commercial sales to China?

Anyone can take those two questions.

MR. RECORD: The numbers that I gave you, commissioner, that I read out in the testimony, were the most recent available. I could go back to those in the State Department who compile those numbers and find out what the latest trends are. I don't have any more current information than what I gave you.

All I could tell you is that on a systematic basis we are talking to EU partner nations and expressing our concern about these issues, and they cover a wide range of lethal exports and some of the items you've just been discussing. So we're not talking about weapons in the classic sense, but these are topics that we talk about in our dialogue with the Europeans all the time, and they are increasingly aware of the interconnections that and the importance of some of these items to the military of China. But I would be glad to update those numbers as we get them.

MS. McCORMICK: I guess I'd just like to also add that one of the things that we try to do as we have these various dialogues, whether they're led by the State Department or whether we have them in our military-to-military kind of interactions through NATO and other places, we certainly try to at least begin to have a more common understanding related to the potential of a China threat, and I think that's a very important place to start because sometimes we can talk past one another if we don't even view China as being a potential threat.

So that's a very important foundation, and then upon that we can build and talk about in terms of how China is going about acquiring technologies and recognizing that they are going to get them from a variety of places, our consultation with who would ever be the major suppliers of those is very important, so that obviously doesn't include just the European Union but includes other countries as well.

COMMISSIONER BLUMENTHAL: But can you comment specifically--you said the major target is C4ISR related technologies. Is there any way to slow that down? If that's the main target, I'm wondering if there is any way we can stop China from acquiring these types of technologies when they're--

MS. McCORMICK: You've certainly raised a fair point that obviously some of the parts of what constitutes a network-centric kind of warfare would individually be kind of difficult to do, but I think what we're trying to look at here is a very comprehensive approach by China where they are trying to acquire what we believe to be the range of types of capabilities that make a modern military power act.

In many ways, when you take a look at what China is doing, they're emulating us. Because obviously they're putting in place the kinds of things that they know will assist in their military modernization. Such as where we take advantage of not only having sophisticated weapon systems but the ability for those weapon systems to be able to communicate.

So we're not suggesting that it's an easy problem, and obviously there are going to be things that, depending upon the nature of our specific controls, we're not going to be able to control. But we need to take a very comprehensive look at the overall way this is being acquired, and it is very complicated. And, though at times, one individual piece, you're right, I might not be able to stop. But how it all comes together I think it's very important at the way we look at it.

COMMISSIONER BLUMENTHAL: Thank you.

HEARING COCHAIR REINSCH: All right. Thank you. A good question. Commissioner D'Amato.

COMMISSIONER D'AMATO: Thank you, Mr. Chairman, and I thank the panel for some interesting testimony this morning.

I have two questions following the chairman's excellent lead of having multiple excellent questions. I only have two, one for Ms. McCormick and one for Mr. Jackson.

Ms. McCormick, this commission has called attention over the last few years to the problem of Israel military transfers to China. It's been a continuing concern over some sophisticated systems, some of which may have American technologies, the Falcon systems, and a missile system. Of course, we let ourselves into this during the Cold War, encouraging the Israelis to provide a counterweight to the Russians via China.

So we're not entirely blameless here. We've worked and met with DoD on a number of occasions and understand that you've worked hard to get this situation under control. So I was really quite interested to hear your comment that further legislative work on the part of the Israelis and bureaucratic changes are still needed in this area.

Now, I understand the department has got a joint effort with the Israelis to try and monitor this. Can you tell us a little bit more about what is needed and also would you be willing to provide us additional information for the record in either classified or, if necessary, classified form as a result after the hearing?

MS. McCORMICK: Certainly. Well, let me just say that the discussions with the Israelis in this matter have gone on for a period of time. In fact, my predecessor Lisa Bronson was the primary interlocutor for the Department of Defense and worked very closely with Herzl Bodinger from Israel who was a former Chief of Staff of the Israeli Air Force, and we've had an excellent dialogue with the Israelis over the past year. And a



clear recognition by the Israelis that they have many things that they need to do to enhance and improve their export control system.

My references in my testimony were for things that needed to be done because I think through that dialogue we recognize the fact that they had some things about their export control that needed to be improved, and we are certainly encouraging them to come up to what would be consistent with the Wassenaar Arrangement which with 40 other nations would be recognized as international standards and export control.

The Israelis' export control system is currently codified in some legislation that they would call emergency legislation, and so therefore as they make changes, it has to be put into primary legislation and therefore has to be adopted and approved by the Knesset. They've begun a series of changes that are well on their way, and we obviously are working closely with them, in fact, actually assisting with them in the kinds of things that we think we needed to do, and that's a combination that's been with cooperation from not only our Defense Department but our Commerce Department and our State Department, and we have an ongoing dialogue.

I attended back in January the Joint Political Military Group meeting with Secretary Hillen. We had a status report there. We have an upcoming meeting of a defense group here in April, and are getting regular status updates from the Israelis so they're making some excellent progress, but you have to obviously adopt things like legislation. While the legislation has been adopted, it's going to take time for their Knesset to adopt those.

But I've seen a seriousness by the Israelis that I think is important that they understand the fact that they need to make changes to their systems, and they're very sensitive about the fact that they indeed are the kinds of things that shouldn't be transferred to China, obviously, though, recognizing, as we all do, that China is a very attractive market, but I think we've made great progress in having them understand that China is something of a potential security concern and one that we should share in common.

COMMISSIONER D'AMATO: Thank you. Mr. Jackson.

MR. RECORD: Commissioner, I'll be sure to pass your question and this subtopic back to Assistant Secretary Hillen when he returns from his trip because I know it's something that he's very focused on as well. So I'll be sure to do that.

COMMISSIONER D'AMATO: Thank you very much. We'd like to have some further information about that.

MR. RECORD: Okay. Thank you.

COMMISSIONER D'AMATO: And then for Mr. Jackson, there's been a report recently that the implementation of a Wassenaar Arrangement for catch-all controls is being proposed as a separate regulation in Commerce for China.

This is being stalled or it's not moving forward. Can you provide some background and update as to where things stand within Commerce as to the proposed new regulation vis-à-vis China?

MR. JACKSON: That is a regulation, as you know, commissioner that would require a license for items that otherwise would not require a license because they are known by the exporter to be going to a military-end use in China.

Our catch-all regulation is in the process of development. We anticipate that we will be able to publish a draft sometime this spring perhaps. So we are certainly moving

forward with all deliberation in terms of appropriately framing and targeting that particular regulation, which will be an important one.

COMMISSIONER D'AMATO: But you think you'll propose a regulation sometime this spring?

MR. JACKSON: That's what we anticipate at this time.

COMMISSIONER D'AMATO: Thank you. Thank you, Mr. Chairman.

HEARING COCHAIR REINSCH: Thank you. Mr. Mulloy.

COMMISSIONER MULLOY: Thank you, Mr. Chairman. I want to thank the panel for being here this morning. I particularly want to thank my old friend Frank Record with whom I've worked in a bipartisan manner for many years in practice. Good to see you here in your new capacity.

MR. RECORD: It's good to be here. Look forward to those tough questions.

COMMISSIONER MULLOY: Our current account deficit is 800 billion this year, about 200 billion with China. I think that's a national security problem, the large current account deficit growing year after year. So I want to follow up on an issue that Mike Wessel raised. Any time you talk with the Chinese about your bilateral trade deficit, they talk to you about export controls.

I noted Frank Record pinned this to the mat on page five of his testimony saying it really is kind of nonsensical. It's not true. I note that the Chinese Foreign Minister, Mr. Lee, raised that issue again last week in an interview and Mr. Hawkins refers to that in his testimony today.

Why do you think the Chinese continue to make this--do you think this is just kind of gorilla dust they throw in the air to conceal the fact that we do have a big trade deficit and that there are real issues like exchange rates, IPR, subsidies, and they throw this up so that we don't really focus on the real issues? I want each of you to give me a quick response on that because there's another issue I want to get into on acquisitions.

Beth, why don't you start. Ms. McCormick.

MS. MCCORMICK: To be candid with you, I do not really have the expertise in that area because I tend to focus on the control of very critical technology, so that's a little bit outside my scope.

COMMISSIONER MULLOY: Mr. Jackson.

MR. JACKSON: Pursuant to what Mr. Record said earlier, as well as my comments, I think it's clear that the concerns when we talk about the deficit lie in areas other than export controls. I wouldn't want to speculate as to why the Chinese necessarily--

COMMISSIONER MULLOY: But there is no truth to it.

MR. JACKSON: --move away from the areas that really are of concern which we have clearly identified. But you are correct that they are not--

COMMISSIONER MULLOY: They always mention it.

MR. JACKSON: --appropriately focusing on the area of concern.

COMMISSIONER MULLOY: Good. Frank, you're on the record in your testimony of your view on this. Another side of the current account deficit, of course, is that the dollars are out there and people then could come back and make foreign acquisitions in this country.

I notice Ms. McCormick, you're worried about export controls, but on page two of your testimony, you say we are concerned about China's efforts in the following areas.

One of them is, quote, "coordinated strategic efforts to obtain dual-use technologies through trade"--okay--that's export controls--"joint ventures"--where they encourage our companies to invest and transfer technology in China--"and corporate acquisitions," acquisitions in this country.

So they've got the dollars. They can come over and buy the companies and then take the technology--right? Is that what you're talking about?

MS. McCORMICK: Yes, that's a little bit what I was alluding to there and obviously, in fact, my agency is actually the entry point for the Department of Defense's review of the Committee on Foreign Investment in the United States.

COMMISSIONER MULLOY: The Committee on Foreign Investment, this commission has made recommendations for that whole process to be changed.

MS. McCORMICK: Uh-huh.

COMMISSIONER MULLOY: Because we didn't think it worked. I think the Dubai episode has shown it doesn't work--they kind of let the president down because they kicked it out after 30 days and never did an investigation, which would have brought him into the process.

So it's broken. There is going to be reform of that process. I urge DoD to get very active in this because I think there was a provision of law saying that they should examine whether any country has a coordinated strategy to buy key technologies in this country. They did that study once in 1993 and it was required to be done every four years, and they didn't do it ever again.

They're examining these acquisitions one at a time rather than in any pattern or coordinated strategy. I hope DoD will get very active in this process.

MS. McCORMICK: Well, sir, if I may just comment. Let me assure you that my agency is intimately involved in both the interagency improvements to the CFIUS process, which I believe in and have been very much committed to, by working with Treasury, particularly Deputy Secretary of Treasury Kimmitt. He testified just a week or so ago before the Senate Banking Committee, and we are looking at a variety of improvements to the CFIUS process, and my agency along with the Department of Homeland Security and the Department of Justice are very strong members of the CFIUS process, and I think we're all doing a bit of a, I guess we'd call it in military terms, a "hot wash" after the DP World to figure out.

Those improvements to the process were already really started last year, following a report by the General Accountability Office that indicated some additional concerns with the CFIUS process and those processes were in work even prior to the situation with DPW.

COMMISSIONER MULLOY: I might have a second round. Thanks, Bill.

HEARING COCHAIR REINSCH: Thank you. Commissioner Donnelly.

HEARING COCHAIR DONNELLY: Thank you Mr. Chairman, and thank you to the witnesses. Good to see an old friend or two here. I want to pick a little bit more at the issue of IT transfers and C4ISR ambitions of the People's Liberation Army. It does seem to me that the process, as we attempt to reform it, it's possibly focused on the wrong thing.

But the thing to me that seems less relevant is not so much where our technology goes into their industry, but where it comes out of the exhaust pipe in the forces in the field.

Of course, that's the thing about which we had even less transparency and less understanding than the then after license agreements on the industrial side.

Can you see any way to link the transfer process to greater transparency so we can monitor how these technologies are transmitted into the PLA and how they're operationalized by the military? I'd be more interested in what chips end up in fire control computer on destroyers or submarines than who holds the license for those systems.

Second question. If you can provide us either now or for the record with an anecdote or two when it comes to IT transfers and C4ISR issues, a case, or just walk us through how the process really practically works in some specifics, that would be very valuable. Getting from the macro policy to the application of policy is sometimes difficult to follow. So those are my two questions.

HEARING COCHAIR DONNELLY: It's a question for any panelist to comment.

MS. McCORMICK: Well, just to make a comment.

HEARING COCHAIR DONNELLY: Secretary Jackson's distinction between the end user and the end use, I think, is a useful one.

MS. McCORMICK: Let me just make a comment in that regard and then just maybe pick up on something that I believe Assistant Secretary Rodman from the Defense Department might have said yesterday.

We really try to make a conscious effort when we review all transactions and license applications and that's not any really different with China. We do it very aggressively. I've got an assessments part of my agency which does a variety of end user checks utilizing a variety of intelligence information to make sure that, when we have a license application, the end user is who it is, and that we believe the end use that is being asked for in the license is how it's actually going to be used.

Obviously, in the case of China, I must say I think it's challenging, and there are places where we believe that we know what these end users are, but it's an area where we probably need to do much more work in terms of looking at what an end user might appear to be as a civilian user. But obviously the possible transfer and the sharing of that information over to the military side would be a very important point for us to guard against.

In terms of your question about how could there be a better understanding, I think Secretary Rodman in his testimony yesterday mentioned about the fact that while obviously we spent a lot of time talking about China as a potential threat, it's also very important for us to have greater transparency related to their military modernization program, and therefore we are trying to have a greater set of military to military discussions. In fact, Secretary Rumsfeld himself visited China not all that long ago.

HEARING COCHAIR DONNELLY: Is there any way to link the export control process to greater transparency into the PLA itself? Again, not into who holds the license, but what happens to the widget or the software after they get it?

MS. McCORMICK: It would be nice to say that it would be. It would be a great thing to do. In fact, this is an example where maybe this commission can give some good ideas because I think it's a challenging area because transparency in general is a challenging piece of this puzzle, and obviously there are a lot of things about the Chinese military that are very difficult for us to get a real true handle on, so any suggestions you all could make would certainly be helpful.

HEARING COCHAIR DONNELLY: Be careful what you wish for.

MS. McCORMICK: Well, that's okay.

HEARING COCHAIR REINSCH: Thank you. Commissioner Houston.

COMMISSIONER HOUSTON: Thank you, Mr. Chairman. Thank all of you for being here today. Fortunately, for the timing of this panel, Commissioner Wortzel and Commissioner Blumenthal stole most of my questions. I only have a few thoughts left.

Senator Thompson mentioned at the beginning of his remarks that anything that did not come from us into China would probably come from Europe, which China would look to Europe. So my question that I believe is aimed at Secretary Jackson, but I'd be interested to hear what either of the other speakers have to say.

My questions really deal with timing and the personnel presence targeting verifications and end user checks. We all know that there are all kinds of back trading of widgets going on, things that are going to one trading partner and ending up in China. That's clearly obvious.

Part of my question is on timing. Say, for example, we sent a large widget to France and someone checks that there's a signature on the France end of the widget. What is the timing to ensure that some of this technology and the widgets themselves actually stay in France or stay in Germany or stay in any of our training partners that we believe are transferring them to China?

Six months later, a year later, is there any kind of infrastructure for that at all? That kind of brings back to the second half of the question, which has to do with presence. Secretary Jackson, you noted that you have three people in Beijing. My question is, is that really where they need to focus and where to be?

Is it more effective to have personnel in other places in Europe or in other parts of the world to do these end-user checks to make sure that they are staying where we have sold them to versus China, and is there an infrastructure in place already here in the DoD or at Commerce to have personnel in some of these other places where we have these back traders?

MR. JACKSON: You raise two very good questions, commissioner. First, in terms of timing, we do have a system in place. Obviously, I can't delve into the details here, but we work to ensure that when an item is shipped that is of concern to us that we follow up as appropriate to ensure that the item is in fact where it is supposed to be and being used as it is supposed to be used. So it is both a question of the end user as well as the end use.

In terms of presence, yes, while we do have export control officers stationed in China as well as in other locations on a full time basis, in five locations around the globe, we do supplement our resources in that regard with what we call sentinel trips which are teams of two special agents who are sent out all over the world including this hemisphere, to Europe, to the Americas, and the rest, to ensure that items in those countries where they're supposed to be and not being, as you indicated, transshipped someplace else that we do not want. So those are two very important issues to us, and we do follow up appropriately.

COMMISSIONER HOUSTON: All right. Thank you, Secretary.

HEARING COCHAIR REINSCH: I have to say, Mr. Jackson, you missed a golden opportunity to respond to that last question by simply saying that if the Congress wanted to give you an additional \$3 million, you'd be glad to put additional agents in all

the places where we really need them. You don't want to miss these opportunities when they appear.

In any event, Commissioner Bartholomew.

VICE CHAIRMAN BARTHOLOMEW: Thank you very much and thank you to our panelists. My apologies for missing your testimony, but I'm looking forward to reviewing it.

I had the pleasure of meeting Secretary Jackson several weeks ago, and Frank, welcome. It's nice to see you. We were colleagues a number of years ago.

Two questions on my end. Yesterday, the president put out the National Security Strategy Report in which the first pillar is promoting freedom, justice and human dignity. Given that, should the U.S. government restrict the sale of U.S. equipment and software used by the Chinese government to censor the Internet, and if not so, what should we do?

My second question is how do we know that dual-use technology to Hong Kong isn't getting into China and places where it shouldn't be?

Thanks.

MR. JACKSON: In terms of the system in Hong Kong, if I may start there, we do have, as you know, the two countries system, and we do have as you know, one country, two systems approach, and Hong Kong is one of the places where we have a permanent export control officer. So we work in Hong Kong to make sure that things are not diverted from there to other parts of China, or to other countries for that matter by staffing that location full time.

I'm not sure I can recall your first question. I apologize.

VICE CHAIRMAN BARTHOLOMEW: My first question was whether we should be allowing the sale or banning the sale of U.S. equipment and software that's being used by the Chinese government to censor the Internet?

MR. JACKSON: I think that obviously we should be concerned as a government any time that there are infringements of what we obviously view as free speech rights here in the United States. We should do what we can to make sure that other governments are not oppressing their citizens in that regard. The administration, I believe, is moving forward to take steps with the Department of State in the lead in that regard.

VICE CHAIRMAN BARTHOLOMEW: Mr. Record? Ms. McCormick, any additional comments?

MR. RECORD: There is, in fact, an Internet task force that the Secretary of State has got formed up and we're strongly working on freedom of speech and expression and the Internet, and these are some of the issues we're going to be looking at as well.

VICE CHAIRMAN BARTHOLOMEW: Ms. McCormick, any response?

MS. MCCORMICK: I just want to comment on your question related to Hong Kong. I can tell you that every time we have a license that we have an opportunity to take a look at, and it's going to Hong Kong, we try to take a look at it somewhat independently, but then we do certainly do in our own minds the diversion scenarios and think about how it could end up in China.

MR. JACKSON: If I may add, Hong Kong does have a robust export control system and those of us at BIS have had ten years' worth of enforcement talks, bilateral enforcement talks with them. I will be leading those discussions with Hong Kong, the

bilaterals, this year, the 11th year, and we'll be traveling to Hong Kong in mid-May for those purposes.

VICE CHAIRMAN BARTHOLOMEW: Okay. Thank you.

HEARING COCHAIR REINSCH: Thank you. Yes, I'm glad you brought that last point up, Mr. Jackson. One of the things that the Clinton administration began was biannual consultations which have been very successful. The Hong Kong government takes its duties very seriously and is determined to set up a strong and well-informed system to prevent leakage, if you will.

They're no doubt under great pressure in that regard, and I'm glad to hear that the Department of Defense looks at these things closely. I have to say thus far I think their record has been quite good.

I'd also say on a side note I know quite well Mr. Jackson's agent in Hong Kong who has actually visited the commission in the past, and he's a dedicated and experienced civil servant who has done an extraordinarily good job earlier in China and now in Hong Kong. I'm glad that you have him there, and if you can talk him out of retiring, more power to you.

I'm going to ask a couple questions, if I may. Mr. Record, can you tell us or submit later which EU nations are also going to implement their Wassenaar obligation with respect to China?

MR. RECORD: Which nations have or will?

HEARING COCHAIR REINSCH: Which EU nations are also going to implement the Wassenaar catch-all obligation?

MR. RECORD: Yes. I'll get that for you for the record, Bill.<sup>13</sup>

HEARING COCHAIR REINSCH: That would be helpful. My understanding is there's two or three. It would be good to have a list.

The obvious issue, of course, is if we're about to make a control that is effectively unilateral, that ought to be something that we are thinking about as opposed to a control that would be multilateral.

Mr. Jackson, you said something very important twice, which was that the proposed regulation is going to come out in late spring. Can I pin you down a bit on that? Late spring, May, June, July, August? Am I in the ball park here?

VICE CHAIRMAN BARTHOLOMEW: This year?

HEARING COCHAIR REINSCH: This year. Later is good. Don't get me wrong. I'm just trying to get a sense of what's going on.

MR. JACKSON: Well, first of all, thank you for the compliment that I said two important things this morning. That's higher than my average for most days, I have to say.

HEARING COCHAIR REINSCH: Don't get too excited. It was the same thing. You said it twice.

MR. JACKSON: But unfortunately I really don't think I'm in a position to be more specific than the fact that we are working towards it this spring, commissioner.

HEARING COCHAIR REINSCH: Thank you. I take the words "late" and "spring" to heart.

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<sup>13</sup> [Additional information submitted by Francis C. Record indicating which EU nations are likely to implement a Wassenaar catch-all obligation.](#)

Ms. McCormick and also the rest of you, if you want to comment, you did tiptoe perilously close to my initial question in your written testimony, both you and Mr. Record did in particular, but perhaps I can draw you out a little bit more.

What exactly, what items or technologies are you worried about the Chinese getting that are not presently subject to control?

MS. McCORMICK: I must tell you off the top of my head and I don't have that information with me, I would like to provide an input on that. We've gone back and working with the Departments of Commerce and State on the proposed military catch-all, we took a really close look back. In fact, actually, sir, I believe because some of the interactions you had with me and my boss, you encouraged us to be sensitive to the fact that we wanted to be careful that we didn't constrain commerce and that we were really putting things on the list that were really very militarily significant.

So my staff actually has worked back and we've gone through I think one or two scrubs of the items then that we might want to think about. We provided that information to the Department of Commerce, which then I think they're taking into consideration as they write their rule.

So I want to be a little careful because I'm not sure the Commerce Department liked the list that the Defense of Department--we're in a continuing dialogue on that. But we did take to heart very much your suggestion that we needed to be careful that we weren't too comprehensive, but at the same time that we had given it a thorough scrub and my technical staff has done that and then provided the information to the Department of Commerce.

HEARING COCHAIR REINSCH: Well, I very much appreciate personally the dialogue that you've been willing to enter into with some of my colleagues, although I didn't participate in one of the meetings that was a more detailed discussion.

MS. McCORMICK: In fact, that's what I was going to say. In fact, I think some of your colleagues took me up on my offer to come over and actually meet with some of my technical and regulatory specialists.

HEARING COCHAIR REINSCH: They did. It was such a surprising development that someone at DTSA volunteered to have a meeting that we immediately seized on the opportunity and sent people over.

MS. McCORMICK: What can I say?

HEARING COCHAIR REINSCH: Well, it was very much appreciated, and I think the dialogue is welcome and you'll probably produce I'd like to think a better product as a result of it.

Mr. Jackson, since she pointed the finger at you, do you want to answer the question?

MR. JACKSON: I think it's fair to say that, as you indicated, this was a proposal that we want to carefully target at technologies that will make a meaningful contribution to China's military but without impinging on civilian trade. That's long-standing U.S. policy.

We see it at the moment as an incremental increase rather than a dramatic increase, but again it is fair to say that it is a work in progress and we will have to see where we end up in that regard.

HEARING COCHAIR REINSCH: Mr. Record, would you like to evade the question as well or do you want to stand on your previous--



MR. RECORD: I don't want to disappoint you, Bill, from your initial comments, but the State Department has also played a role in these issues about trying to find a list or a set of items where we all agree there's a clearly identifiable problem out there.

I know we've had a number of meetings as well with you and others to try and work through some of these issues at the State Department. So I think that's part of the reason why this regulation has taken as long as it has because I think we're trying to get it right the first time and when we come out. So I think it's going to be a regulation that goes right to the heart of the problem and assesses the real threats out there.

HEARING COCHAIR REINSCH: Well, thank you. If you want to send us a list, we'd be glad to have it. It would be nice to wrap up since we're about five minutes late, but let me ask Commissioner Thompson, do you want to come back with anything or are you okay?

HEARING COCHAIR THOMPSON: Yes, I would. Thank you. I don't represent anybody who has this interest, but for my own interest, I would ask you to go back and scrub it again and consider it from the other standpoint and a lot of people are of the opposite standpoint. A lot of people might ask in view of all that we know that the Chinese are doing and where they are and what their efforts are and how difficult it is--I'll look forward to how many end user verifications that we're conducting now.

My personal view is it's an awfully big country and we know what their motivation is. We know what they're trying to do. We know the advances that they're making. We had a full day of testimony yesterday on that.

I've come to the conclusion that it's extremely difficult in terms of the manpower that you've got and what Congress has allotted you, extremely difficult, to know what they're doing, and I see here in your testimony, if I read this correctly, license applications to China we're bending over backwards to try to convince the world and the Chinese that, well, your balance of trade argument is faulty because we're giving you practically everything you're asking for.

Well, you may win that argument, which I think is a ridiculous argument to even be engaging in. It's preposterous that they would take that position--but raise other questions as to why we're sending encryption technology, why we're sending machine tools, thermal imaging systems? We don't know what they're doing with that.

I would ask you to go back and look at those items and look at your process and really be realistic with yourself and honest with the American people as to the extent of what we know and don't know and the cumulative effect, perhaps, of these things that we're sending.

I think the average guy on the street would wonder in view of where we are why we're sending hardly any munitions items over there and why we're sending anything that would be questionable. If for no other reason, what is the motivation for doing that? The infinitesimal economic benefit that we get from it? You're already talking about what we're losing by export controls is less than a half of one percent of the GDP the last time I looked at it.

So what are we benefiting from that when on the other hand we're trying to get them to stop proliferating? We're trying to get from giving them military stuff that their military is not supposed to have that we're sending over there commercially. We're trying to get them to liberalize on a human rights front, and we've got a ready-made sanction

material, it looks to me like. They won't let us do the post-shipment verifications unless they've changed their policy recently that we want to do.

The answer to that is, okay, until you do that, we're not going to send you munitions items of any kind, period. It's a ready-made hand-delivered opportunity to deprive them of something that they want which we really don't have any way of knowing whether or not they're using in a way that we know that they would like to use them.

My question is with regard to a question that was raised a minute ago. I picked up a little something on this in one of the trades where we're changing the measuring stick from MTOP to teraflops or whatever it is. Is that true and what is the significance of that in terms of the control level of our high performance computers?

Is that accurate? Ms. McCormick, could you comment on that?

MS. McCORMICK: I'll speak to it a little bit. I don't know if--this has been an act of--in fact, it took us several years actually to work through these and it's been a collaborative effort between the Commerce Department, the State Department and the Defense Department.

At the Defense Department, we did a lot of the heavy lifting of the analysis in terms of taking a look at the computer market and whether or not the MTOP control, which has been in place for a very long time, whether or not it was really allowing us to take a close look at what were really the types of high performance computing which were significant for national security.

We believe that the changed standard will allow us to really put the right kind of controls around what are really very high priority vector-type computers which would be the kinds of things which would be more appropriate for doing the kind of very high speed, quick kind of calculations that would be most important.

HEARING COCHAIR THOMPSON: Right. I've been familiar with the concern for years; a lot of people thought MTOP criteria was outdated and so forth.

MS. McCORMICK: Sure.

HEARING COCHAIR THOMPSON: But in layman's terms, which are about the only ones I can understand in this area, the MTOP criteria was based on the power of the computer and how fast it could do its work. What does this new standard incorporate in addition to that?

MS. McCORMICK: Well, the biggest problem with the MTOP, and again I'm not a technical person, sir, so I have these people who normally work with me, and they can get me to talk about floating precision points. They've gone a long way to explain things to me as well.

The problem, as I understand it, with the way MTOP has calculated it, that you actually tended to have an over-calculation on that speed parameter. So a lot of the types of things that are out there today in the video market, play stations and things like that, you actually had an overestimation of those types of things because of that speed parameter.

Then for computers, which had a lot of other analytical and computational kinds of capability and the ability to do significant data mining, they were actually very much underestimated by the MTOP standard, and so that's why we thought going to this standard made more sense because they're able to really capture the kinds of attributes of

high performance computers that are really necessary to support military analysis and the development of weapons capabilities and those things.

HEARING COCHAIR THOMPSON: What do you think the practical end result of that will be in terms of our export policy?

MS. McCORMICK: Well, I'm going to say that I think in terms of the numbers of licenses we see, I'm not sure that it will impact it significantly because we see some countries, very few countries in the world, are able to really develop the kind of vector, high-performance computers that we are.

In fact, in actually developing this metric, by the way, we worked very closely with the Japanese because we are really the only two countries in the world that are really developing these kinds of computers. A lot of other countries are plugging together pieces of computers in what we call these cluster types of computers.

So in terms of the actual licensing, we might see a very limited change to it, but again I think we felt that the control and the revised control is really going to let us, at least, focus in on the kinds of computers that really are necessary to support very sophisticated military research and development activities and those things.

HEARING COCHAIR THOMPSON: So you don't really see a liberalizing or a restricting in terms of approvals because of this?

MS. McCORMICK: I don't. I actually see it to be much more consistent with basically a standard that we will be much more consistent with what has been really the evolutionary and revolutionary aspect of the computer market.

HEARING COCHAIR THOMPSON: Thank you. That's all I have.

HEARING COCHAIR REINSCH: Thank you. That might also be a question we could ask the next panel.

HEARING COCHAIR THOMPSON: Right.

HEARING COCHAIR REINSCH: We can hear it from the private sector perspective, speaking of which, we are now a little bit behind; if we can change panels. Let me thank these witnesses very much for their contribution and their patience. We appreciate it. We look forward to the material you've agreed to supply for the record, and we'll move on to the next panel.

[Whereupon, a short break was taken.]

## **PANEL VII: PRIVATE SECTOR VIEWS ON U.S. EXPORT CONTROL REGIMES**

HEARING COCHAIR REINSCH: We're going to reconvene, if the panel would take their seats. Welcome back.

Let me remind the panelists we really are going to hold you to seven minutes for oral testimony. We will insert your entire written statements in the record so don't feel either that you have to deliver it or that you have to ask.

I think for the sake of simplicity, why don't we just begin with Mr. Hawkins and work our way that way if that's acceptable. Is there anybody that has a time problem and needs to leave sooner than anyone else? No. Then why don't we simply begin with Mr. Hawkins, and we'll proceed along the panel that way.

Mr. Hawkins, please begin.

**STATEMENT OF WILLIAM R. HAWKINS, SENIOR FELLOW  
U.S. BUSINESS AND INDUSTRY COUNCIL**

MR. HAWKINS: My name is William Hawkins. I'm with the U.S. Business and Industry Council, and I want to thank the commission for inviting me to represent our organization's concerns on the question of transferring technology to China. Our organization represents members from a variety of sectors of the economy. We're not a normal trade organization that focuses on just one industry.

Some of our people do defense contracting work. Some are in high technology, and a lot of them have been affected by competition with China or China-based rivals. We've also had a long history as an organization of being concerned with more than just narrow business orientation or the parochial concerns of our members.

We have a long history of supporting a very active foreign policy, a strong national defense. Our members, our executives feel that whatever it takes to maintain America's preeminence in world affairs, we'll rebound to them as Americans, and therefore we support strong government policy.

Therefore, when we look at China, of course, we see a rival and we are certainly in sympathy with most of what was said yesterday about China's modernization. We see China as the most likely peer competitor to us in the future, and we're worried about anything that enhances China's capabilities to compete with us.

I was happy to see on the last panel that this issue of China's constant complaint, that if we would just release our or relax our export controls, we could solve the trade problem with China. I wanted to say a little bit more about that including citing the Chinese Foreign Minister's comment because I think there's more dimensions to it than were just touched upon in the questions in the last panel.

He said that China opposes legislation influencing normal trade cooperation and we should work together to develop healthy Sino-U.S. trade relations, that there are some very expensive, as he put it, things that they, Americans, don't sell, items with high technology content that have, and really it's explicit, dual civilian and military uses. I thought that was a little beyond the usual Chinese argument about high technology stuff to actually mention dual military uses.

He tried to put the question entirely in the private sector; that is not something that should really be a concern of politics of government. They even said sometimes we don't need to politicize these issues; it is better to follow the norms of the World Trade Organization.

I think it was Mr. Blumenthal in the last panel mentioned what are the Chinese doing? Are they trying to divert our attention with this issue? I think that's partially true. They also do want access to the technology, of course, but I think they're also with this, particularly from this statement, makes this a private sector matter. I think they're waving a carrot in front of American business to get American business to lobby harder for export relaxation.

As a former Senator from Tennessee who became U.S. Ambassador to China, James Sasser, has said, China doesn't do much lobbying itself. It relies on the U.S. business community to lobby for it. I think that's the appeal that's being made here, not to

my organization, but to others I think that may be appealing until you actually look at the numbers. Some of them we looked at in the last panel, but if look at where China buys most of its foreign weapons systems, which is Russia, even a high dollar year like 2003, the Chinese only imported something like a little over \$5 billion or weaponry, and that included aircraft and missiles, not just technology.

And that compared to a \$200 billion trade deficit we were running with China, even if we were to sell things on the same scale that Russia does wouldn't be a drop in the bucket. The trade deficit is a matter of mass market phenomenon, of selling mainly to the American mass market for the trade deficit, and this weapons and high technology stuff really isn't a mass market phenomenon. Even this closely associated aircraft industry isn't--I think it was mentioned last year we sold \$2 billion worth of civilian aerospace materials to China. That again is a very small part to a \$200 billion trade deficit.

China is, of course, ballyhooed as a great market for future aerospace development. They want to buy 2,800 aircraft in the civilian market, \$168 billion market, but that's over maybe a 20 year period. You divide that on a year to year basis, and give half of it to Airbus, because China will continue to play Airbus and Boeing off against each other, that still doesn't come to enough to solve the trade deficit with China.

As to the foreign minister's claim that we ought to abide by World Trade Organization norms for trade in this area, it should be mentioned that Article 21 of the GATT, 1994 GATT which is the rule on this, says that the traffic in arms, ammunition and implements of war and to such trafficking in other goods and materials as is carried on directly or indirectly for the purpose of supplying a military establishment, is outside the normal rules of trade.

This is because everybody knows that military or anything related to military capabilities is inherently bounded by international politics and national security concerns. It is not normal trade. It never has been and should never be considered that. So again, the Chinese claim is wrong all down the line, and both in principle and in practicality.

Another aspect of this which wasn't touched on is, of course, the costs to society from the appeal of private sales because some companies would profit by, if we lifted the restrictions it wouldn't solve the trade deficit, but it would certainly better the books on some companies, some corporate ledgers, but what would it cost us as a society or as a government or as taxpayers to make up for the erosion of the gap in capabilities because what we're talking about here is not the trade gap but the gap in military technology and capabilities, which we still have and need to maintain one or two--and I think this is official policy--one or two generations ahead of the Chinese.

We have an example from the Cold War era when Toshiba Marine sold multi-access milling machines to the Soviets which they used to make quieter propellers for their submarines. Toshiba got something like \$17 million for that sale. Estimates of how much it cost us or cost the Navy to try and recapture that lost capability, so that we could still detect Soviet submarines which were now using those quieter propellers, range anywhere from I think the lowest I've seen was \$2 billion. Some have gone as high as 30. For my written testimony I submitted, I picked a middle range estimate of \$10 billion.

So for a \$17 million sale for a private company, it cost the U.S. government \$10 billion or some billions to try and recapture that capability.<sup>14</sup>

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<sup>14</sup> [Prepared statement of William R. Hawkins, Senior Fellow, U.S. Business and Industry Council](#)

HEARING COCHAIR REINSCH: Thank you, Mr. Hawkins. We'll get back to you in questions.

Mr. Rice.

**STATEMENT OF EDMUND RICE  
PRESIDENT, COALITION FOR EMPLOYMENT THROUGH EXPORTS, INC.**

MR. RICE: Thank you, Mr. Chairman and members of the commission. Just to pick up first on one point that Mr. Hawkins raised, I am a lobbyist on export control issues now, after having worked over in the House of Representatives on these issues for many years.

The foreign pressure I've gotten to lobby to loosen U.S. export controls actually came about three weeks ago from the Taiwan business community, not from the mainland. The Taiwan business community is quite worried that the trend of tightening U.S. export controls is going to interfere with their ability to buy U.S. equipment and move it to the mainland which, of course, is accelerating.

Let me move on to make three quick points to get to the discussion. The first is that export controls are a policy tool, not a policy. That sounds like an obvious point, but I was struck over the years, especially since the end of the Cold War, that when several administrations' worth of officials came up to talk to us in the House about export controls. Well, we have export controls, we're fighting to maintain our controls, but when you got to talking about why, what the goal was and what the specific policy purpose was, it got real vague real fast.

So I think it's very important to remember that it's a tool to accomplish U.S. policy, not a policy in itself, and in considering recommendations, I would suggest that you should focus on what U.S. controls are intended to accomplish. The more precise that can be made, I think the more likely that you can come up with specific recommendations on how export controls can further that policy.

If we are to rely on export controls to address the very serious issue of China's military rise, then we must have an accurate assessment of what the effectiveness is and not fall into the trap of believing that simply because we have controls that's somehow supporting critical elements of U.S. policy.

Second point is that U.S. controls are largely unilateral, both in the munitions and in the dual-use area. In the munitions area, U.S. controls are no doubt having some effect in maintaining the U.S. qualitative advantage in high end military technologies.

Basic weapon systems, as the Pentagon will tell you, are available virtually without restriction for China from Russia, and militarily significant items that are not weapons systems but are still important are available widely from Europe. Europe does, of course, maintain an embargo policy, but what is subject to that policy is a decidedly different ambit of technologies than the United States considers to be appropriate.

In the dual-use area, there is no other government that matches the scope of U.S. controls with regard to China. Only Japan maintains controls on dual-use items for civilian use to any significant degree at all, and outside of Japan and the United States, China has virtually unfettered access to dual-use technologies for civilian end use, and as Senator Thompson quite rightly pointed out, there is virtually no way for the United States or any other government to ensure that an item or a technology obtained for

civilian purposes is not going to be diverted. It's simply not possible to do in today's world.

Third point is that there are important implications from the unilateral nature of U.S. dual-use controls especially, as I say, China can obtain U.S. items from third countries. It's not illegal in any other country, other than Japan, to take and retransfer U.S. controls, notwithstanding U.S. export-reexport control provisions. How do you enforce those in a third country when it's not illegal?

The other point is that in the dual-use area, as opposed to the munitions area, there is virtually nothing in the U.S. origin dual-use area that is unique in today's world. China, therefore, can get equivalent items or largely equivalent items from other countries that do not maintain controls at all in open unrestricted commerce. Tracking that, let alone controlling it, is a daunting task to say the least for the U.S.

In conclusion, as long as U.S. controls, particularly in the dual-use area are unilateral, they will be a very limited tool in carrying out U.S. policy in dealing with China's military modernization or China's rise generally, and the corollary is that if we seek to strengthen export controls as a policy tool, then the United States and certainly this commission ought to focus on what we are doing with other governments to change their policies.

That's where I would suggest would be the most fruitful area for the commission in its further work. Thank you.  
[The statement follows:]

**Prepared Statement of Edmund Rice  
President, Coalition for Employment Through Exports, Inc.**

Mr. Chairman and members of the Commission, thank you for inviting me to participate in this hearing to discuss export controls and China. I have worked on export control issues for some 16 years, both as a professional staff member on the House International Relations Committee and in organizing and coordinating an industry working group.

In your letter of invitation, you asked me to comment on three specific issues:

- 1) the impact of U.S. export controls (related to China) on U.S. industry
- 2) the extent to which Chinese entities can obtain U.S.-controlled items from other sources
- 3) the steps needed to improve U.S. export controls.

**EXPORT CONTROLS ARE A POLICY TOOL, NOT A POLICY**

It is important to keep in mind that export controls are a tool to carry out U.S. foreign policy and security policy, but they are not a policy themselves. While that may seem to be an obvious point, it is often not clearly understood, even within the U.S. government. To be effective, export controls must have a precisely defined role in advancing a coherent U.S. policy goal. This is especially important when U.S. export controls are unilateral, or largely unilateral, as with regard to China.

Therefore, in examining the use of export controls for China, the Commission should focus first and foremost on what such controls are aimed at achieving, as specifically as possible. Only then can the controls be evaluated or recommendations be made for improvement.

**MUNITIONS VS. DUAL-USE CONTROLS**

As the Commission knows, the U.S. operates two parallel export control systems, one for munitions (items for military use) and a second for dual-use (items with both civilian and military uses and civilian items

that are controlled for foreign policy reasons). The fundamental U.S. policy is to deny transfers of U.S. goods or services to China for military end-uses. U.S. industry agrees with that policy.

U.S. controls on dual-use items and technology are more complex. Some are for foreign policy purposes, vestiges of our Tiananmen sanctions. Other are aimed at denying Chinese access to civilian technology that could benefit their military modernization. In addition, some of the “deemed export” controls (i.e. on transfer of technological information to Chinese nationals while in the U.S.) are to counteract industrial and military espionage.

During FY 2004 (the most recent public data), China accounted for 10 percent (1,336 licenses) of all dual-use licenses issued (13,058), the largest amount for any destination. More than a third of those licenses were for deemed exports, again, transfers of technological information to Chinese nationals while in the U.S. The Bureau of Industry and Security FY 2004 annual report indicates that most of the China cases involved: semiconductor and integrated circuit manufacturing equipment, equipment for manufacturing other electronic components, numerical controllers, chemical manufacturing equipment, toxic monitors and certain toxic chemical precursors, cameras, advanced composite materials and biological handling equipment.

#### U.S. CONTROLS FOR CHINA ARE LARGELY UNILATERAL

In both the munitions and dual-use areas, U.S. export controls are largely unilateral. For munitions items, the extent of the U.S. embargo is not matched by most other governments. Russia has extensive military exports to China. The European Union maintains a policy of restricting weapons sales, but other military items are transferred to China. Nevertheless, the U.S. embargo is doubtless contributing to the U.S. goal of denying Chinese access to the most advanced U.S. military technologies.

For dual-use items, no other government matches the scope of U.S. controls, and most other governments do not maintain any controls on transfers to China for civilian end-uses. Moreover, only Japan has any significant dual-use restrictions for China, which means that China has virtually unrestricted access to U.S. dual-use technologies through procurement in third countries. The U.S. long ago lost any monopoly on dual-use technologies, so the U.S.-only controls are having no measurable effect in restricting Chinese access.

#### CONCLUSION: U.S. EXPORT CONTROLS HAVE A VERY LIMITED ROLE IN U.S. POLICY TOWARD CHINA

Since China can obtain basic weapons systems from Russia, and other significant military technologies from Europe, the only effect of U.S. controls is on a very narrow scope of cutting-edge military technologies that are unique to the U.S. That is an important contribution, but very limited.

Since China has virtually unfettered access to dual-use items and technology everywhere in the world except the U.S. and Japan, U.S. controls have virtually no effect in restricting dual-use technology transfer to China, including U.S.-origin items. As a result, dual-use export controls cannot be relied upon as a tool for carrying out U.S. policy goals with respect to China.

HEARING COCHAIR REINSCH: Thank you. Mr. Markey.

#### **STATEMENT OF JAY MARKEY PRESIDENT, NABCO, INC.**

MR. MARKEY: I appreciate the opportunity to address the commission on this important topic. First, I will provide a background regarding NABCO, Inc. and NABCO products. I am the president and CEO of NABCO, Inc. Founded in 1986, NABCO is a manufacturer and marketer of homeland security solutions. These solutions provide



protection from biological, chemical, explosive and radiological threats for the worldwide security market.

The company is the world's leading designer, developer and manufacturer of the total containment vessel. The total containment vessel is used for the containment and transport of improvised explosive devices, IEDs, and is used by bomb squads, police and military.

Although NABCO is a small business located in western Pennsylvania, the NABCO TCV is considered state-of-the-art by many of the leading agencies and departments worldwide. NABCO's production facility is located in Washington, Pennsylvania, which is approximately 30 miles south of Pittsburgh, and we employ 22 individuals.

We are the leading supplier of TCVs in the U.S. and NABCO has also placed a number of units internationally throughout high-security minded countries. Our level of high quality is consistent with many U.S. products and makes U.S. goods marketable to foreign countries, thus benefiting the U.S. economy.

Next, I will provide information regarding NABCO's experiences with U.S. export controls for exports to China.

In the year 2000, NABCO requested a commodity jurisdiction from the U.S. Department of State as recommended by U.S. Customs. The U.S. Department of State determined the NABCO TCV to be under the jurisdiction of the U.S. Department of State through a commodity jurisdiction letter dated April 10, 2001.

This product jurisdiction resulted in loss of business to China for the following reason: if the product was determined to be under Commerce Department jurisdiction, the controls on exports related only to embargoed countries, denied persons and proliferation end uses. By placing the jurisdiction under the State Department, however, exports are prohibited to China unless a Presidential Waiver is granted.

The State Department jurisdiction led to the denial of an export license for export to China. The license application was submitted on February 21, 2001. The Chinese end user had stated that the end use was for security for a ministerial meeting in October 2001 that included attendance by the President of the United States.

Subsequent to the denial, we were able to obtain a reconsideration of the case. As a result of numerous meetings with the State Department and the diligence of certain individuals there, we were granted a Presidential Waiver on January 9, 2002. The license was granted February 8, 2002. This license took one year to process.

Although we applied for the license with more than six months lead time, we were still unable to fulfill the customer's delivery requirement for the October 2001 ministerial meeting.

From the perspective of the foreign customer, this makes NABCO appear to be an unreliable supplier. Currently, we have submitted a second application for export of goods to China. We were hopeful that the previously obtained Presidential Waiver could also apply to the current application. Due to the type of end user, however, the current application has not been approved.

It continues to languish in the State Department offices. The application was made on June 14, 2004. We meet and communicate regularly with our contacts at the State Department. Although they are diligently trying to move the case forward to

approval, they are unable to do so. Unfortunately, because of these inordinate delays, the customer has found another supplier of containment vessels in Sweden.

Should a license be granted, the customer in China will purchase a NABCO product because it is preferred by him. However, we not know how long we can continue to maintain his interest. NABCO's reputation is at stake as another potential customer in China is under the impression that NABCO is an unreliable supplier through no fault of our own.

Our foreign competitor has capitalized on this situation. Our sales representative tells us that technology similar to the NABCO TCV is readily sold to China from several worldwide sources. He states that the export control restriction is only hurting U.S. business and restricting the technology from reaching the entities that need it in China.

Further, the product is used as a security device to save human life. Therefore, we cannot understand the benefit to national security by restricting sales. Our global trading partners are telling us they are designing out U.S. origin goods even if the inherent quality is better in order to avoid the burden of U.S. export control regulations.

The effect upon foreign direct investment will also be felt when foreign firms choose not to produce goods in the U.S. due to the higher level of burden of U.S. export regulations targeted to one major trading partner.

We understand that NABCO is one of only a limited number of companies to receive a Presidential Waiver for export of goods to China and we appreciate the efforts of those in the U.S. government who assisted us.

When export controls are legislated instead of administered within U.S. government agencies, however, these efforts are not enough for companies to remain competitive.

Let me provide a summary of the cost of the China export controls to my business. NABCO's story clearly exemplifies the cost of overly burdensome export controls. The costs include loss of sales, administrative burden and loss of jobs. We are concerned about losing yesterday's sale. However, due to the perceptions of our foreign customers, the loss of future sales and loss of market share is even more troubling.

We estimate the potential loss of four to seven million in sales revenue. Loss of revenue means that we will not be able to hire an additional approximately four to eight employees to our workforce in western Pennsylvania. Damage to our relationship with our sales agents and damage to our relationship with potential customers leads to these entities seeking non-U.S. products and eventually create an indigenous source.

It cannot be underestimated that the damage done is used by our competitors and a vast market for our company is going to be filled by foreign companies, denying employment opportunities for skilled workers in western Pennsylvania.

I can assure you the next time a Chinese customer interested in our product understands that we need to obtain an export license, the sale will go to a foreign company. In the real world, we cannot sell our products and expect the customer to wait a year or in this case indefinitely for us to obtain a license. It is also difficult because we know the customer prefers our products and we are unable to sell to him.

This type of loss can be expected to affect all U.S. manufacturing sectors if the proposed controls for China are implemented. Foreign trading partners will be required to implement U.S. export controls when they trade U.S. origin goods with China. The

proposed controls are global controls affecting the sales to all of our trading partners who seek to service their equipment with spare parts of U.S. origin.

In addition, the proposed regulation would require that our trading partners implement special inventory systems for U.S. origin goods in order to control the ultimate destinations for those goods. These foreign trading partners will not want to be restricted by U.S. export controls nor absorb the associated costs.

Instead, they will design out U.S. product. The effect on the U.S. manufacturing base will be felt for many years in the future.

In order to improve current export controls for exports to China, the U.S. government should remove the requirement for a Presidential Waiver for USML goods and Presidential Certification for MT-controlled goods. The current requirement causes all export license applications to be escalated to the highest levels. The investment in time by both industry and U.S. government personnel makes this process untenable.

For U.S. industry to remain competitive and be reliable suppliers, the Presidential review requirement is not a realistic approach. The U.S. government should follow the normal export license escalation procedure for these licenses. Each license should be reviewed on its own merits, not based upon legislative mandate. Although this revision will require legislative changes, these changes are necessary for U.S. industry to remain competitive.

An export license case needs to be escalated to the highest levels when all agencies are able to provide approval. In addition, mandatory escalation of all cases is not a good allocation of U.S. government resources.

In NABCO's case, I strongly recommend implementation of a new process to provide relief for jurisdictional decisions. For example, the NABCO TCV is a device used to save human life. Therefore, we believe that NABCO's products are incorrectly designated as defense articles. Instead of requiring export licenses for each export of a TCV, I recommend that we collaborate with the U.S. government by reporting the sale and export of these devices. This way the U.S. government would have full knowledge of each export without the need to review each and every export license application prior to export.

This approach should be considered for items such as the NABCO product that are used to improve international security, especially for international events such as the upcoming Olympics to be held in China.

Prior to implementing any new export control regulations for exports to China, we request the U.S. government analyze the effect of any new regulations on the U.S. manufacturing base and upon the U.S. economy.

For the reasons stated above, extending the same stringent controls on additional U.S. products including basic commodities will cause not only customers in China but also customers worldwide to consider U.S. manufacturers to be unreliable suppliers.

HEARING COCHAIR REINSCH: We're going to have to bring you to a halt right then, Mr. Markey. That was good timing.

MR. MARKEY: Thank you.

[The statement follows:]

**Prepared Statement of Mr. Jay Markey  
President, Nabco, Inc.**

I appreciate the opportunity to address the Commission on this important topic. Today, I will present a background regarding NABCO, Inc. and an overview of our experiences regarding the effect of export control regulations on exports from NABCO to China. In addition, I will present a summary of the costs to NABCO for implementing these export control regulations for exports to China. Finally, I will offer my recommendations for solutions to problems with the current export control regulations and future proposed export control regulations.

First, I will provide a background regarding NABCO, Inc. and NABCO products. I am the President and CEO of NABCO, Inc. Founded in 1986, NABCO is a manufacturer and marketer of homeland security solutions. These solutions provide protection from biological, chemical, explosive and radiological threats for the world-wide security market. The Company is the world's leading designer, developer and manufacturer of the Total Containment Vessel (TCV). The Total Containment Vessel is used for the containment and transport of Improvised Explosive Devices (IED's) and is used by bomb squads, police, and military. Although NABCO is a small business located in Western Pennsylvania, the NABCO TCV is considered state-of-the-art by many of the leading security agencies and departments world-wide. NABCO offers the most comprehensive line of TCVs in the world along with the most innovative product advancements and upgrades. NABCO's production facility is located in Washington, PA which is 30 miles south of Pittsburgh. NABCO employs 22 individuals.

NABCO's TCV products are universally recognized as the "gold standard" in the U.S. market. We are the leading supplier of TCVs in the U.S., and NABCO has also placed a number of units internationally throughout high-security minded countries. The NABCO brand name is the industry standard, and is synonymous with the highest quality threat mitigation solutions in the world. This level of high quality is consistent with many U.S. products and makes U.S. goods marketable to foreign countries, thus, benefiting the U.S. economy.

Next, I will provide information regarding NABCO's experiences with U.S. export controls for exports to China. In the year 2000, NABCO requested a commodity jurisdiction from the U.S. Department of State as recommended by U.S. Customs. The U.S. Department of State determined the NABCO TCV to be under the jurisdiction of the U.S. Department of State through a commodity jurisdiction letter dated April 10, 2001.

This product jurisdiction resulted in loss of business to China for the following reason: If the product was determined to be under Commerce Department jurisdiction, the controls on exports were related only to embargoed countries, denied persons and proliferation end uses. By placing the jurisdiction under the State Department, however, exports are prohibited to China unless a Presidential Waiver is granted.

The State Department jurisdiction led to the denial of an export license for export to China. The license application was submitted on February 21, 2001. The Chinese end user had stated that the end use was for security for a ministerial meeting in October 2001 that included attendance by the President of the United States. Subsequent to the denial, we were able to obtain a reconsideration of the case. As a result of numerous meetings with the State Department and the diligence of certain individuals there, we were granted a Presidential Waiver on January 9, 2002. The license was granted February 8, 2002. This license took one year to process. Although we applied for the license with more than 6 months lead time, we were still unable to fulfill the customer's delivery requirement for the October 2001 ministerial meeting. From the perspective of the foreign customer, this makes NABCO appear to be an unreliable supplier.

Currently, we have submitted a second application for export of goods to China. We were hopeful that the previously obtained Presidential Waiver could also apply to the current application. Due to the type of end-user, however, the current application has not been approved. It continues to languish in the State Department offices. The application was made on June 14, 2004. We meet and communicate regularly

with our contacts at the State Department. Although they are diligently trying to move the case forward to approval, they are unable to do so. Unfortunately, because of these inordinate delays the customer has found another supplier of containment vessels in the Netherlands. Should a license be granted, the customer in China will purchase the NABCO product because it is preferred by him, however, we do not know how long we can continue to maintain his interest. NABCO's reputation is at stake as another potential customer in China is under the impression that NABCO is an unreliable supplier through no fault of our own. Our foreign competitor has capitalized on this situation.

Our sales representative tells us that technology similar to the NABCO TCV is readily sold to China from several world-wide sources. He states that the export control restriction is only hurting U.S. business and restricting the technology from reaching the entities that need it in China. Further, the product is used as a security device to save human life, therefore, we cannot understand the benefit to national security by restricting sales. Our global trading partners are telling us that they are designing out U.S. origin goods even if the inherent quality is better, in order to avoid the burden of U.S. export control regulations. The effect upon foreign direct investment will also be felt when foreign firms choose not to produce goods in the U.S. due to the higher level of burden of U.S. export regulations targeted to one major trading partner.

We understand that NABCO is one of only a limited number of companies to receive a Presidential Waiver for export of goods to China and we appreciate the efforts of those in the U.S. government who assisted us. When export controls are legislated instead of administered within the U.S. government agencies, however, these efforts are not enough for companies to remain competitive.

Now, I will provide a summary of the costs of China export controls to our business.

NABCO's story clearly exemplifies the costs of overly burdensome export controls. The costs include loss of sales, administrative burden, and loss of jobs. We are concerned about losing yesterday's sale, however, due to the perceptions of our foreign customers, the loss of future sales and loss of market share is even more troubling.

Following is a summary of the various issues that negatively impact my company as a result of not being able to ship our products to China:

- 1) We estimate the potential loss of \$4-7 million in sales revenue.
- 2) The loss of revenue means that we will not be able to hire an additional 4-8 employees to our workforce in Western Pennsylvania.
- 3) Damage to our relationship with our sales agents and damage to our relationship with potential customers leads to these entities seeking non-U.S. products and eventually creating an indigenous source.

It cannot be underestimated that the damage done is used against us by our competitors, and a vast market for our company is going to be filled by foreign companies, denying employment opportunities for skilled workers in Western Pennsylvania. I can assure you that the next time a Chinese customer interested in our products understands that we need to obtain an export license, the sale will go to a foreign company. In the real world, we cannot sell our products and expect the customer to wait a year, or in this case, indefinitely, for us to obtain a license. It is also difficult because we know the customer prefers our products and we are unable to sell to him.

This type of loss can be expected to affect all U.S. manufacturing sectors if the proposed controls for China are implemented. Foreign trading partners will be required to implement U.S. export controls when they trade U.S. origin goods with China. The proposed controls are global controls affecting sales to all of our trading partners who seek to service their equipment with spare parts of U.S. origin. In addition, the proposed regulation would require that our trading partners implement special inventory systems for U.S. origin goods in order to control the ultimate destination for those goods. These foreign trading partners will not want to be restricted by U.S. export controls, nor absorb the associated costs. Instead, they will design out U.S. product. The effect on the U.S. manufacturing base will be felt for many years into the future.

I will provide NABCO's recommendation for improvement to the current export control system, and recommendations for future proposed regulations.

In order to improve current export controls for exports to China, the U.S. government should remove the requirement for Presidential Waiver for USML goods, and Presidential Certification for MT-controlled goods. The current requirement causes all export license applications to be escalated to the highest levels. The investment in time by both industry and U.S. government personnel makes this process untenable. For U.S. industry to remain competitive and to be reliable suppliers, the Presidential review requirement is not a realistic approach. The U.S. government should follow the normal export license escalation procedure for these licenses. Each license should be reviewed on its own merits, not based upon legislative mandate. Although this revision will require legislative changes, these changes are necessary for U.S. industry to remain competitive. An export license case need not be escalated to the highest levels when all agencies are able to provide approval. In addition, mandatory escalation of all cases is not a good allocation of U.S. government resources.

In NABCO's case, I strongly recommend implementation of a new process to provide relief for jurisdiction decisions. For example, the NABCO TCV is a device used to save human life. Therefore, we believe that NABCO's products are incorrectly designated as defense articles.

Instead of requiring an export licenses for each export of a TCV, I recommend that we collaborate with the U.S. government by reporting the sale and export of these devices. This way, the U.S. government would have full knowledge of each export, without the need to review each and every export license application prior to export. This approach should be considered for items such as the NABCO product that are used to improve international security especially for international events such as the upcoming Olympics to be held in China.

Prior to implementing any new export control regulations for exports to China, we request that the U.S. government analyze the effect of any new regulations on the U.S. manufacturing base and upon the U.S. economy.

For the reasons stated above, extending the same stringent controls on additional U.S. products including basic commodities will cause not only customers in China, but also customers world-wide to consider U.S. manufacturers to be unreliable suppliers. We have seen this to be true for ITAR-controlled goods. For example, we know of a subsidiary of a U.S. firm whose losses are equal to 1% of its annual revenue because foreign trading partners refuse to purchase their products due to ITAR controls. Administrative burden and opportunity costs due to export controls cost this subsidiary an amount equal to 3% of its total annual revenue, resulting in a total cost of 4%. It is clear that the same effect would occur for commercial goods if they are controlled in the same way.

Further, additional controls are not needed as strict knowledge of military end-use is most often derived from a request to customize a commercial product. Such customized commercial products are already controlled by the ITAR, thus, rendering additional controls unnecessary.

In conclusion, I have provided an overview of NABCO and its products. I have stated NABCO's negative experiences with export control regulations for exports to China, and provided the costs associated with those controls. I have offered my recommendations for improvement to the current system, and requested caution prior to implementing any new regulations.

I recognize that export controls are necessary to protect the national security, well-being of U.S. persons, well-being of foreign persons, and, especially to protect members of the U.S. armed forces.

I appeal to the U.S. government to consider new ways to accomplish these national security goals while minimizing the harm to U.S. industry and availability of jobs for the U.S. worker. In today's increasingly complex global trading system, we need to consider new approaches and not rely on old methods that are harming the U.S. industrial base.

I request that a new method be considered to meet the goals of export control regulations and allow industry to assist in its development and implementation.

Thank you for providing me with this opportunity to present my views to the Commission.

HEARING COCHAIR REINSCH: Thank you, Mr. Markey. Dr. Tridimas, please proceed.

**DR. TAKIS TRIDIMAS**  
**LAW PROFESSOR, DICKINSON SCHOOL OF LAW, PENNSYLVANIA STATE**  
**UNIVERSITY**

DR. TRIDIMAS: Thank you very much. Mr. Chairman, commissioners, it's a great honor to be invited to appear. I am Professor at the University of London in the United Kingdom and at Penn State University and I appear here in this capacity.

Let me ask a preliminary point, raise an issue that was raised by Mr. Rice earlier on, and this is that export control is not a policy in itself, but rather an instrument to pursue a policy. It follows that the more specific the policy objectives, the better the regulation is likely to be. At the European Union level, I think the policy objectives are insufficiently concretized, the reason being that interest of the component member states vary at least to some degree.

Now, the arms embargo on China was imposed by the European Union back in 1989 as a result of the repression of the Tiananmen Square demonstrations. It is in the form of a political declaration. It does not have legally binding force.

This is in contrast to arms embargoes that have been implemented by the European Union in most recent years. The reason for the difference is that at the time when the Chinese embargo was imposed, the European Union did not have power to intervene in this area.

Since 1993, it has developed the Common Foreign and Security Policy, and in the context of that policy, it has power to impose embargoes. Recent embargoes have been, as I said, much more specific.

The embargo on the arms embargo on China is, in fact, two lines, and it does not clarify the meaning of the term "military cooperation," which it prohibits, nor does it define the meaning of the term "trade in arms," which also it prohibits.

So the United Kingdom, for example, has understood, has interpreted the arms embargo fairly narrowly. The definition adopted by the United Kingdom appears at page six of my written statement. It includes:

Lethal weapons such as machine guns, large caliber weapons, bombs, torpedoes, rockets and missiles; specially designed components of the weapons mentioned above and ammunition; military aircraft and helicopters, vessels of war, fighting vehicles and other such weapons platforms; and any equipment which might be used for internal repression.

My understanding is that the French authorities have adopted a comparable definition.

Apart from the arms embargo on China, there is a Code of Conduct adopted by the Council of the European Union on arms exports and, again, this is not a binding instrument. It leaves the final decision on an arms export to a third country on the national authorities. So it is each member state that decides, but the Code of Conduct lays down a number of criteria that member states are directed to take into account.

The European Union produces an annual report, a consolidated annual report, on arms exports to third countries. The report is compiled on the basis of national reports transmitted by the authorities of the member states to the European Community; the national reports remain confidential.

So the information which is publicly available is that contained in the consolidated report. On page seven of my written testimony, you will find data from the European Union's annual reports for the last three years, and you will find that exports of arms to China have taken place. These arms are not covered by the embargo, as it is understood by each of the member states.

Very briefly, the numbers of licenses issued in 2004 were 202. The value of licenses issued in euros was 340 million, and the number of licenses refused was 37.

The main exporting countries to China are France, United Kingdom, and the Czech Republic, but as it is outlined in the report, a number of other countries also exported weapons including Germany, Italy, Latvia, Slovakia, and Austria.

What are the chances of the embargo being lifted? I think it is very difficult to make a prediction in such a sensitive area. It seems to me that the odds are against an early lifting of the arms embargo, and I think this is for the following reasons:

First of all, a unanimous agreement is required by the member states. All 25 member states will need to agree for lifting the embargo. The requirement of unanimity works in favor of the status quo.

Secondly, there is pressure from the United States which is taken certainly into account by the European governments. Also initiatives by the government of China have not helped in raising the embargo. Finally, the European Union is committed that raising the embargo will not lead to an increase either in quantitative or qualitative terms of arms to China. And qualitative terms means here increase of exports of technology and software.

So the lifting of the embargo is closely connected to working out and agreeing on a binding Code of Conduct on arms exports that will replace the existing one. This binding code of conduct is scheduled to take the form of a common position under the Common Foreign and Security Policy. So far no agreement has been reached. There are proposals, but these proposals are not publicly available.

They are covered by an exemption to our Freedom of Information Act and cannot be made publicly available. So if I had to risk a conclusion I would say it is unlikely that the embargo will be lifted in the near future.

Thank you very much.

[The statement follows:]

**Prepared Statement of Dr. Takis Tridimas  
Law Professor, Dickinson School of Law  
Pennsylvania State University**

The purpose of this statement is twofold: first, it provides a brief description of the EU security regulated export controls system and, secondly, examines the EU arms trade embargo on the Peoples Republic of China, with a view to assessing its effectiveness and the likelihood of its continuity in the near future.



## **A. EU Security Regulated Export Controls System**

Since the introduction of the Common Foreign and Security Policy (CFSP) by the Treaty of the European Union in 1993, the EU has developed an increasingly sophisticated regulatory system aimed at controlling arms trade, which complements decisions imposing embargos against specific third countries, such as the embargo adopted against China. The EU regulatory system consists of measures aimed specifically at controlling exports of military equipment and measures aimed at controlling exports of dual items products, namely, products that can be used for both civil and military purposes.

### **A.1. Controls on Exports of Military Equipment**

The main legal instruments applicable to exports of military equipment are the following:

European Union Code of Conduct on Arms Exports, adopted on 8 June 1998;

User's Guide to the EU Code of Conduct on Arms Exports as agreed by the Working Party on Conventional Arms Exports at its meeting on 9 December 2005;

Common Military List of the European Union (equipment covered by the EU Code of Conduct on Arms Exports) adopted by the Council on 17 November 2003. The Last version of the Common Military List was published in the Official Journal of the EU on 25 May 2005 (OJ C 127, p 1);

Council Common Position 2003/468/CFSP on the control of arms brokering of 23 June 2003;

The European Union Code of Conduct on Arms Exports was adopted by the EU Council on 8 June 1998. It builds on the Common Criteria for Arms Exports agreed at the Luxembourg and Lisbon European Councils in 1991 and 1992. The Code is a non-binding instrument which lays down minimum standards to be applied on export licences and includes an information exchange and notification mechanism for the denial of export licenses.

The Code lays down eight criteria on the basis of which Member States should assess export licence applications for military equipment. These criteria are the following:

Respect for the international commitments of EU member states, in particular the sanctions decreed by the UN Security Council and those decreed by the Community, agreements on non-proliferation and other subjects, as well as other international obligations;

Respect of human rights in the country of final destination; Member States are directed not to issue an export licence if there is a clear risk that the proposed export might be used for internal repression.

The internal situation in the country of final destination. Member States should refrain from exports which would provoke or prolong armed conflicts or aggravate existing tensions or conflicts;

Preservation of regional peace, security and stability. Member States are directed not to issue an export licence if there is a clear risk that the intended recipient would use the proposed export aggressively against another country or to assert by force a territorial claim. They must take into account the existence of a claim against the territory of a neighbouring country which the recipient has in the past tried or threatened to pursue by means of force;

The potential effect of the proposed export on the defence and security interests of the Member States and those of their allies; the Member States must take into account, inter alia, the risk of reverse engineering or unintended technology transfer;

The behaviour of the buyer country with regard to the international community, as regards in particular its attitude to terrorism, the nature of its alliances and respect for international law;

The existence of a risk that the exported goods might be diverted or re-exported to an undesirable end-user;

The compatibility of the arms exports with the technical and economic capacity of the recipient country, taking into account whether the proposed export would seriously hamper the sustainable development of the recipient country.

According to the Code's operative provisions, the decision to transfer or deny the transfer of any item of military equipment remains at the national discretion of each Member State. The Code requests EU Member States to circulate on a confidential basis through diplomatic channels details of licences refused together with an explanation of the reasons for the refusal (denial notification). Before any Member State grants a licence which has been denied by another Member State for an essentially identical transaction within the last three years, it must first consult the Member State which issued the denial.

The Code also requests Member States to circulate in confidence an annual report on its defence exports and on its implementation of the Code. These national reports are discussed at an annual meeting by the Council of the European Union within the framework of the CFSP. The Council publishes a consolidated report each year. So far seven annual reports have been published. The last annual report was published on 23 December 2005 and corresponds to the calendar year 2004 (Official Journal of European Union 2005, C 328, pp. 1-288).

The Working Party on Conventional Arms Exports (hereafter COARM) has been working on the first review of the Code of Conduct. For this purpose not only Member States but also other stakeholders such as international NGOs and the defence industry were consulted. The review process at technical level is now completed. According to the 7<sup>th</sup> Annual Report "*The resulting draft constitutes a significantly updated and upgraded Code. Several new elements are to be included in the Code, thereby deepening and widening its scope of application. These elements include the extension of controls to brokering, transit transactions and intangible transfers of technology, as well as the implementation of strengthened procedures in order to harmonise Member States' export policies. It is envisaged that the new Code will be adopted in the form of a legally binding Council Common Position.*"

So far, no agreement has been reached on the new Code which must be adopted by a unanimous decision of the Member States.

The Code of Conduct is complemented by the User's Guide, the Common Military list of the European Union and the Council Common Position on Arms Brokering.

The User's Guide seeks to assist Member States in applying the Code of Conduct and clarify their responsibilities. It is intended for use primarily by export licensing officials. The latest version of the Guide was agreed by COARM at its meeting on 9 December 2005. It deals with denial notifications, licensing practices, best practices for interpretation of criterion 8 (compatibility of the arms exports with the technical and economic capacity of the recipient country) and requirements for submission of information for the EU annual report.

The Common Military List of the EU specifies the military equipment covered by the Code. It has the status of a political commitment in the framework of the CFSP. The latest version of the list was adopted on 25 April 2005 taking into account changes agreed in the Wassenaar Arrangement's Munitions List at the December 2004 COARM plenary meeting.

The Council Common Position on the Control Arms Brokering adopted on 23 June 2003 seeks to control arms brokering in order to avoid circumvention of UN, EU or OSCE embargoes on arms exports. For this purpose, it lays down a set of minimum conditions that the existing or future legislation of the Member States must meet. It includes a definition of brokering activities (Article 2.3), minimum conditions and procedure for the authorization of brokering activities (Articles 3 and 4), the establishment of a system for exchange of information on brokering activities among Member States (Articles 5 and 6), and minimum sanctions to be applied for the infringement of arms brokering regulations (Article 6).

The adoption of the Code of Conduct on Arms Exports marked a new stage in the EU's development of a common approach to arms exports as an important element of the CFSP. However there is still work to be

done. According to the seventh report, the priority guidelines identified by Member States for the near future include:

- “1. continuation of the process of harmonisation of national reports in order to promote more homogeneous statistical data for inclusion in the European Union annual report, so as to produce clearer, more transparent summary tables;
2. follow up of the implementation of the Common Position on arms brokering, taking into account the different situations of the national legislation and establishing an appropriate information-sharing mechanism;
3. development of best practices for the interpretation of criteria, moving on from criterion 8 to criteria 2 (human rights) and 7 (end use controls);
4. continued work on promotion of the principle of an arms trade treaty;
5. continuation of the policy of promoting the principles and criteria of the Code of Conduct among third countries, specifically those that have aligned themselves with the Code of Conduct;
6. provision of practical and technical assistance, when requested, for the Acceding Countries, and new neighbours in order to ensure the harmonisation of policies on arms export control and the full implementation of the Code of Conduct principles and criteria;
7. further development of dialogue with the European Parliament;
8. continued close cooperation and consultation with interested third parties, including international NGOs and the defence industry.”

## **A.2. Controls on Exports of Dual Use Items and Technology**

In addition to the measures aimed at controlling exports of military equipment, the EU regime also includes measures seeking to control the export of dual use items and technology. These measures include:

Council Regulation No 1334/2000 setting up a Community regime for the control of exports of dual use items and technology of 20 June 2000, as last amended by Council Regulation No 1504/2004 of 19 July 2004.

Council Joint Action concerning the control of technical assistance related to certain military end-uses of 22 June 2000 (2000/401/CFSP).

The Commission has pointed out that all EU Member States are committed to controlling exports of dual-use items and technology, in conformity with their national commitments taken as parties to the relevant international treaties of disarmament and non-proliferation and also, for most EU member States, in conformity with their commitments taken as members of the international export control regimes.

The legal basis for Council Regulation No 1334/2000 is article 133 of the Treaty establishing the European Community. According to the Commission, this is because the Court of Justice has ruled that, while the individual security interests of Member States in this field must be catered for, trade measures (including export controls) are a matter of exclusive Community competence under Article 133 (ex-113)<sup>15</sup>.

The following is a brief description of the Council Regulation included in the Commission website:

“The principle of the Regulation is that the items listed in Annex I of the Regulation cannot leave the EC custom territory without an export authorisation granted by the [competent authorities of the Member States](#). Those authorities referred to in article 6-6 of the Regulation, are detailed in the publication in the [OJ n° C270 dated 29-10-2005](#).

There are four types of licenses in the EU: First, the Community General Export Authorisation defined in Annex II of the Regulation (it covers exports of the items of Annex I except those listed in part 2 of Annex II) to 7 countries (United States of America, Canada, Japan, Australia, New Zealand, Switzerland and

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<sup>15</sup> See [http://europa.eu.int/comm/trade/issues/sectoral/industry/dualuse/index\\_en.htm](http://europa.eu.int/comm/trade/issues/sectoral/industry/dualuse/index_en.htm), last visited 11 March 2006.

Norway). Second, National General export authorisations (These licenses do not exist in all Member States and if in force are published in Member States official journals). Third, global authorisations for "a specific exporter in respect of a type or category of dual use items which may be valid for exports to one or more specified countries". Fourth, individual licenses (generally for one exporter and covering a transaction to one end user).

Annex I is divided into 10 categories of items controlled. For example, 0 is for nuclear materials, facilities and equipment. 9 is for propulsion systems, space vehicles and related equipment. Each category is divided into five subsets which are: A (equipment); B (test and inspection equipment); C (materials), D (software) and E (technologies). There is a non legally binding nor fully reliable table establishing the linkage between [TARIC codes](#) and the Annex I which can be found on DG TAXUD website. Items in Annex IV and in part 2 of Annex II (items excluded from Community General Export Authorisation) are subsets of Annex I. Annex IV lists the items which are controlled within the single market.

Member States at national level are allowed to control additional dual use items than those listed in Annex I under specific circumstances detailed in article 4 and 5, in particular in case of exports to countries submitted to arms [embargo](#) (article 4-2) or in case of suspicion of WMD end use. An indicative list of third countries subject of negative measures at EU level can be found in the Council Webpage titled "negative measures applied to third countries" [at the following address](#) and in the DG RELEX website at [this address](#). However these lists cannot be interpreted as the list of countries for which ALL EU MS apply article 4-2, therefore exporters are advised to check with Member States authorities the situation.

Intangible transfers of technology are also subject of export controls authorisations.

The principle is freedom of circulation of dual use items in the single market except for the limited items listed in the Annex IV of the Regulation.”

In addition to the Council Regulation for the control of exports of dual-use items, the Council of the European Union has issued a Council Joint Action which introduces specific controls (prohibitions or authorisation requirements) on technical assistance that is intended for use in connection with the development, production, handling, operation, maintenance, storage, detection, identification or dissemination of chemical, biological or nuclear weapons of mass destruction.

## **B. EU Arms Trade Embargo on China**

The European Union Arms Trade Embargo on China was adopted by a Declaration of the European Council on 27 June 1989 as a result of the Chinese authorities repression of the students demonstration in Tiananmen Square (Declaration of the European Council, Madrid, 27 June 1989). The embargo has been in force since that date and is currently included in the list of EU embargoes on arms exports (Document of the Council of the European Union No 6254/06, 10 February 2006).

The Common Foreign and Security Policy (hereafter CFSP) was introduced by the Treaty of the European Union in 1993. When the embargo was adopted, the CFSP was not yet in place.

By contrast to more recent decisions imposing arms trade embargoes against third countries, the embargo on China was not adopted by a legally binding document such as a Council Common Position. It uses general language, leaving Member States wide discretion as its scope of application and interpretation. The Declaration of the European Council imposing the embargo is a political declaration which condemns the repression and calls Chinese authorities to respect the human rights of its people. The specific reference on the embargo calls for the

*“interruption by the Member States of the Community of military cooperation and an embargo on trade in arms with China”*

The Declaration does not clarify the meaning of the term “military cooperation” nor does it contain a list of arms that come within the scope of the phrase “trade in arms.” The United Kingdom, for instance, has interpreted this statement as a ban applying to:

“lethal weapons such as machine guns, large calibre weapons, bombs, torpedoes, rockets and missiles; specially designed components of the above and ammunition; military aircraft and helicopters, vessels of war, armoured fighting vehicles and other such weapons platforms; any equipment which might be used for internal repression”<sup>16</sup>.

### C) Effectiveness of EU Arms Trade Embargo on China

The EU Council produces an annual report on the implementation of the EU Code of Conduct on Arms Exports, which includes information on EU arms exports to China not covered by the embargo. The seventh report states that Member States do not follow a uniform standard to compile statistics and, as a result, there are differences in the way national reporting is conducted. Efforts to further the harmonisation of reporting procedures and to achieve fully comparable statistical data are under way. The data shown below has been extracted from the Council’s annual reports for 2002, 2003 and 2004:

Total EU exports to China

	2002	2003	2004
No of Licences issued	287	159	202
Value of Licences issued in Euros	209,794,157	415,820,913	340,664,219
No of Licence refusals	17	43	37

Main EU Export Countries to China

	2002	2003	2004
France – Value of Licences issued in Euros	105,431,246	171,530,641	168,900,766
United Kingdom – Value of Licences issued in Euros	79,500,000	112,455,000	147,600,000
Czech Republic – Value of Licences issued in Euros	n/d	3,610,819	18,934,000

In 2004 EU Members issued 202 licences to export arms to China for a total amount of 340,664,219 Euros. The figure represents an 18% decrease with respect to 2003 (415,820,913 Euros). The group of EU Members that issued licences to export arms to China include Austria, Czech Republic, France, Germany, Italy, Latvia, Slovakia and the United Kingdom. The main exporters were France (50% of the total value of licences issued), the United Kingdom (43% of the total value of licences issued) and the Czech Republic (5.6% of the total value of licences issued).

According to the Common Military List of the European Union (See the updated list published in the OJ of the EU C 314/1 – C 314/26 on 23 December 2003) the main type of arms exported to China includes electronic equipment, not controlled elsewhere on the list, specially designed for military use and specially designed components therefor (ML11); aircraft, unmanned airborne vehicles, aero-engines and aircraft equipment, related equipment and components, specially designed or modified for military use (ML10); imaging or countermeasure equipment, specially designed for military use, and specially designed

<sup>16</sup> See the Foreign and Common Wealth website at [www.fco.gov.uk](http://www.fco.gov.uk), last visited 11 March 2006.

components and accessories therefor (ML15) and fire control and related alerting and warning equipment, and related systems test and alignment and countermeasure equipment specially designed for military use, and specially designed components and accessories therefor (ML5).

With respect to refusals of licences to export arms to China, in 2004 a total of 37 licence refusals have been reported by all EU Member States, compared to 43 refusals in 2003 and 17 refusals in 2002. The ratio of licence refusals to applied licenses was 15.5% in 2004, 21.3% in 2003 and 5.6 % in 2002. The report only provide the total number of licence refusals without discriminating by country, therefore it is not possible to examine quantitative differences on approved / denied rations as between countries.

#### **D) Considerations about the Future of the EU Arms Trade Embargo on China**

The need to maintain the arms trade embargo on China has been high in the EU's CFSP agenda over the last few years. The last two EU – China summit declarations include specific references to this issue. The Chinese Government claims the measure is obsolete and constitutes an unacceptable form of discrimination which should be immediately removed. The EU, on its turn, has pledged its political will to continue to work towards lifting the embargo, conditioning its final decision on China's human rights records and stability and security in the region, in particular the PRC China – Chinese Taipei relationship and the human rights situation in Tibet.

Within the EU, some members, notably France and Germany, are keener than others to lift the embargo. It is argued that, since the introduction of several controls on arms exports at EU level such as the EU Code of Conduct on Arms Exports and the Dual Use Items Regime, the rationale for the embargo has diminished, but EU members have not yet reached a consensus on whether the conditions to lift the embargo on China have been met.

Recent favourable political conditions towards the lifting of the embargo have been somehow undermined by Chinese authorities' adoption of a Taiwan anti-secession bill on 14 March 2005. In the event the embargo is lifted, the European Council has made it clear that arms exports to China should not increase, neither in quantitative nor qualitative terms (See European Council's Presidency Conclusions – Brussels, 16 – 17 December 2004, par. 57). In addition, as stated by the seventh report (C 316/2): "Member States continue to discuss a set of temporary procedures which could be applied vis-à-vis countries for which the EU has decided to lift an existing arms embargo. These procedures would be based on specific mechanisms for notifications of licences issued for exports of military equipment by Member States, for a review of notified denials which were related solely to the embargo and for consultations in the event of a major change in a Member State export policy. This so-called 'toolbox' would complement the Code of Conduct."

HEARING COCHAIR REINSCH: Thank you very much. Let me also thank you particularly, Dr. Tridimas, for coming here from a distance to join us. Let me also commend to other commissioners your written statement which has some very, very useful data about EU exports to China in the weapons area that I've never seen anywhere else, and I think it's extraordinarily helpful to us to have this information. I suspect we'll be coming back to you in the question period.

Mr. Hankin.

#### **STATEMENT OF MR. CHRISTOPHER HANKIN FORMER U.S. GOVERNMENT OFFICIAL AND SENIOR DIRECTOR OF FEDERAL AFFAIRS, SUN MICROSYSTEMS, INC.**

MR. HANKIN: Thank you. First, let me note that while my employer, Sun Microsystems did not mind my testifying here as a employee of Sun Microsystems, it is actually my choice to be listed as a former government official because I thought

probably my reflections on my service and some of the things I learned and I think we still need to learn from that time period are very instructive.

What that service was, in response to your question earlier, Mr. Reinsch, was I served as the Deputy Assistant Secretary for International Trade Controls during the last year of the Reagan administration, the four years of the Bush administration as a political appointee, and then was asked by Warren Christopher's team to stay on and stayed on about a year longer at the State Department working on some of the same issues.

During the last year of the Bush administration, then Secretary Eagleburger spoke to a town hall at the State Department and he commented on how, while he might be accused of being nostalgic about the Cold War, we needed to realize that while the Cold War was a far more dangerous time period, it was probably going to prove a lot less complicated time period than the post-Cold War.

I think in export controls that is exceedingly true, as to how complicated it is, and I think we're still struggling to adapt to that. In my written testimony, and I'll try to just speak to these four areas quickly, I tried to point to four areas where I think that complication comes through and is very important as we think about export controls in China.

First is COCOM is dead and we are not going to be able to recreate it. COCOM was the old organization that we had with our allies where we sat down and discussed what we were going to deny in the way of arms and high technology goods going to the Soviet Union and China.

Despite the fact that there was no treaty basis, it was exceedingly robust. We had an agreed set of target countries. We had a list of items that we agreed we would deny for the most part to those countries, based on intelligence we had as to the dual-use items that the Soviets were seeking, and we actually had the power to veto other countries' exports, and we used that power.

I think we began to realize the COCOM was going to go away actually while the Bush administration was still in place, and it was probably most apparent when we went to the head of state level on a question of a U.S. veto of a UK export, and Margaret Thatcher ended up sending a nice note to the president saying sorry, but we're shipping it.

I think we saw that as the harbinger that this wasn't going to last much longer. We began discussions two other places during the last year or two of the Bush administration. First, the P-5 discussions to try to enhance arms restraint and transparency. Those talks ground to a halt. We had also started discussions in the G-7 on greater transparency and restraint on dual-use exports to Iran, Iraq, Libya and North Korea.

Those talks were also grinding to a halt. So as the Clinton administration came in, some of us made a couple of observations to them in the export controls area.

We said, it's not a question of whether COCOM is going to die under your watch; it's going to. It's not a question of when it's going to die. It's going to probably die in the next two years. It's not a question of who's going to kill it. It's going to be the UK and the other Europeans. And the only question really is can you get something for it? And you better start now designing a proposal to get something for it.

What they designed and what was taken on the road was basically an effort to recreate and reenergize as one package the old P-5 arms restraint talks and the G-7

initiative to do a better job of controlling dual-use exports to Iran, Iraq, Libya and North Korea.

Those talks, and I've got a link into my testimony to an article that's very instructive on those talks, basically those talks failed for the same reason the other two sets of talks had failed, and that was that our allies did not agree to our set of targets; they refused to identify a set of targets. As concerns China, actually I would say the vast majority of people at the table thought that the Chinese should be in the organization, not a target of the organization.

The implications then were if we're going to go into an organization that is controlling arms and dual-use goods, the idea of maintaining a veto power or even, those of you who know export controls, a no undercut rule is pretty remote because is the U.S. going to accept somebody else's veto of a U.S. arms sale to Israel? I don't think so.

Are we going to accept an example that was actually brought up at the table--the Germans had decided to deny an export of Leopard tanks to Saudi Arabia. Was the U.S. therefore going to agree to not ship tanks to Saudi Arabia? No.

So it really restricted what could be accomplished in any kind of organization to replace COCOM, and so that is why we have Wassenaar, and that is why Wassenaar is a pale comparison to what we once had.

The lack of an agreed target. The other three areas, let me just quickly note. One, WMD proliferation does not require high technology. And we actually during the Bush administration put into place a new control called EPCI. Essentially, it was an end use and end user control. This is the idea that you don't need high end goods to do good WMD. Saddam Hussein was doing it with 1960s technology for nuclear weapons.

So we had to design more to end user and end user for these lower technology items, and today, for instance, I would say the Sun Microsystems has, we estimate, about 5,000 screenable transactions a month to China. It's not because of high end computing. It's because of these proliferation related controls.

Third, unilateral controls have their place. The EPCI control was a unilateral control, but don't think of it unless your allies are going to follow behind you that it's an effective security measure. After the first war in Iraq, after we kicked the Iraqis out of Kuwait, went in and looked, and we had the satisfaction, as we looked at what they had of seeing that U.S. soldiers had not faced U.S. arms or U.S. technology in the battlefield, but they had a hell of a lot of Russian, Chinese, and European technology.

So, yes, we had that satisfaction of our unilateral controls had some impact, we didn't stop them from having that capability, and if we're going to design effective export controls, it's not a question of balancing trade versus national security concerns, it's targeting it on those capabilities of real concern and making sure our allies follow.

My time is up, so I'll stop before I get to my fourth.

[The statement follows:]

**Prepared Statement of Mr. Christopher Hankin  
Former U.S. Government Official and Senior Director of Federal Affairs,  
Sun Microsystems, Inc.**

I thank the Commission for this opportunity to testify before you. Before I begin, I wish to clarify that I asked to testify today as a former US Government official not because of worries that what I might say could be restricted by my appearing as a representative of the US high tech industry. Rather, it is because



certain facts began to establish themselves during my tenure at the US State Department from 1988-1994 that are highly instructive in contemplating effective US export control policy to China today.

As context, I wish to recall comments that then-Secretary of State Larry Eagleburger made in 1992 in a State Department “town hall” concerning the fall of the Soviet Union. He said that while he did not mean to sound nostalgic over the end of the Cold War, we did need to realize that our difficulties were far from over. While the Cold War was a more dangerous time, it was likely going to prove a far less complicated time. He predicted – rightfully – a complicated world of enhanced regional, religious, and ethnic conflict.

It is this more complicated world that the US export control system is still adapting to.

What are these facts from the 1988-1994 period that I find so instructive?

#### FOUR FACTS FROM THE PAST.

##### 1. COCOM is dead, and it will not be replaced.

I cannot overemphasize the importance of this fact. The Coordinating Committee for Multilateral Export Controls (COCOM) had an agreed target – the Warsaw Pact and China. It had an agreed, specific, targeted mission – maintaining and expanding the qualitative edge of our military over the Soviets, in recognition of their quantitative edge. It had an agreed and enforceable licensing policy over arms and dual-use exports to the targeted countries – enforceable through The US Government's ability to veto other nations' proposed exports. The US had intelligence on the Soviet military's high-tech shopping list, and had used this to shape an agreed list of controlled items.

The Wassenaar Arrangement only replicates the agreed list of controlled items. Why we have ended up with such an inadequate replacement was not the fault of our negotiators., but for other reasons, most particularly the disappearance of the agreed threat. A good, brief discussion of this can be viewed at [http://www.armscontrol.org/act/2005\\_11/NOV-LOOKINGBACK.asp](http://www.armscontrol.org/act/2005_11/NOV-LOOKINGBACK.asp).

##### 2. WMD proliferation does not require high technology.

A frustration grew in the Reagan Administration, and continued into the Bush Administration, that Iraq was acquiring useful western technologies for both its military and its WMD programs despite controls imposed pursuant to COCOM, the Australia Group, the Missile Technology Control Regime (MTCR), and the Nuclear Suppliers Group. The first, while controlling a long list of items, was irrelevant to Iraq. The other three groups, while global in scope, imposed control lists that were (rightfully) targeted to items of most concern. This inability to prevent WMD-useful, but not critical, exports became acute on a proposed purchase that the US exporter brought to the attention of the US government. While the item was not a controlled item, the exporter was concerned that the purchaser might be intending to use it for WMD purposes. The US government agreed, but did not have clear authority to block the export. The result was the creation of the “Enhanced Proliferation Controls Initiative” (EPCI), controls built around end-use and end-users rather than around the performance level of any particular item.

##### 3. While unilateral controls have their place, they are not effective security tools.

After the first Iraq war, it was clear that Iraq's WMD programs and conventional military had been well supplied by the Russians, Chinese, and the Europeans. We had the satisfaction of knowing that our soldiers had not faced US-made weapons nor technology on the battlefield. Congressman Sam Gejdenson used to call this the satisfaction of knowing you didn't “trade with Hitler.” But Congressman Gejdenson also recognized that such unilateral controls should not be confused with controls having any possibility of actually preventing an adversary from acquiring the capability of concern. Unilateral controls can make a useful political or foreign policy statement, but they do not provide adequate national security protection and it is dangerous to pretend otherwise.

#### 4. Exporters must police themselves for export controls to be effective.

With COCOM, very little benign trade was impacted, and to the extent it was, I'm not so sure those of us in the US government were terribly upset about it! But those days are over. Today, the volume of global trade that must be screened for proliferation, embargo and other concerns is monumental. There is no way that the US government can monitor all this trade. Our government has become hugely reliant on US exporters to police themselves. And this means these companies must have extensive, clear internal compliance programs imposed on their sales forces and their e-commerce websites. Such programs cannot be based on fuzzy lines or parameters. Policy throughout the company must be black and white – which becomes especially acute and difficult on end-use and end-user controls.

#### NOW ON TO TODAY.

With this as background, now let me speak with both my hats: as former government official and as an employee of Sun Microsystems, Inc.

Sun is a world leader in networked computer systems, providing scalable computer and storage systems, high-speed microprocessors and a comprehensive line of high performance software for network computing equipment. Sun's revenues come to roughly \$14 Billion per year. We operate in all major markets worldwide, and well over half of our sales occur outside the US.

China is an important market for Sun; we do over \$300 million in sales in the PRC. While a large figure, it is also important to note that the PRC has one of the fastest growing economies in the world, meaning that there is substantial potential for growth in our business there as well.

Export controls have historically been an important factor in our presence in China, affecting every dimension of our business there. As Sun does not produce military products, controls that affect us in China are primarily those relevant to “dual-use” civilian products and technology.

Export controls affect not only our sales of computers to customers in China, they regulate our provision of software, determine how we manage our internal networks and communications, impact the choice and design of our facilities, and have a role in our hiring practices. Moreover, as export controls on China also apply to PRC nationals living abroad, their impact extends to our operations around the globe.

In the time of COCOM, export controls primarily affected items rarely traded to a group of nations that did not enjoy significant deal of economic interaction with the West, or with the United States. This is not the case today with the PRC, creating a historically unique set of circumstances for US business. On the one hand, China represents a significant and growing export market for US products, including high technology. On the other, export controls must be a consideration in every transaction in that market, and must be administered flawlessly and at great expense by US high tech companies.

To say that US export controls affect every Sun transaction in the PRC market is not exaggeration for effect; it is a simple statement of fact. The export licenses that are required for shipment of high-end computers are now a very small part of Sun's export control management in the PRC.

“Catch-all” controls are a prime example of the comprehensive impact of export controls on business activities in China. Since the inception of the previously-referenced EPCI, every US-origin product or technology, regardless of its relevance, shipment volume, or low-cost, is controlled for export to the PRC if it is shipped to a proliferation entity. While this restriction is seldom enforced on items such as auto parts or hand tools, it could be, and companies are obliged to construct complex and costly screening programs to ensure that none, repeat none, of their products end up in the hands of a “proliferation entity.”

And what is a “proliferation entity?” A few are listed by the Government, and others are publicly known, presenting no problem for high tech exporters, who routinely screen each transaction, from the 50 cent cable to the million dollar computer, against a list of proscribed entities and individuals. The problem arises where there is little or no data on a particular customer (for example in an electronic commerce

transaction) or where the status of an entity is not clear. This is the case in many of the thousands of transactions that a company like Sun conducts (and screens) on a monthly basis in China.

A typical example of this kind of problem involves sales to a university. Large universities in the PRC are major buyers of information technology products. However, as in the U.S., some universities have contracts with the government for various types of research, some of which might involve activities that would be prohibited under EPCI.

As the entire scope of all university activities may not be known or even impossible to determine by a U.S. vendor, the only risk-free course is not to make the sale. Ultimately this benefits the non-US company who is willing to step in, or a US competitor with a less disciplined approach to export controls.

I need to emphasize this again- in the many circumstances where there is insufficient information on a customer, or where high volume or low value of a transaction makes collection of more data impossible, the “default” of US high tech businesses must be to avoid the transaction. Ironically, this loss of business is most likely in transactions involving items of no strategic value at all.

The extension of this “catch-all” approach is even more problematic when applied to “military” end-uses in China. The “military” in China can be involved in a very wide variety of activities, ranging from the distribution of foodstuffs to the provision of security at airports or at the upcoming Olympic games. Imposition of such a requirement for all or most U.S.-origin items exported to China would result in companies deciding they have to simply embargo military entities. Which in China will then lead to very difficult screening and decision-making as regards end users, as issues such as co-location, financial relationships, contract/consulting activities and others ensure that a very wide range of economic actors are potentially “military” end users.

All this is made more problematic by the fact that our allies do not intend to impose similar catch-all controls on military end users in China. The possible impact of such an extension could be a burdensome and unilateral control that: (1) gives a false sense of the government having taken effective action; (2) requires finite government and corporate resources be devoted to compliance activity that could be more properly targeted on potential exports and espionage of far greater importance; and, (3) hands the Chinese government an easy talking point to use against the US government in the very important negotiations over Chinese barriers to US high tech exports.

When considering the issue of US export controls on China, we cannot overemphasize the value of multilateralism. It is an accepted principle that multilateral controls are more effective than unilateral controls, but we must be wary of pointing to superficial similarities in controls as evidence that U.S. versions are multilateral and thus effective national security tools. Wassenaar is no COCOM. We have no assurance through Wassenaar that others are controlling dual-use technology as tightly as the US, and indeed we know in fact there is little consensus in the international community on specific strategic threats posed by China.

#### FOUR RECOMMENDATIONS.

I would like to advance a number of positive steps that could greatly enhance the partnership between US Government and business in managing a smart control system:

- **Think multilateral, not unilateral.**

If the purpose is national security, then the most important ingredient to the success of the control is adequate multilateral implementation.

- **Rather than “catch-all” controls, promote more extensive use of listing and “is informed” procedures.**

It is important that information available to the US Government be made available to companies operating in China, and that adverse intelligence identifying bad end-users be published. This includes cases where the Government initially "informs" an individual exporter of such intelligence. This will enhance the odds that the bad player does not obtain the desired item, and places all competitors on a level playing field.

**- Enforce more technical focus on the list development process.**

Not all items are equally useful for military and proliferation projects; items should be controlled on the basis of features that are of particular use to an identified military mission.

**- Provide specific recognition of company internal control programs in developing controls and in enforcing them.**

US high tech companies doing business in China manage extensive and complex export internal control programs. The success of US export controls is highly dependent on their existence and effectiveness. More can be done by the US government to recognize and leverage these programs.

I will be happy to respond to questions from the Commissioners.

HEARING COCHAIR REINSCH: I appreciate your stopping. Let me say these are really important comments, spoken from someone with a wealth of direct hands-on experience, and I'd commend to the commissioners Mr. Hankin's written statement including his recommendations at the end.

Last but not least, Mr. Tkacik.

**STATEMENT OF MR. JOHN J. TKACIK, JR.  
SENIOR RESEARCH FELLOW IN ASIAN STUDIES, THE HERITAGE  
FOUNDATION**

MR. TKACIK: Thank you. My name is John Tkacik. I'm Senior Fellow in Asian Studies at the Heritage Foundation and before that I had 25 years in the State Department doing just about nothing but China from visas and immigration issues to export controls to political reporting. My latest job at the State Department Bureau of Intelligence and Research was as Chief of China Intelligence.

Thank you for having me here today. A lot of good questions have been raised so far. One is what are U.S. export controls intended to do? What is accomplished? I think that's an excellent question. The second one is, is China a threat? Why bother having export controls if you don't really have a threat?

Thirdly, what are the gross strategic problems facing the United States as far as export controls are concerned?

In this short time, I probably will only be able to address two topics that I have a particular interest in. One is export controls on semiconductor manufacturing equipment and the other is the issue of deemed exports. Maybe I should get to the deemed exports first.

As you know, the United States considers the exposure of Chinese researchers, academics, scientists, technologists, engineers to American technology as a technology transfer and consequently there are requirements that certain technology in the situation be called a "deemed export of technology," a "deemed technology export."

Two decades ago, maybe longer than that, I supervised the issuance of student exchange visas in China. It was 25 years ago. They were the first student visas applied for in China at the U.S. Liaison Office in 1978. Over the course of two years of working on student visas in China, it was quite clear to me that all Chinese student visa applicants had been indoctrinated by their work units, schools, or local public security service precinct stations about their responsibilities to the motherland while in the United States.

From all reports I've had, and everything I have seen since then, I believe this is still the case. It was and is my impression that Chinese security officials inform all Chinese science and technology workers visiting the United States that they could be given specific collection tasks while in the U.S. if they haven't already been tasked in the first place.

In my statement, I list a number of cases that just popped up on my computer in the last couple of years, but there were dozens. there were scores of such cases. A year ago, FBI Assistant Secretary Dan Szady commented on the existence of an estimated 3,000 Chinese front companies operating in the United States in order to facilitate illegal technology transfers.

We know of the case of Ms. Gao Zhan at American University who was seized by the Chinese and her child was held incommunicado while Secretary of State Colin Powell begged for her release in August of 2001, and when she was released, she came back to the United States with great fanfare only to be arrested three months later for espionage.

What was she doing? It turned out she had sold almost or shipped almost a million U.S. dollars' worth of radiation-hardened semiconductors back to a military PLA institute in Nanjing.

Just a couple of months ago, there were several cases in Europe that uncovered industrial espionage. I don't want to go through it, but what I want you to know is that it is perfectly reasonable therefore to deem the technology exposed to a Chinese national researcher or scientist or engineer is, in fact, an export to China for the purposes of the Export Administration Act.

Rather than belabor that point, let me move on to the area of semiconductor manufacturing. Now, in the case of semiconductor export licensing, at least the export licensing bureaucracy, it strikes me, is hopelessly at sea. There was an April 2002 report from the Government Accountability Office, then known as the General Accounting Office, that documented statements from several U.S. government officials that export controls for China followed a basic two-generations behind rule of thumb banning semiconductor manufacturing equipment which I'll call "SME" sales.

That is any SME items less than two generations behind the state-of-the-art in the United States would not be approved for export to China.

However, when the GAO set its draft report out for comment to U.S. agencies, officials throughout the licensing bureaucracy, in Defense, in State, in Commerce, denied that there was a two generations behind guideline, that it even existed, and that in any event, the disparity of different SME systems and components made it difficult to quality the two generations guideline.

Moreover, the GAO documented that even with these export controls, officials privately admit there was such a rule, written or not, but it apparently didn't govern their decision-making.

Now, this is the case in 2002, and there seems to be little improvement in the situation since then. I don't want to demonize U.S. businesses, either Sun Microsystems or anybody else, for acting in what they think is their own short-term interests. U.S. exporters seem to think that the government knows all the secrets behind industrial espionage, and that if the situation were really serious, the U.S. government would not bend to their pressure no matter how sharp it might be.

And that the Commerce Department in particular seems to view businesses as its natural consistency and, thus, acts as their advocate in interagency export control deliberations. I think clearly however if some future catastrophe results from this transfer of sensitive technology to China, the American people are more likely to blame the U.S. government for not restraining the exports than the businesses that pressured it to do so.

Let me proceed to another report that came out last year: the High Performance Microchip Supply Report from the Defense Science Board came out February. It didn't really address export controls, but this is one thing it did do: it placed export controls in a strategic context.

The strategic threat to the United States in the semiconductor sector was not so much in the modernization of Chinese weaponry, that it was in the field, but rather in two significant contexts: one, the globalization of the microchip supply chain is draining production capacity from the United States, and in a crisis, it would be difficult to ramp up domestic output.

Two, there is a real threat that microchip supplies from overseas, particularly from China, would be from unreliable sources. That is you couldn't get them when you need them in an emergency, and that they would be untrustworthy, that, quote, "opportunities for adversaries to clandestinely manipulate technology used in U.S. critical microelectronics applications are enormous and they are increasing."

In other words, not only is the Pentagon finding fewer and fewer off-the-shelf application specific integrated circuit microchips, fewer and fewer sources for ASIC microchips for highly classified defense applications such as signal processing, encryption, guidance systems, you name it, but the U.S. already relies heavily on China for the unclassified off-the-shelf laptops and PCs that are the bulk of its nervous system.

HEARING COCHAIR REINSCH: Do you want to make just a final comment?

MR. TKACIK: My final comment would be I think one, vociferous and persuasive objection to SME export controls is that if we don't sell it, some other country will. I will say that as far as SME export controls are concerned, now Japan and Taiwan, two major world suppliers of SME and two major countries in East Asia that are not afraid to admit that they see a China threat, offer a very real opportunity for the United States to coordinate export restrictions with these two countries. And I think, through them, to exert our influence on European suppliers to follow suit. I think the Defense Science Board recommended this last year. I think it's a feasible measure.

Thank you.

[The statement follows:]

**Prepared statement of Mr. John J. Tkacik, Jr.  
Senior Research Fellow in Asian Studies,  
The Heritage Foundation**

I thank the Commission for its invitation to testify this morning on U.S. export control regimes aimed at China.

*Introduction*

The United States, alone among the technologically advanced nations, has in place regulations that limit the export to China of dual-use as well as military items, services and technologies across a broad spectrum; and the U.S. alone has regulations in place that restrict the participation of Chinese personnel in advanced research in dual-use areas.

Since the Tiananmen crackdown of June 1989, the European Union has maintained a prohibition on the transfer of lethal military equipment to China, and individual EU member states have separate statutory bans on arms sales to various countries reflecting national arms transfer policies. The EU has indicated, however, that it intends at some point to lift those bans -- particularly if China's human rights behavior improves.

The United States is one of only two major world powers that now considers China to be a credible and potentially imminent military threat; the other is Japan. Additionally, Taiwan also suffers under China's military and political pressures and accordingly has even tighter technology controls on China than does the U.S. In recent years, Japan has indicated some willingness to join the United States in restraining high-technology exports to China.

For the United States, however, simply having regulations in place is not sufficient. Those regulations must be enforced and when export licenses are granted, a high percentage of those licenses must undergo post-licensing inspections and follow up by competent personnel.

Export controls, however, cannot not simply be a matter of monitoring and restricting the export of equipment and technology documentation. They must also include watching those who have access to that technology in the United States. In April 2002, the General Accounting Office (GAO - now the Government Accountability Office) reviewed semiconductor export licensing procedures, and in September 2002, the GAO reviewed "deemed export" licenses for foreign personnel -- seventy percent of them for Chinese nationals -- to engage in research in restricted areas. Both these reports were comprehensive, probing and I believe compete -- and both revealed an across-the-board failure of the export administration bureaucracy to administer adequately its own regulations.

*"Deemed Exports" and Industrial Espionage*

Two decades ago, when I supervised the issuance of student and exchange visas for China, U.S. visa officers learned that most Chinese student visa applicants were indoctrinated by their work units, schools or local public security service precinct stations about their responsibilities to the motherland while in the United States. From all reports, I believe this is still the case. It was and is my impression that Chinese security officials inform all Chinese science and technology workers visiting the U.S. that they could be given specific collection tasks while in the U.S. The case of two Chinese academics at American University, Ms. Gao Zhan and her husband, Xue Donghua, is instructive. Apparently, Ms. Gao and Mr. Xue had received such a tasking and reportedly managed to export as much as \$1 million in radiation-hardened microchips to a military laboratory in Nanjing before being arrested in 2001. Although the couple evinced a desire to cooperate with U.S. government investigators, as of January 2006, the Department of Homeland Security had reportedly petitioned to have them deported back to China.

Gao and Xue were emblematic of vast Chinese government effort to collect industrial and technical secrets. A year ago, in March 2005, FBI Assistant Director Dan Szady, commented on the existence of an estimated 3,000 Chinese front companies operating in the United States in order to facilitate illegal technology transfers to the Chinese government. In September, Michelle Van Cleave, the national counterintelligence executive, told the House Judiciary subcommittee on immigration, border security and claims that Chinese "state-directed espionage remains the central threat to our most sensitive national security technology secrets." She said Chinese intelligence agents are "very aggressive" in business and "are adept at exploiting front companies." Chinese intelligence assets in the United States "take advantage of our open economic system to advance China's technical modernization, reduce the U.S. military advantage and undermine our economic competitiveness."

Nor is the United States the only target of Chinese industrial espionage. Last May, the French newspaper *Le Monde* identified a Chinese front group known as "The Chinese Students and Scholars Association of Leuven" in Belgium that coordinated industrial espionage in several northern European countries. A few weeks earlier, a 22-year-old Chinese woman was accused of industrial espionage against a major French industrial firm -- she had six computers and two hard drives filled with industrial data from the firm's research and development division where she had been working as a student intern.

These are only a few examples of literally scores of published reports in the last five years of incidents of state-sponsored Chinese industrial espionage around the world.

It is perfectly reasonable, therefore to "deem" that technology exposed to a Chinese national researcher, scientist or engineer is in fact an "export" to China for the purposes of the Export Administration Act. Under present guidelines, however, it is responsibility of the U.S. firm or institution that makes such "deemed exports" to apply for an export license. I have the uneasy feeling, based on the September 2002 GAO report, that most have no idea of their responsibilities.

#### *Semiconductor Technology*

I do not have the time -- or the expertise -- to discuss the full spectrum of dual-use technologies that are covered by export licensing laws. I have studied China's semiconductor sector, however, and have a few thoughts I would like to share with the Commission.

In the case of semiconductor export licensing, at least, the export licensing bureaucracy seems hopelessly at sea. The April 2002 GAO report documented statements from several U.S. government officials that export controls for China followed a basic "two generations behind" rule-of-thumb banning semiconductor manufacturing equipment (SME) sales. That is, any SME items less than two-generations behind the state of the art in the United States would not be approved for export to China.

However, when the GAO sent its draft report out for comment to U.S. agencies, officials throughout the licensing bureaucracy -- in Defense, State and Commerce departments -- denied that the "two generations behind" guideline existed and that in any event, the disparity of different SME systems and components made it difficult to quantify the "two generations" guideline. Moreover, the GAO documented that, even though export control officials had privately admitted that there was such a rule, written or not, it apparently did not govern their licensing decisions.

And in the case of "deemed exports" the bureaucracy admitted that it had approved all but three of 602 applications in the year 2001 for Chinese personnel to work in sensitive technologies (mostly in telecommunications and semiconductor research) albeit with certain caveats on access to sensitive research and technology. But in no case was there any reported follow-up to ensure that the stringent conditions on the license approvals had been followed.

This was the case as of 2002 -- and there seems to have been little improvement in the situation since then. No doubt the Commerce Department which houses the Bureau of Industry and Security is under tremendous pressure from U.S. exporters for relaxed enforcement. Here, I think we can see the major disconnect in America's export control ethos.



Now, I do not wish to demonize US businesses for acting in what they viewed as their own short-term interests. U.S. exporters seem to think that the government knows all the secrets of industrial espionage, and that if the situation were really serious, the U.S. government would not bend to their pressure no matter how sharp it might be. And the Commerce Department, in particular, seems to view businesses as its natural constituency and thus acts as their advocate in interagency export control deliberations. But clearly, if some future catastrophe results from the transfer of sensitive technology to China, the American people (and the Congress) are more likely to blame Commerce Department which failed adequately to administer its regulations, not the businesses that pressured it.

And a catastrophe could erupt, but it will likely be a slow eruption over a long period of time. Although America's defenses rely on the superiority of its "network centric" weaponry, which in turn relies on the superiority of American microchips, that superiority is eroding -- in large part because of a lack of recognition of the potential challenge from China in this area.

Since 1986, the technology gap between U.S. and Chinese semiconductor manufacturing capacity has narrowed almost to zero. The current industry standard semiconductor fabrication dimensions are now around 0.18 and 0.13 micron line-widths, and Chinese wafer-fabs already produce DRAMS with these design rules. The current U.S. state-of-the-art is now 0.09 microns -- or 90 nanometers -- and at least one Chinese fab is said to be installing a 90 nanometer production line now. U.S. semiconductor manufacturers are now working on 65 nanometer design rules -- in concert with a French fab.

In February 2005, the Defense Science Board issued a report on "High Performance Microchip Supply" which -- to me at least -- seemed focused on the security challenge posed by the explosion in Chinese microchip design and production and the impact on America's strategic position. Alarmed by the leakage of U.S. technology to China, the DoD report even proposed bilateral Wassenaar-type agreements with Japan and Taiwan on SME exports to China. Incidentally, the DoD report also bemoaned the fact that Commerce Department microchip export rules are always out of date, and hence there is business pressure on the licensing offices to bend their own rules to "keep up with the times."

According to the Defense Science Board report, the strategic threat to the United States in the semiconductor sector is significant in two contexts: 1) the globalization of the microchip supply chain is draining production capacity from the United States and in a crisis it would be difficult to ramp up domestic output; 2) there is a real threat that microchip supplies from overseas -- particularly from China -- would be untrustworthy; that "opportunities for adversaries to clandestinely manipulate technology used in U.S. critical microelectronics applications are enormous and increasing."

In other words; not only is the Pentagon finding fewer and fewer sources for application specific integrated circuit microchips for highly classified defense applications (such as signals processing, encryption, guidance systems, etc.) but the US military already relies heavily on China for the unclassified laptops and PCs that are the bulk of the nervous system of our network-centric warfare doctrine. It is all well and good to say that the US simply won't buy Chinese-made computers for our military, but what happens when the global supply-chain means all laptops and PCs have some Chinese components in them?

Simply answering that 70 percent of China's advanced technology exports are made by non-Chinese companies is inadequate. As microcircuitry architecture becomes orders of magnitude denser than today, it becomes ever easier to hide lines that serve as Trojan Horse circuit designs, radio-frequency receivers and other "backdoors" to circumvent encryption, muddle signals, induce data failure and the like.

Are Chinese semiconductor firms capable of such chicanery? Chinese advanced technology companies have already proved themselves adept at down-loading and pirating tapeouts and masks that have been sent to contract fabs for mass production. And there are already several hundred semiconductor design labs in China -- sponsored and paid-for by foreign firms including America's top microchip corporations. While one American semiconductor design engineer told me this week that he did not think the Chinese designers he worked with were "smart enough" to handle the task of sabotaging circuit maps, he admitted that his Israeli colleagues were.

This is hardly reassuring. I suspect that US-sponsored semiconductor design labs in China lose engineers as they gain experience only to have them replaced by inexperienced engineers in need of new training. No doubt, experienced engineers are siphoned off by Chinese government, military and academic units to work on more advanced projects.

#### *Case Study: SMIC*

Export controls that ban advanced-technology SME exports to Chinese government and military end-users but permit exports to so-called "foreign-owned" end-users are self-defeating. SMIC in Shanghai, for example, is considered to be a "foreign-owned" microchip foundry fab. The Taiwan-invested "Semiconductor Manufacturing International Corp." (中芯, SMIC), was launched in Shanghai in 2000, reportedly with private funding. The US\$1.48 billion venture, however, seems to be a totally Chinese government-controlled operation. Its president, Richard Chang once complained mightily to the media about the strictures Beijing placed on the company as it was raising venture capital. In October 2001, Chang told the *Financial Times*, "the authorities said how much money we could borrow, and from which Chinese banks - this is very new to us." Said the FT, "Chang has noticed another difference to doing business in China compared with Taiwan; he had had to employ 11 public relations officers to keep local officials informed, compared to just one in Taiwan."

One wonders what these PR people do. SMIC's website (<http://www.smics.com>) carries some useful information -- it does disclose that SMIC's Chairman is a Chinese government official ("Yang Yuan Wang is also the Chief Scientist of the Microelectronics Research Institute at Beijing University. He is a fellow of the Chinese Academy of Sciences and The Institute of Electrical and Electronics Engineers").

In 2002, SMIC reportedly purchased five 257-nanometer (roughly 0.25 micron) lithography machines made by ASML of Netherlands, giving SMIC access to levels of technology for which the United States, at that time, still refused export licenses. U.S. guidelines reportedly limited the export to China of lithography equipment with capabilities finer than 0.35 microns, although Motorola was granted a license to produce chips at its MOS-17 fab in Tianjin, China, with 0.25 linewidths. In October 2003, however, Motorola abandoned its MOS-17 plant, into which it had already sunk \$1 billion, swapping it to SMIC for a 10% share in SMIC -- a deal that market-watchers estimated was a loss of about 90 cents on the dollar. In February 2005, Motorola sold its SMIC shares expecting to raise about \$115 million.

Over the past five years, SMIC advanced to 0.13-micron production (in 2004) and introduced 0.18-micron silicon germanium (SiGe) production technology (in 2005). In January 2006, SMIC and the German firm Infineon signed an MOU that will transfer Infineon's "leading 90nm DRAM trench technology and 300-mm production know-how to SMIC, with the flexibility of further transferring its 70nm technology in the future. In return, SMIC will manufacture products in this technology exclusively for Infineon."

But for all this money and effort, the SMIC investment still does not seem to have been well thought-out, particularly in the 2001-2004 worldwide economic slump when most customers purchased their chips only from reliable suppliers.

Either that, or perhaps SMIC was not intended to compete in the international chip market in the first place. By September 2002, SMIC admitted it was headed for large losses. In order to keep their production lines running, both SMIC and Grace have resorted to turning out low-end DRAM chips. Yet by April 2003, one Shanghai-based semiconductor expert told reporters "I think they'll rack up incredible losses in DRAM . . . [SMIC is] building production lines, but they have no customers." SMIC's lack of customers persists despite a growing demand for chips by foreign firms in China. In March 2003, most international semiconductor companies remained puzzled by the nature of China's chip sector. Infineon's CEO Ulrich Schumacher, commented "China is this big phenomenon. Is it the biggest market of the future? Or is it the biggest threat? Nobody has a clue what China really is. What do you do now?"

Schumacher's head-scratching did not prevent Infineon from providing SMIC with advanced SME in return for DRAM output. After three years of operations, SMIC is still a money-loser, posting \$15 million in

losses at the end of 2005. But SMIC apparently is a money-maker for the Chinese government, which apparently has recouped a good deal of its investment by selling stock shares and depository receipts on Hong Kong and U.S. bourses.

And in 2005, SMIC also offered to buy a half-billion dollars worth of semiconductor manufacturing equipment from the American SME-giant, Applied Materials -- provided it could get a full loan guarantee from U.S. taxpayers via the US Export-Import Bank.

In the event, the EXIM Bank loan guarantee application was denied in March 2005 amid heated complaints from U.S. businesses, but the episode reveals the ironic sides of U.S. export controls. On the one hand, we deny licenses to Chinese military and state-owned companies for this equipment. On the other, we consider giving U.S. government loan guarantees to companies that -- to all appearances -- operate under the control of the Beijing regime. By the same token, in 2001 the U.S. government approved export licenses for 0.25 micron design-rule SME at the Motorola MOS-17 fab -- only to have Motorola sell off the plant several years later (and at a significant financial loss) to SMIC.

Clearly, semiconductor export control guidelines in place for China are not taken seriously either by Chinese firms or, apparently, by the U.S. bureaucrats who are supposed to enforce them.

### *Conclusion*

Are existing U.S. semiconductor export control regulations and guidelines for China fixable? Because the technology is moving fast, and because the U.S. has not yet completely lost its technology edge in semiconductors, I think so. But fixing the problem requires an entirely new enforcement mentality. This means that perhaps dual-use export controls for China should reside somewhere else in the bureaucracy rather than in the Commerce Department -- the Pentagon or Department of Homeland Security come to mind.

It also means that the "two-generations-behind" rule should be codified and adhered to rigidly and a cadre of engineers with expertise in semiconductors should keep a current tally of just what the state-of-the-art is at any given time. It also requires that very strict end-user and re-export restrictions be accompanied by rigorous inspections and, when necessary, criminal prosecutions or meaningful trade sanctions.

Of course, one vociferous (and persuasive) objection to SME export controls is that "if we don't sell it, some other country will." However, with Japan and Taiwan as two major world suppliers of SME, and two major countries in East Asia that are not afraid to admit they see a "China Threat", there is a very real opportunity for the United States to coordinate export restrictions with those two countries, and through them, to exert our influence on European suppliers to follow suit. The Defense Science Board recommended this last year, and I believe it is a feasible measure.

On "deemed exports", I believe that the U.S., Japan and Taiwan could also be prevailed upon to coordinate deemed export license policies. But at the very least, the U.S. should actually deny applications for nonimmigrant Chinese personnel to gain access to advanced semiconductor research in the United States, and not simply laud approvals with unsupervised conditions that are supposed to insulate sensitive research from prying eyes.

Finally, the Congress and the American people should be apprised of the serious erosion of America's semiconductor superiority. Without a national consensus that this erosion must be slowed in the interests of national security, export-licensing restrictions on China will become an empty exercise.

## **Panel VII: Discussion, Questions and Answers**

HEARING COCHAIR REINSCH: Thank you. Commissioner Thompson, do you want to begin?

HEARING COCHAIR THOMPSON: I do agree with the comments of two or three of you that it's important to seek multilateral approaches to these things, but the conclusion always seems to be that unless you have a multilateral approach, it's useless.

Number two, there is no way to get a multilateral approach. I had a chance in the year 2000 to go to Vienna and talk to some of our Wassenaar partners over there and the point that they wanted to make was that in many cases, the United States was leading the pack to decontrol, not following along reluctantly pleading that it not be done, and that in some cases, Japan, I remember specifically, that they were waiting with regard to high performance computers to comply with what they felt like their obligations under Wassenaar was even though United States was moving ahead unilaterally to change MTOP levels and that thing.

I know those were self-serving comments, but it was remarkable to me at the time, and all of the anguish that we've expressed over here, we just can't get our allies to be responsible, that our allies seem to genuinely be under the impression with regard to some items and some occasions, that we were the ones pushing and considering the commercial interest and activities that are going on, it makes a certain amount of sense.

But it seemed to me like it's still not too late to have a different multilateral approach to some of these problems. Certainly the time has changed from the Cold War to the post-Cold War time when COCOM started slipping. I'm sure it was inevitable, but it was the United States that proposed that it be eliminated.

That's not true? Yes?

MR. HANKIN: No.

MR. RICE: Senator, I think you made a very important observation. You have a long experience, of course, having been in the Senate and following negotiations in various areas. Commissioner Mulloy was a foreign service officer and knows the details of how negotiations are carried out.

I would really commend you and the other commissioners to delve deeply into how the United States government approaches these various export control regimes and in some detail. It's something that I've been interested in since I was responsible for it as a staff member of the House and I continue to follow it.

I think what you will find is that the U.S. government has lapsed into a rather "going through the motions" approach. There is none of the evidence, at least that I can find, on any of the four export control regime meetings that occur regularly, that the United States goes through a serious diplomatic initiative, and you know from your own experience, as does Commissioner Mulloy, what that involves.

You have a well-thought out agenda. You have assignments that are made well in advance to go after the other participants in government. You elevate the discussions to a decision-making level in those, so that by the time you get to the actual meeting where you stand and you have a reasonable chance of winning.

I can tell you that people involved in those negotiations or those regime meetings now tell me, as recently as this year, that that type of preparation and careful diplomatic work largely doesn't happen.

So I would agree with you, sir, that there are opportunities to move forward multilaterally and the United States ought to organize itself it better, and I think this commission can play a good oversight role in that area.

HEARING COCHAIR THOMPSON: I appreciate that. My knowledge was pretty much limited to Wassenaar. I don't know about the other multilateral regimes that we're a part of, but I long suspected that from a succession of administrations, that basically the commercial pressures being what they were, and the political pressures being what they were, and the information that was taken as being gospel, that there was a widespread feeling of foreign availability on all these issues without really addressing what is available exactly.

Are you talking about comparing apples to apples in terms of what is really available? How soon it would be available, and whether or not we could gain anything by holding back somewhat, but foreign availability, economic loss, and all of that, and therefore that doesn't put you in a very strong position philosophically or morally to go forward and say let's do something about this because you really don't think anything can be done.

It's kind of a Catch-22. Yes, Mr. Hawkins.

MR. HAWKINS: I think one of the problems goes back to the end of the Cold War. We were united strategically with the Europeans because the Soviet Union was right there on their border. China is on the other side of the world from Europe. The European powers are not Asian powers anymore.

When we talk about export controls, it's national security versus commerce. For them, that national security thing isn't in the scale. It's just commerce and they want to do deals. I was over at the Zhuhai International Air Show in China in 2004 November, and you couldn't tell there was an EU arms ban on China.

There was a large press conference the Italians--Chinese--Italians threw to commemorate a new sale of AgustaWestland helicopters to China, and a Deputy Minister of Defense from Italy was at the press conference. There is not much hiding that this was a civilian or a commercial deal when you've got a guy from the Ministry of Defense there who's championing the sale.

So if we're going to negotiate here with the Europeans on this, we have to put something else in that scale, on the other side of that scale from commerce. I know the House of Representatives, my champion to a great extent, my old boss, Duncan Hunter on the Armed Services Committee, when the question of the EU formally raising their arms embargo, as opposed to having informally done so for years, wanted to put essentially sanctions on companies who do deals with Chinese on military products.

That passed that House, but a lot of the American business community opposed that here because they thought it would hurt their business relations with China. Even the Aerospace Industries Association opposed it because they do deals with the very European arms dealers who would be selling to China, which, of course, I thought simply highlighted the fact that if our arms dealers are doing joint projects with the Europeans and that opens the door for American technology to go to China through Europe as well as just Europeans. So we need to really put something on the other side of that scale so that the Europeans know that the net effect of doing business with China will be to cost them.

HEARING COCHAIR THOMPSON: Thank you.

HEARING COCHAIR REINSCH: Thank you. Commissioner Wortzel.

MR. HANKIN: Commissioner Reinsch, I shook my head during Commissioner Thompson's comment. I just wanted to explain why I did that on the comment about U.S.

calling for elimination of COCOM. It was actually the John Major government I think in the summer of '93 who first called for the outright elimination of COCOM, and it was because, as they explained it, in their view the three proliferation regimes plus national discretion on conventional arms exports and related dual-use items was sufficient.

So they just called for flat elimination of COCOM whereas the Clinton administration was coming forward with a proposal to transform COCOM to look at new targets.

HEARING COCHAIR REINSCH: Commissioner Wortzel.

HEARING COCHAIR THOMPSON: To transform it but not do away with it?

MR. HANKIN: Correct.

HEARING COCHAIR THOMPSON: Oh, well, that is news to me. I've been laboring under false impression for many years now. I have to look back into that.

HEARING COCHAIR REINSCH: Commissioner Wortzel.

MR. HANKIN: I'd love to have a side conversation.

HEARING COCHAIR REINSCH: Commissioner Wortzel.

CHAIRMAN WORTZEL: Thank you very much. Mr. Hankin, I think it was Chairman Hyde and Chairman Hunter that introduced legislation that last year that would have attempted to restrict European companies that transferred technologies to China from participating in U.S. defense work, and this commission also made a similar recommendation.

How would you structure approaches to make it clear to European defense partners that if their companies transferred specific dangerous enabling technologies or subsystems to China, those companies will be excluded from participation in those technology areas in the U.S. defense industry. Mr. Rice, I have a broad question for you and any of you on the panel can respond to it. You said that all basic military systems are available to China from Russia.

Does that mean that the United States should also be rushing to sell those systems? And you also said that almost any dual-use item can be obtained on the international market. My question is: "are there any items that require control for national security reasons?" Does the U.S. do anything that's unique?

How many other countries are as advanced as the United States on making composites which would go into stealth weapon systems? What other nations in the world are capable of lenses and optical and electro-optical materials and systems that can perform very accurate views from space?

What other nations are able to make long endurance, heavy lift or high performance jet turbine fan engines and can do the metallurgy necessary to do this? Can you list any unique American technologies that should be controlled to protect the national security of the United States and the American people?

MR. RICE: Thank you, commissioner. First of all, in your question of whether we should license or allow transfer of munitions items to China simply because Russia, the answer is absolutely not because we do need to maintain a qualitative advance, and there's a very important diplomatic as well as political reason for doing that.

So, no, I did not intend to imply any suggestion that we should back off. Simply to point out that we need to have a realistic view of China's access and by the way, the comment that I made comes directly from senior officials at the Pentagon with whom I've discussed these things.

On the second question, I believe that the word I used on dual-use was "virtual," and you have identified several technologies that are very important for us to maintain very strict controls on. Certainly advanced composites are extremely important. We do have cutting edge knowledge there.

Secondly, in the area of hot section technology, your third item that you mentioned, the United States is not the only possessor of that. But we and the British who, and I think the French as well frankly, have the most reliable technology for being able to design fan blades that will not come apart and overheat.

That, the ability to make that is extremely valuable and sensitive. We have always maintained very tight controls on that, and we ought to continue to do that, and I think we will, and I'm not aware of any U.S. company that has ever suggested, at least in my presence, that there shouldn't be very strict controls on that.

Your middle item, again, that there are technologies that we need to maintain dual-use controls on, and there is no question about it.

MR. HANKIN: Commissioner, you asked a very difficult question of me. I'm going to take an easy route out and defer to the Bush administration. They apparently have had some success, the embargo stays in place, and whatever they've been doing that's helped contribute to that, I hope they'll continue to do so.

HEARING COCHAIR REINSCH: Thank you. Commissioner Wessel.

COMMISSIONER WESSEL: Thank you all for being here. The chairman of this panel has taken note of the good testimony of several of our witnesses. I'd also, of course, like to commend the testimony of Mr. Hawkins and Mr. Tkacik to the panel as well, to our colleagues up here.

I'd like to direct a question most directly to Mr. Rice and Mr. Hankin because as you seek to focus on exports, and we look at the overall policy of engagement with China which your organization, your companies have been some of the leaders the question is how are you engaging the Chinese in two ways?

Mr. Donnelly made a very important comment on our last panel about the need for greater transparency in China's military that could help us assess what their needs are and how our goods are being put to use in terms of potentially enhancing their security. That if they had a more transparent system, we'd have a greater understanding of whether something could, in fact, enhance or not their security interests.

The second part of the question, though, goes to Senator Thompson's and Mr. Wortzel's questions about end use controls and reviews. Maybe Mr. Hankin, you can be most helpful here. As a supplier to the Chinese, and I assume you have to potentially service the product that gets put into their market periodically, how does your company and those who service products they sell, how do they assist us in end use controls to determine whether, in fact, a product is being used for the proper use that it was originally intended?

Does your company, do your members, Mr. Rice, do they participate in helping us assess whether the end use controls are being properly administered? We've had testimony in the past from the government that they have very limited ability to do end use controls, and sometimes--I can't remember the exact period--but sometimes you have to apply six to eight weeks in advance to do your on site visits.

That gives you a tremendous ability to clean things up before the investigation is done. So if either of you could comment on--

MR. HANKIN: Let me try and do a company specific and then Ed can do a broader and improve what I messed up.

COMMISSIONER WESSEL: Please.

MR. HANKIN: Actually, the fourth point I didn't get to in my oral testimony was how much we had moved to a situation where the control system is primarily reliant on the exporters policing themselves and it's a key point in answering your question.

As a hardware and software company, we face export controls today in the U.S. in the following areas: specialty designed computers and software, State Department munitions controls; high end computers, Commerce Department dual-use controls; end use and end user controls, in the Department of Commerce; and then embargoes and specially designated nationals over at Treasury Department.

To my knowledge, within the last year, we have had no ITAR related licenses. We have neither sought nor received any ITAR related licenses from the State Department. To my knowledge, in the last year, we have neither sought nor received any high end computer licenses to China. To my knowledge, we have neither sought nor received Treasury Department licenses.

What we have been doing is averaging about 5,000 screenable transactions a month to China due to the end use and end user controls.

Now to manage that volume, we're very reliant on the government supplying us with lists of end use and end users that when we need to have in our system as red flags, both for buying computers on E-Bay which they can do and other ways so it's part of your e-commerce automatic screen.

But it also gets into some fairly heavy training of our sales people out in the field, of not only that list of bad actors, but also of things to watch for. And as a prudent company then, you need to think through not only telling them what to watch for, but you don't want fuzzy lines as to what's an okay transaction and what's not. So you really get down into yes and no on different end users.

COMMISSIONER WESSEL: I understand. That's relating to sales, but as it relates to placement and end use, as you service things--

MR. HANKIN: On the servicing, so it's not only the original transaction of the sale, but also as part of those 5,000 transactions a month is servicing and maintenance, and it's up to our people also. Those people are also trained as to if they are seeing something that looks like we are now involved in a transaction that involves proliferation concerns, they have a responsibility back into the company to report that.

MR. RICE: Just to supplement that, commissioner, a full answer to your question really needs to be done in not a public session. I think it's sufficient to say in open session that the companies that I work with and all of the companies that I'm aware of, i.e., major U.S. technology exporters, do cooperate with our enforcement people as closely as they can.

There are extensive mechanisms not only with the Commerce Department but also with law enforcement and certain national security agencies as well on the direct question of diversion, et cetera. It's about, I think what's appropriate to say at this point, U.S. companies want to not only obey the law but fulfill the law, and there is no sense that I have of any of the companies that I work with, and there are quite a number of them now in this area, that they do not take seriously their obligations or the importance of what the U.S. is trying to do in the end user and post-shipment verification.



But again I think a fuller analysis of that probably ought to be done in a different setting.

MR. HANKIN: But to be clear, on the servicing and maintenance, we have a responsibility to continue to check as to the end use and end user as part of fulfilling any contract in that regard.

COMMISSIONER WESSEL: I understand and I would hope that we could in a private setting have further discussions on this and would also note that the responsibility is not limited to proliferation but is a much broader standard that needs to be applied. You talked only about proliferation, Mr. Hankin, in your comment.

HEARING COCHAIR REINSCH: Thank you. Commissioner Donnelly is next.

HEARING COCHAIR DONNELLY: Thank you, Mr. Chairman. This, as you observed, has been a very informative hearing and full of issues that I think we should as a commission follow through on.

Just to make a few observations before I get to a question, which I promise inevitably or finally to do. Professor Tridimas' testimony really had some striking statistics and information that suggests to me that the problem is not so much the arms embargo or the lifting of the arms embargo, but the sieve-like nature of the current situation.

Just looking at the statistics for a number of licenses, arms licenses that were issued, the percentage of refusals is minuscule, ranging from five percent to 15 percent in the statistics presented, and also the list of items being transferred includes electronic equipment, not controlled elsewhere on the list, specially designed for military use and specially designed components; for aircraft, unmanned aerial vehicles, aero-engines and aircraft equipment, related equipment and components, specially designed or modified for military use; imaging or countermeasure equipment, also specially designed for military use, other specially designed components and accessories; and on and on for tests, system tests and alignment.

In other words, making sure that their fielded weapons are zeroed and bore sighted, countermeasure equipment designed to make our targeting systems more--less effective.

Again, I would think from the commission's perspective, the question is not so much the lifting of an embargo but the imposition of an embargo. I also was very impressed by Mr. Hankin's testimony and his recounting of the story of Desert Storm, which seemed to me to be a prime advertisement for the effectiveness of unilateral sanctions. I hope that if we ever go to war with China, we find the Taiwan Straits littered with weapons that don't have made in the United States stickers. To get to my promised question.

I do think this question of end use could be a valuable one for us to pursue and I understand the difficulty of pursuing this process through the licensing channel as it were, and I'm cognizant of the difficulty that the companies face and think it's not a good idea to try to get the companies to do essentially the government's work.

My general thrust, as Commissioner Wessel suggested, was to link the licensing process to greater transparency in terms of what the Chinese forces, what the PLA actually fields and has in use.

Whether we actually sell Sun network systems to China is less interesting to me than whether those networks then turn out to be used as command and control systems for the PLA and so on and so forth.

What do you think about the general thrust of not having a set of proposals to be specific about, but the idea of again perhaps even liberalizing the front-end licensing system in exchange for on the Chinese end getting greater transparency, not only about the field-led forces but about the kinds of things that our Defense Department does when it puts out a request for proposal to solicit inputs say for a command and control system or C4ISR system? So what do you think about that general approach?

MR. RICE: Commissioner, just a general comment on a general question. As we're seeing in recent weeks, the United States government is emphasizing more and more the issue of transparency with the Chinese on their military. Secretary Rice raised that again in Australia earlier this week, went on at some length about that.

No doubt to get to some greater transparency, there will have to be a give and take over U.S. policies with regard to China with the Chinese. My guess is that this will be inevitably an item on that negotiation, but I think the question you have raised seems to be consistent with where the United States is headed on emphasizing greater transparency in this area. Then it becomes a question of negotiation.

HEARING COCHAIR DONNELLY: Mr. Hankin, would appear to Sun at all, do you think?

MR. HANKIN: I guess it would take getting into the details of what the information would be and making sure it's actually useful information. In part, I'm thinking I recall back in the days of COCOM, we had an area of controls. It was called "national discretion," and the idea behind it was, okay, these exports will be permitted, but countries will report in the information, because this will be valuable to our military to have a better sense of capabilities. Then we discovered after several years of it, nobody was ever looking at the information.

So, it's coming up, it's trying to really target well as to what capabilities are we really trying to watch and then figuring out the exports that are--

HEARING COCHAIR DONNELLY: But this would also inform that. Again, I'm less interested in who holds the license than in what the fielded capability is.

HEARING COCHAIR THOMPSON: Thank you very much. Mr. Blumenthal.

COMMISSIONER BLUMENTHAL: Yes. Thank you very much to all of you for your very informative testimony. Mr. Markey brought up a point that I think is really important. I don't know if he intended to raise important points, but the Olympics are coming up in 2008, and it's a problem of our own making, but we have laws on the books that restrict our military from training the PLA and other security forces for human rights reasons and for security reasons, and certain kinds of things that I would imagine are very important for security of the Olympics.

This is a comment and a question. A comment to the commission that I am sure that companies such as yours, Mr. Markey, will be facing a lot more requests from companies in Beijing for the types of equipment necessary to legitimately protect people involved in the Olympics. On the other hand, there is no doubt in my mind, having served in the Department of Defense, that those same types of equipment and services will be then passed through and used by the PLA and other services for purposes that we

don't like one bit in terms of repression and the types of riot and crowd control that we're seeing or that's the PLA is saying it.

So we're facing this problem very soon and I'm sure that the pressure is going to be immense on U.S. homeland security companies to provide services just like it's going to be on the U.S. government to provide services. It's something that I commend to the commission to take seriously and think about because we are really feeling the pressure a few years ago from the PLA to liberalize our own laws on this issue.

But the fact of the matter is that unless some people here with experience in these matters can think of a way to protect our own people in the Olympics without passing along the types of training and techniques and products and services to the PLA that we are prohibited by law from with very good reason from providing.

It's open to anyone.

MR. MARKEY: Well, it's true, our equipment is used. That was part of my point and part of my statement, is our equipment is used to save lives. Our equipment has been part of a number of high profile security events, prior Olympics, obviously outside of China. That equipment has stayed in country and it is there not only to protect our citizens, our military, but also the citizens of that country.

And, yes, we would be in favor of reviewing that. If your question is how do we prevent that from being passed along?

COMMISSIONER BLUMENTHAL: With China, we have a very particular problem, and that is in a very particular legislation which is that after Tiananmen Square, we decided that we weren't going to provide security services to that country--

MR. MARKEY: Right.

COMMISSIONER BLUMENTHAL: --with any sort of techniques in turning that around and repressing their own citizens. So on the one hand, we have legitimate reasons to protect citizenry including Chinese citizenry.

MR. MARKEY: Right.

COMMISSIONER BLUMENTHAL: On the other hand, none of us can be certain that those types of equipment and techniques and tactics will be used to protect the citizens rather than repress the citizens.

MR. MARKEY: As I said, our equipment is not used for that. Our equipment, and that's part of our frustration, we think our equipment may be not classified correctly. It is certainly not an offensive weapon. It is used to protect lives, and that's part of our frustration. We can't understand why that equipment, if China has that equipment, how that is a threat to U.S. national security.

COMMISSIONER BLUMENTHAL: Maybe others can speak more broadly to the question because if your equipment doesn't fall under that category, I'm sure other homeland security companies' equipment does fall under the category.

MR. HAWKINS: Several people have brought up a theme here about going all back to verification of end users and does it stay with them or get sent off somewhere else. I think the answer is that it's going to get sent off somewhere else, and either directly by the end user or through theft of intellectual property if the country does try to keep something from spreading. Intellectual property theft in China is at epidemic levels. That's the term the U.S. Trade Representative used in the report last year.

But I think it's policy. Once it gets to China, the policy will be to diffuse it across the economy. I think it goes back to what Commissioner Thompson said. Some of these issues we just simply can't send to China at all.

It's not, there's no firewalls. You can't say, well, this guy in China is okay, and the guy next to him is a bad actor. There is no firewall between them to begin with. There are a lot of categories of things we simply can't send to China at all because of that. And as a corollary to that, this notion of picking and choosing individual companies or individual actors in China, when we try to control China's arms exports, which is a related notion here, we make the same mistake in that we only sanction individual Chinese companies for violating proliferation policies, when again there is no firewall. It's a matter of state policy, I think, when China sends things to Iran.

So we have to elevate our policy and apply it to the country as a whole and not just try and pick and choose.

COMMISSIONER BLUMENTHAL: Thanks. I would just recommend that the commission one way or another look at this question of the Olympics coming up.

CHAIRMAN WORTZEL: I think you're absolutely right and we'll do that.

HEARING COCHAIR THOMPSON: Thank you. Mr. Mulloy.

COMMISSIONER MULLOY: I want to thank the panel. This is as good a group of people as we can get on these issues, so thank you all for being here. Also, I want to thank the chairman of this hearing for putting together an excellent two days. We've learned a lot. Professor Tridimas, I want to thank you as well for coming all this way and also for Penn State giving us one of your law students to help us out this semester here at the commission.

I want to get one thing pinned down here. We talked in the first panel about the Chinese contention that our export controls are part of the problem, why we have a big trade deficit with China. Mr. Record from the State Department said, quote, "There is, in fact, no basis to Beijing's claim that we could significantly reduce our trade deficit overnight by simply liberalizing our controls on sensitive items."

Is there anyone on the panel who disagrees with Mr. Record's contention on that point? That this is not a big part of our trade deficit with China? No one. Everybody agrees with Mr. Record and disagrees with the Chinese claims that this is a part.

Okay. That's very important for us because at every meeting you go to, they raise this issue.

Secondly, I wanted to mention to Mr. Markey, I grew up in Pennsylvania, and I know small town upstate northeastern Pennsylvania. I know how important jobs are to people up there and good-paying jobs.

So I'm very interested in the issue that you brought before this commission. It appears to me your problem is the fact that they put your material on the munitions list rather than the dual-use item list.

MR. MARKEY: Correct.

COMMISSIONER MULLOY: We have some people who are very expert on that issue here, like Mr. Hankin and Mr. Rice. Do you see any way that he can get any relief from the problem that he's brought before us? Is there any judicial review of those kinds of decisions or what is happening here?

MR. RICE: There is no judicial review on that subject on what's called commodity jurisdiction, i.e., deciding where an item should be applied.

COMMISSIONER MULLOY: Is that the problem, that they put it on the munitions list?

MR. RICE: True.

COMMISSIONER MULLOY: That's what's the problem?

MR. RICE: Yes, that's right. But there is no way to take the government into court on that issue about which list, and therefore which control system is used. I might have some suggestions about how to approach doing that. It's going to require a concentrated effort to contact the managements of all of the agencies that participate in commodity jurisdiction decisions to review this.

There is a procedure for doing that, but it's an internal procedure interagency to look at these. That's probably, well, you're going to make any progress on that unless you have an interagency review of how it's categorized, and it may be that some other outside forces might help--not forces, but other outside bodies might want to help inform that interagency discussion.

COMMISSIONER MULLOY: Do you mean by that political people here in the Congress?

MR. RICE: I wasn't going to say political. That's not what I was talking about, but if, for example, the commission was concerned about this, no doubt the interagency process would be interested in that.

The Office of Science and Technology Policy at the White House often plays a role in those commodity decisions although they don't have a vote. Committees of the Congress who are concerned about this might as well, so it's not a political because it's not a political process, but--

COMMISSIONER MULLOY: But the agencies can review this internally and--

MR. RICE: There is a process for reviewing those commodity classification and jurisdiction decisions and sometimes that process needs some outside advice in order to move things along.

COMMISSIONER MULLOY: Chris, do you have any comment?

MR. MARKEY: I was going to say we've already done that. We've already had a jurisdiction review.

COMMISSIONER MULLOY: And what's happened? Did they come back the same way?

MR. MARKEY: Yes. No, it came back, it was denied and then--

COMMISSIONER MULLOY: You didn't get the review?

MR. MARKEY: We did get the review.

COMMISSIONER MULLOY: And the decision remained the same?

MR. MARKEY: Yes, we've actually had two reviews.

COMMISSIONER MULLOY: Thank you and thank you, Mr. Chairman.

HEARING COCHAIR THOMPSON: Thank you. Does anyone else have any questions or comments?

CHAIRMAN WORTZEL: I hate to do it, but I do have a follow-up.

HEARING COCHAIR THOMPSON: Go ahead.

CHAIRMAN WORTZEL: Mr. Markey, on the surface, I guess I could conceive, other than taking your box and putting some poor political protester in it and containing him, I don't know what repressive use that it could have. But I know I'm missing something.

Is there some unique material that you're using to shield the explosion that the government in the United States or some agency of that government is worried about getting out to the PLA? I know we're missing something here.

MR. MARKEY: I would agree. No, there is nothing unique about our product other than what it does, which is save lives that I can understand, anyone else I've discussed this situation can understand, why we're in the situation we are.

COMMISSIONER WESSEL: Can I ask a question, please, just because I'm missing something here as well, and I think we're all somewhat stymied and be happy to review this at greater length, but your product can help save lives by detecting things that can hurt people?

MR. MARKEY: It's not detection. It's containment.

COMMISSIONER WESSEL: Containment.

MR. MARKEY: Maybe just take a second to make sure we understand what the product is.

COMMISSIONER WESSEL: Please.

MR. MARKEY: It's essentially a steel sphere, and what that steel sphere is, it's mounted on trailers, transport systems, it's sold to bomb squads, police and what they do, and I'm sure everybody here is familiar with the term "IED," when you find these improvised explosive devices, you put this device inside that chamber, and once it's inside that chamber, it is contained, and if indeed you have an event inside that chamber at the scene with transport, all the fragmentation is contained, overpressures that come with an explosion are contained.

It's been a state-of-the-art and still is the state-of-the-art technology on how you handle those type of devices.

COMMISSIONER WESSEL: So there is no kind of detection capability here that would enable somebody to develop countermeasures if they were reverse engineered or anything else?

MR. MARKEY: That's correct.

HEARING COCHAIR DONNELLY: Is it a metallurgy or a materials issue?

COMMISSIONER MULLOY: Yes, it's really curious; isn't it?

HEARING COCHAIR DONNELLY: The hook is in deeper every time you talk.

MR. MARKEY: No, it's made of steel. There's nothing secretive or overly sophisticated about the steel.

HEARING COCHAIR THOMPSON: Shall we go ahead and approve this application today? How about a show of hands here?

MR. MARKEY: That makes my day.

HEARING COCHAIR THOMPSON: I want to thank the panel and the indulgence of my fellow commissioners. Hopefully, we've done some good here today. I think we see the issue. The thing that concerns many of us is that we're down in the weeds on all these issues and no one yet seems to have a comprehensive view of how much good we're doing with all this.

What can we do? What can we expect to accomplish? If it's incremental, must we go ahead and go through this elaborate dance and all these different ways to do it? Is it really significant? Does it make that much difference?

We've got a complex procedural situation here where we claim to--I think Mr. Hawkins got it exactly right--to make these fine distinctions about end users. Give me a

break. We make these fine distinctions as to who the Chinese are sending to and who they're not, and we go to Iraq and we're relieved. We find no U.S. names on anything there, but we find Chinese names and that makes us feel good because we're only shipping to the Chinese.

They're building fiber-optic systems for Saddam and they help shoot our planes down, but we put on the green eyeshades and look at these individual items and decide whether or not we want to continue to export Widget A, B or C. We go through these elaborate debates and the EAA would have us have Commerce decide whether or not these items are mass-marketed, whether or not there's foreign availability, when we're comparing apples to oranges and not really getting a handle on that.

Without resolving the question, suppose everything is available, and everything is mass marketed, should we lock up and go home? Does that end the debate? And if not, why? Is there a moral component to all this in addition to the practical part?

I just would leave with the same feeling that I had when I left the United States Senate, and that is that no one that I know of has ever done what I consider an objective--and that "objective" is the key word, because it's damn hard to find any objectivity anywhere with regard to this issue--an objective analysis of what we ought to be doing. What is the goal that we're trying to achieve here and are we really doing any good by an objective standard?

We've all got dogs in this fight and we all get together and make the same statements and have the same debates over the same issue, but nobody is taking, as far as I know, a real overview and coming to conclusions about what we ought to be doing.

I'm afraid that successive administrations have come to the conclusion that it's all pretty much hopeless and it doesn't matter much anyway. I don't agree with that, and I hope that's not the case, but it seems to not get a whole lot of attention that I think it deserves.

What are future generations going to think when we're sitting here talking about these in the weeds detailed issues with regard to a country which is the only country singled out by the QDR and by the Secretary of Defense on the horizon out there that poses a significant threat to us, and we're sending munitions items and struggling over and debating over sensitive dual-use technology and things like that?

I'm wondering what the judgment is going to be 50 years from now when people look back on it. That's my little sermon for the day.

Mr. Mulloy.

COMMISSIONER MULLOY: One last comment, Mr. Chairman. I think it's the export controls, but Mr. Kolbe brought out yesterday, this is only one facet of technology transfer out of this country to China. It's the investment and the R&D movement that's going on as well, which is really ramping up their own internal capabilities, and you wonder about all of that.

HEARING COCHAIR THOMPSON: Well, it does. From my part, I'm a free trade guy, and I'm for foreign direct investment and all that, I say more power to them. Maybe we'll win that game of chicken we're playing as to whether or not they democratize first or they get in a position to overtake us first.

But I'm for all that. I draw it very narrowly as to whether or not we are enhancing their military capabilities in ways that we could prevent at least incrementally enough to make a difference. That's the only issue that I'm concerned about with regard to all this.

Yes, sir.

HEARING COCHAIR DONNELLY: Yes, I've been beating this over the head, I know, but the problem is obviously we see what we give to them, and we see it a little bit when it goes into the Chinese industrial system, the black box is what really the Chinese military, what is the state of the Chinese military?

I think one thing that we could do as a commission is to try to focus the spotlight or focus the administration and the government's attention on looking at the thing that is the real, that's where the rubber meets the road. If we see that our transfers, our technology transfers are not really improving the Chinese military as much as we fear, okay. We can afford a more liberal trade regime.

Conversely, if we have a better understanding of where the Chinese military is going, then we could better calibrate our trade policies because that's the measure of effectiveness.

HEARING COCHAIR THOMPSON: Acknowledging what we don't know and cannot ever know, and then asking ourselves where is the burden? Who has the burden in view of the fact that we don't know whether or not we're enhancing capabilities unnecessarily?

HEARING COCHAIR DONNELLY: You want our stuff, make us feel good about what you're doing with it.

HEARING COCHAIR THOMPSON: Thank you very much. The committee is adjourned.

CHAIRMAN WORTZEL: Thank you very much.

[Whereupon, at 12:30 p.m., the hearing was adjourned.]



**Statement of Michael B. Enzi**  
**United States Senator from the State of Wyoming**

U.S.-China Commission Hearing on China's Military Modernization and  
U.S. Export Controls  
March 17, 2006

I would like to thank the U.S.-China Economic and Security Review Commission for taking the time to hold this hearing on China's military modernization and U.S. export controls. As someone who has worked on export control issues for many years, I appreciate the opportunity to testify before you today.

I noted on the Commission's press release that one of the goals of this hearing is to examine the "effectiveness of U.S. export controls aimed at preventing the transfer of sensitive technologies to China and how those controls affect American industries." This is an important issue that could take up far more than two days of discussion. The title of this hearing certainly infers that export controls can be used to control China's military modernization. One question that I would like to raise with the hope of fostering discussion is how should the United States work with our international allies on the issue of China's military modernization? As many of you already know, the Export Administration Act of 1979 was written with the concerns of the Cold War in mind. If we think back to the 1970s, the United States and our allies were pretty much in agreement that our one main enemy was the former Soviet Union. In regards to China, we are not operating under the same belief of a common enemy. If the United States remains committed to stopping China's military modernization, we have a long way to go to convince our allies to stop trading with China. As I will discuss in further detail below, in order to make our nation safer, we must work with other countries to stop the individuals and organizations who wish to inflict harm upon our nation. It is clear that China creates a unique challenge for our diplomats as well as our export control guidelines. On one hand, China presents us with a major trading partner. On the other hand, China's current attempts to modernize its military raise many serious security concerns. While I could discuss the many export control issues surrounding China alone, I would like to concentrate my remarks on the overall reauthorization of the Export Administration Act.

As most of the Commissioners know, I have been working to reauthorize the Export Administration Act of 1979 (EAA) for over seven years now. I have worked through dozens of drafts over the years with many of the same people involved in this hearing yesterday and today. We were even successful in passing a bill out of the Senate in September 2001. Unfortunately, the events of 9/11 and subsequent actions in the House

derailed the bill. However, I am still committed to seeing the Export Administration Act reauthorized.

In 2004, I wrote an article discussing the four ingredients necessary to revise the Export Administration Act – knowledge, commitment, leadership and cooperation. I still believe that these four attributes will lead to the reauthorization of the EAA.

**Knowledge:** When I discuss the importance of knowledge, one crucial aspect of this ingredient is the education of members of Congress and the public as a whole on how our export control system operates. The U.S. export control system is a highly complex assemblage of regulations and agencies. The Departments of State, Commerce, Energy, Treasury, Defense and Homeland Security and the intelligence community all carry out key functions with respect to administering and enforcing controls on the export of items that are defense, commercial, or dual-use in nature.

As an example, the Bureau of Industry and Security (BIS) within the Department of Commerce administers the Export Administration Regulations (EAR), which provide the regulatory framework for controlling dual-use items listed on the Commerce Control List (CCL). Other departments like the Departments of Defense and Homeland Security play critical, decision-making roles at both the interagency licensing level as well as the operations and enforcement level.

As Congress works to reauthorize EAA, it is essential that members understand the importance of EAA and how the Act balances our national security interests with our economic security interests.

Part of the process in educating members of Congress is to stress the problems with the current system of operation. As you know, without the ability to operate under the EAA, the President is currently using his authority under the International Emergency Economic Powers Act (IEEPA) to control the export of dual-use items. However, IEEPA is a poor instrument for controlling exports indefinitely. One example is that IEEPA applies minimal penalties to exporters of unlicensed technologies. Under IEEPA, fines for export control violations are seen by many as simply another cost of doing business. These ineffective penalties do not adequately deter bad actors from engaging in criminal behavior.

**Commitment:** EAA was first drafted and passed by Congress in 1949, the same year that the Soviet Union tested its first atomic bomb and the People's Republic of China was formally established. Thirty years later, Congress revised EAA to reflect the political and economic realities of 1979, namely the Cold War and inflation. Twenty years later, in 1999, Congress again recognized the need to reform the Cold War relic known as the Export Administration Act of 1979.

The Senate Committee on Banking and its Subcommittee on International Trade and Finance held seven different hearings on export controls in 1999 and 2000. As Chairman of the Subcommittee during that time, I worked with my colleagues, industry, and the

Administration to produce a comprehensive collection of thoughts and ideas on how best to modernize our antiquated export control system. We developed a set of principles based on transparency, accountability, deterrence, enforcement, and multilateral cooperation that helped guide the drafting of S. 149, the Export Administration Act of 2001.

The tragic events of September 11<sup>th</sup> underscore the need for a strong and responsive export control system that keeps dangerous items out of the hands of terrorists and terrorist countries. S. 149, which passed just five days before the United States was attacked, identified deterring acts of international terrorism as a key theme. The bill also contained an ultimate terrorism trump, a provision that would have authorized the U.S. government to impose export controls, under any circumstance, on the sale of items contributing to the proliferation of weapons of mass destruction. Unfortunately, progress on S. 149 was brought to a screeching halt in 2001 and 2002.

Here we are in 2006 and the answer on how to reauthorize EAA remains the same today. We must effectively control the flow of dual-use goods and technology. We must provide the President with the legal authority necessary to focus U.S. export controls on dangerous technologies going to countries and actors of concern. The focus of the controls needs to be on the end-users. My personal commitment to the reauthorization of EAA remains strong and I hope to see its reauthorization in the near future.

**Leadership:** Passing legislation that renews the Export Administration Act is an ongoing goal of mine. I am pleased that the Bureau of Industry and Security within the Department of Commerce is also committed to this goal. I am also hopeful that members of the House of Representatives will also support reauthorization. The overarching concept of any new bill should be to build higher fences around the most sensitive of items and hold those accountable who break the law. I am pleased that Chairman Hyde took the initiative to introduce H.R. 4572 during this Congress. While I prefer a more comprehensive reform of EAA, I am also supportive of Chairman Hyde's current effort.

I also wanted to take this opportunity to discuss the importance of multilateral export control regimes. If the aftermath of 9/11 has taught us one thing, it is that the United States cannot win the war on terror alone. We must work with our allies in the international community in order to stop those individuals and organizations that threaten our country and other nations around the world. Our export control system must also reflect the urgent need to work with our allies in the protection of our homeland.

Multilateral export control regimes play a vital role in our efforts to control the exports of sensitive dual-use goods and technology. As I have stated for many years, I will continue to push for improvements to U.S. law that will help carry out the recommendations made by the Study Group on Enhancing Multilateral Export Controls for U.S. National Security. In 2000, I co-chaired this Study Group with Senator Bingaman and Representatives Cox and Berman. Its mission was to develop practical recommendations for more effective multilateral controls of militarily relevant technologies.

We should draft legislation that will provide clear statements of policy regarding U.S. and foreign participation in any export control regime and outline the standards we expect our partners within the regimes to uphold. This effort will enable the President to approach our international partners and allies with a solid understanding of what Congress expects out of America's participation in each of the multilateral export control regimes. It will also provide awareness about what we, as a country, expect out of the international community. Any legislation passed by Congress should acknowledge the value of multilateral cooperation and encourage the United States to provide leadership in training, information sharing, and enforcement assistance to members and non-member countries within the regimes. The United States must take a leadership role in encouraging other nations to develop comprehensive export control regimes.

**Cooperation:** The last issue I wish to discuss is cooperation. It will take real cooperation to draft and pass a comprehensive bill reauthorizing the 1979 Act. This cooperation needs to begin with my fellow colleagues here in Congress. If we hope to see real reform in the near future, my colleagues in both chambers will need to work together to develop strong bipartisan, bicameral legislation.

Passing EAA reauthorization will also take the cooperation of the many agencies and departments that carry out the licensing process or the enforcement and administrative procedures. As I have stated in the past, the Departments of Commerce, State, Homeland Security and Defense must continue to improve their information sharing capabilities and the interoperability of networks and databases. Export controls are a frontline defense in fighting terrorism. However, without up-to-date and precise information on license applicants and end-users, the entire system will be far less effective.

It will also take the cooperation of industry. As the system currently stands, our nation relies on the efforts of the export community to obtain information on international transactions. A vast majority of the export community has been responsive, helpful and thorough in their efforts to abide by the law. In order for export controls to be as effective as possible, we must have the cooperation and the support of industry.

Since 2001, when the Congress came close to passing EAA reauthorization, the Administration and specifically the Department of Commerce, has made a great deal of progress on regulations that assist in streamlining the licensing process for technology and other goods. I am pleased that the Administration took the initiative to address many of the obvious concerns through the administrative process. However, there is still a great deal of work to be done and I know that the Department of Commerce and the rest of the agencies need statutory authority to improve law enforcement procedures, assist in making enforcement tools more effective, and increase the penalties.

As I have stated time and time again, I believe that without reauthorization of Export Administration Act that we jeopardize our capability to control dangerous dual-use items as well as our ability to work with the international community to deter acts of international terrorism and the proliferation of weapons of mass destruction. We need to put into place a strong system that will keep sensitive items out of the hands of the

terrorists. We cannot continue to operate under IEEPA. IEEPA was not designed to allow the President to maintain export controls indefinitely without Congressional approval. However, this is exactly what is happening since Congress continues to fail to reauthorize EAA.

I am still eager to work with my colleagues to reauthorize the Export Administration Act of 1979. Later this year, I hope to begin working on a comprehensive reauthorization bill, similar to my earlier efforts, that can be introduced into the 110<sup>th</sup> session of Congress. As we work through this process, we must focus efforts and resources on the people who are going to use our dual-use technology against us. We also need to use a multilateral approach to stop the sale of dangerous items to bad actors.

Thank you again for taking the time to hold this hearing today. I will continue to work with my colleagues in Congress, the Administration and industry to see EAA reauthorized.