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The Container Security Initiative and U.S.–China Relations

IN MARCH 2004 A SHOCKING EXPLOSION rocked Port Ashoda, Israel. Two suicide bombers who had stowed away in the false compartment of a shipping container had detonated their weapons when discovered by guards before they could target the port's fuel depot.[1] Although ten people were killed in this tragedy, it was not the first time that terrorists had attempted to exploit the mobility and anonymity of shipping containers, and it will not be the last.[2] In a future incident, the damage could be far greater and far more wide-ranging.

With the rise of globalization and the consequent benefits for economic growth, maritime security is more important for the survival and prosperity of nations than ever before: "90% of world trade and two-thirds of . . . petroleum are transported by sea."[3] With East Asia's developing market of nearly 2 billion people, its disproportionate number of major commercial ports, and its status as both a conduit for and a source of much of world trade and energy transport, East Asia (with China at its core) is central to this process. Ports in mainland China, Hong Kong, and Taiwan account for more than 42 percent of U.S.-bound cargo.[4]

The region's future depends on the security of its sea-lanes. Yet a variety of nonstate forces—piracy, smuggling, accidents, and even potentially maritime terrorism—threaten to impede or even disrupt the functioning of this

vital system. It is difficult to conceive of an area in which the United States and China have more shared interests in, and could derive more benefits from, security cooperation. Progress in seaborne container security, in turn, could build confidence and what Carla A. Hills, vice chairman of the Council on Foreign Relations, terms "habits of cooperation" that could bolster the other bilateral and multilateral initiatives outlined in this volume.[5]

Given its great dependence on container shipping amid the dangers of the post-9/11 world, the United States has established the Container Security Initiative (CSI) to safeguard seaborne container trade. In June 2002 U.S. Customs invited China to join CSI, and the process was completed the following year.[6] This chapter examines the CSI's vital contribution to East and Southeast Asian supply chain security and China's vital role therein. This chapter demonstrates that

- The United States and China are both vital contributors to, and beneficiaries of, CSI.
- CSI has succeeded by linking robust economic and security interests, introducing new technologies and commercial opportunities, facilitating access to the U.S. market, and allowing for true reciprocity.
- CSI cooperation has expanded rapidly and has inspired other programs.
- The major obstacles to bilateral maritime cooperation in this arena are the complexity, cost, and time-consuming implementation of effective initiatives.

Rationale for the Container Security Initiative (CSI)

An important security measure with particular significance for Asia, which boasts thirteen of the world's top twenty container shipping ports, is the Container Security Initiative (CSI, 集装箱安全倡议).[7] CSI was introduced by the U.S. Customs Service in January 2002 following the 11 September 2001 terrorist attacks. Containerized cargo security's importance for economic development and stability, particularly in East Asia, is readily apparent as Table 1 (below) indicates. Of central significance to the economic interests of the United States, its East Asian trading partners, and indeed the world, is the security of "megahubs," which can accommodate the sixty-foot drafts of the largest container ships. Seven of these deep-water ports (Singapore, Shanghai, Hong Kong, Ningbo, Guangzhou, Kaohsiung, and Yokohama) are in East and Southeast Asia, the location of the majority of global container trade. More are under development as the region's ports are improved at a staggering rate.

Intra-Asian transport reached 28.3 million twenty-foot container equivalent units (TEUs) in 2007. Here, "out of the 20 busiest container trade routes 11 involve Greater China as origin or destination [and represent] 37.6 percent of world volumes."[8] Trans-Pacific stood at 20.6 million TEUs, and Asia-Europe at 18.6 million TEUs.[9]

Table 1. World's Top 15 Ports by Container Traffic, 2008

Rank	Port	Country/Economy	TEUs
1	Singapore	Singapore	29,918,200
2	Shanghai	P.R. China	28,006,400
3	Hong Kong	S.A.R. China	24,494,229
4	Shenzhen	P.R. China	21,416,400
5	Busan	South Korea	13,445,693
6	Dubai Ports	United Arab Emirates	11,827,299
7	Ningbo	P.R. China	11,226,000
8	Guangzhou	P.R. China	11,001,400
9	Rotterdam	Netherlands	10,783,825
10	Qingdao	P.R. China	10,024,400
11	Hamburg	Germany	9,737,110
12	Kaohsiung	Taiwan	9,676,554
13	Antwerp	Belgium	8,662,891
14	Tianjin	P.R. China	8,502,700
15	Port Kelang	Malaysia	7,973,579

Source: "World Port Ranking—2008," *American Association of Port Authorities*, http://aapa.files.cms-plus.com/Statistics/WORLD%20PORT%20RANKINGS%2020081.pdf.

Note: Xiamen ranked twenty-second, Dalian twenty-third, and Lianyungang thirty-fifth.

Containers transport nearly 90 percent of global trade annually—a total of 153 million TEUs in 2008 (a 7 percent increase over 2007).[10] The world's 20 megahub container ports send nearly 68 percent of the 5.7 million containers entering the United States by sea annually on 214,000 vessels at 301 distinct entry ports.[11] This is part of a larger pattern in which seaborne trade, which

accounts for 80 percent of all international trade, has increased an estimated 4.1 percent (in 2004), and 3.6 percent (in 2005 and 2006).[12] From 1982–2005, global container trade grew 3.5 times faster than global gross domestic product, and 40 percent faster than overall global trade; every year since 2003, it has averaged double-digit growth. While global economic conditions may reduce the growth rate, international trade remains significant and environmental concerns may further favor seaborne trade.[13]

This burgeoning trade imposes tremendous traffic and processing burdens on container ports. Large ships carrying as many as eight thousand containers transport nearly half of incoming trade (by value), 40 percent overall, to the United States' 360 commercial ports; this percentage is even higher in Japan, Singapore, and the United Kingdom. U.S. ports received 9.8 million containers from 611 ports in fiscal year 2008;[14] in 2004 seaborne containers also transported one-quarter of U.S. imports ($423 billion) and one-sixth of U.S. exports ($139 billion).[15] More than 600 foreign seaports in approximately 170 countries export products to the United States. The largest 80 of these countries send 95 percent of all containers to the United States.[16] Sixteen million shipping containers arrived in U.S. ports in 2005.[17] During that fiscal year, U.S. Customs and Border Protection processed 20 million sea, truck, and rail containers entering the United States and 29 million of its trade entries.[18]

Like that of the United States, China's economy is critically dependent on container traffic. In 2006 China had $974 billion in exports, 21 percent ($250 billion) of which went to the United States and 9.5 percent of which went to Japan. China imported $777.9 billion worth of goods that year.[19] In 2009 China shipped $1.2 trillion in goods overseas, thereby becoming the world's largest exporter.[20] Logistical and commercial imperatives meant that the vast majority of goods by volume, and a substantial majority by value, travel by sea. Empty containers constantly enter China's major ports—which are nearing 100-million-TEU capacity[21]—and full ones are shipped out, many through just-in-time supply chains, so China, like the United States, has to have complete confidence in the safety of containers coming from other nations. With logistics accounting for 18 percent of GDP, double that of most developed economies, and port development under way at a speed and scale unequaled anywhere else in the world, China has both reason and ability to keep its container security cutting edge.[22]

Given this tremendous reliance, disruption of trade by terrorist activities involving shipping containers could be disastrous. To grasp the challenge inherent in safeguarding container shipments, note the sheer scale of Denmark's $145-million *Emma Maersk*. With a length of 1,302 feet and width

of 207 feet, *Emma Maersk* is larger than a U.S. Navy aircraft carrier, yet it has far fewer personnel (thirteen versus five thousand) and can cross the Pacific at 27 knots. It carries 15,000 containers, or 123,200 tons of cargo. Now consider that Maersk operates 550 container ships.[23] To be sure, the world's 12 million containers are carried in groups of 3,000 or less on many of the world's 4,600 container ships, but the value is still higher than for most cargo ships. For U.S. maritime trade, they represent 11 percent of tonnage but 66 percent of value. To this tremendous volume is added a large number of logistical steps divided among many locations. Typically loaded in one or more of many remote company warehouses, a container may contain goods from several customers. Its progress from exporter to freight forwarder to land transporter to customs broker to customs inspector to port operator to feeder ship/ocean carrier to final port of entry is tracked by as many as forty documents and can range as far as nine thousand miles in as few as sixteen days. Safeguarding such a long and complex process is truly monumental in its challenges, but so are the interests at stake.[24]

Not to be underestimated is the indirect economic damage that could also result from containerized terrorism. According to a 2002 report by Booz, Allen and Hamilton, which was cited by the U.S. Government Accountability Office (GAO) in its 2003 Container Security Report, if searching for an undetonated weapon of mass destruction were to require the closure of a single U.S. seaport for twelve days, economic costs could reach $58 billion, or $4.8 billion per day.[25] In 2002 a Brookings Institution study suggested that a detonation in a similar single-port scenario could cause $1 trillion in economic damage by triggering trade restrictions.[26] The U.S. Department of Homeland Security already spends roughly $140 million annually on CSI, in part to reduce the possibility of such a scenario erupting.[27] A strike by the International Longshore and Warehouse Union in 2002 provided a real-life example of the costs of port disruption, as twenty-nine West Coast ports were closed for ten days and thirty to forty vessels were unable to be unloaded at any point.[28] Perishable goods were spoiled and shippers and exporters suffered huge losses for an estimated cost of $2.4 billion per day ($19.4 billion in total).[29]

Clearly, China's economy would be negatively impacted by any disruption in imports from the United States, the destination of $250 billion of Chinese exports in 2006, or 21 percent of China's total for that year.[30] This danger can be seen broadly in the impact of the recent U.S. recession on Chinese manufacturing. Even a delay in the shipment of preordered goods increases prices and decreases consumption, thereby harming Chinese exports. Better container monitoring can also reduce the smuggling and corruption tendencies

that threaten ports around the world. For instance, in 1998 then-premier Zhu Rongji declared, "It is necessary to . . . equip all ports with a container perspective monitoring system . . . so as to enhance anti-smuggling combat capability."[31] There is therefore a major economic and security rationale for cooperation in this area. As one Chinese port industry veteran adds, "By joining CSI, we can learn from the United States' advanced container security management experience, which is definitely something positive for domestic enterprises."[32]

CSI Procedures

Under CSI, officials are deployed overseas to work in cooperation with their host nation counterparts at the fifty-eight CSI ports that supply 86 percent of container cargo to the United States.[33] U.S. Customs and Border Protection officers are stationed in overseas locations that ship a number of containers above a certain threshold, where they engage in reciprocal information exchange.[34] This is in complete accordance with utmost respect for host nations' sovereignty.

Cooperation in law enforcement is usually much easier for nations to achieve than is military cooperation, especially against mutual threats. U.S. officers from the Immigration and Naturalization Service as well as from the Drug Enforcement Administration have worked successfully in foreign ports for years.[35] As has been widely reported in China's official media, CSI partner nations may also send officers to U.S. ports to monitor containers destined for their own nations' ports.[36] Japan and Canada have already done so at multiple locations.

To enter CSI, participants first conduct a thorough analysis of port infrastructure vulnerabilities (including personnel integrity) and address any outstanding problems. Then, to ensure the security of container shipping, CSI participants use a four-part process—all based on best practices and coordinated with U.S. Customs and Border Protection:

1. Identify and target containers that risk facilitating terrorist activities by using intelligence, standardized information, risk management, and automated targeting tools. To support this process, "exports destined for or transiting through the U.S. . . . must be compliant with the U.S. 24-hour rule, which requires 14 data elements [e.g., ports of loading and discharge] to be reported 24 hours prior to loading aboard a vessel destined for the U.S."[37]
2. Prescreen at-risk containers at the earliest stage possible, ideally at the port of departure, before they arrive at ports in participating member nations.

3. Employ sophisticated nonintrusive inspection (NII) detection technology (e.g., radiation detection devices as well as X-ray and gamma ray machines) to rapidly prescreen at-risk containers bound for ports in participating member nations with minimal disruption to trade movement while physically inspecting if necessary.
4. Introduce containers that are more secure and that more clearly reveal any tampering that they might have encountered.[38]

In Hong Kong, for example, shipping lines presend information to a port terminal owner's computer system. Hong Kong Customs receives the same information and detains and inspects containers selectively based on assessment of relative risk. For example, when there was a bombing in Colombo, Sri Lanka, containers from that port were subjected to additional scrutiny. Inspectors watch for abnormal movements of certain commodities. Perishable coconuts stored in port for five days, for instance, triggered inspection and were revealed to conceal drugs. There are multiple layers of security procedures. Employees have different levels of security access, and port exit gates will not open unless authorized. There is strong incentive for shippers to police themselves because they pay for any costs associated with delays.[39] Given that the United States has decided to mandate a high level of container inspection, CSI compliance actually makes cargo shipping to the United States more efficient.

Participating East and Southeast Asian Nations

With the tremendous concentration of container ports in East and Southeast Asia, it is both natural and fortunate that CSI has made great inroads there. For a list of currently operational ports in the region, see table 2.

All the nations and entities listed in table 2 have played a critical role in furthering CSI's coverage, and they deserve great recognition for their many efforts in this regard. For the purposes of this chapter, however, it is necessary here to focus on the implementation of CSI in China.

China

With its rapid manufacturing-based economic growth, China has already had a major impact on global container trade. Beijing's active participation has been and will be essential to the success of CSI. With six of the world's top fifteen container ports, mainland China processes a tremendous volume of containerized exports.[40] In 2004 Chinese ports handled roughly one-quarter of global container traffic that year and (when including that of the Hong Kong

Table 2. CSI Ports in East and Southeast Asia

Location of Port	Port Facility	Date Joined
Mainland China	Shanghai Shenzhen	28 April 2005 24 June 2005
Hong Kong	Hong Kong*	5 May 2003
Taiwan	Kaohsiung Chi-Lung	25 July 2005 25 September 2006
Singapore	Singapore*	10 March 2003
Japan	Yokohama Tokyo Nagoya Kobe	24 March 2003 21 May 2004 6 August 2004 6 August 2004
South Korea	Busan*	4 August 2003
Malaysia	Port Klang Tangjung Pelepas	8 March 2004 16 August 2004
Thailand	Laem Chabang	13 August 2004

* Also participates in Secure Freight Initiative

Source: "CSI Fact Sheet," U.S. Customs and Border Protection, 2 October 2007, http://www.cbp.gov/xp/cgov/trade/cargo_security/csi/ports_in_csi.xml .

S.A.R.) nearly 40 percent of world container volume. China's ports have had the world's largest cargo and container throughput since 2002, when China overtook the United States. In 2007 China exported 114.76 million TEUs; the projection for 2008 is between 137–39 million TEUs. Mainland Chinese ports handled their 100 millionth container in November 2007. Annual growth is 25–35 percent, and roughly half of the containers transiting Pacific sea-lanes are from China. For statistics from 2006–9 and projections for 2010–11, see table 3.

Mainland China has two of the world's top ten container shipping companies (China Ocean Shipping Company, COSCO, 中国远洋, and China Shipping Container Lines, 中国集装箱运输股份), and Taiwan has one (Evergreen Marine Corporation, 长荣海运). China also manufactures 90 percent of world containers. State-owned COSCO has more than 130 vessels (with a capacity of 320,000 TEU).[41] Table 4 shows how China's top shipping companies compare with other world leaders.

Table 3. Recent and Projected Container Throughput for Mainland China and Its Top 9 Major Ports (in millions of TEU)

Port	2006	2007	2008	2009	2010*	2011*
Shanghai	21.71	26.15	28.01	25.00	27.65	29.04
Shenzhen	18.47	21.10	21.42	18.25	19.93	20.92
Guangzhou	6.60	9.26	11.00	11.19	14.00	N/A
Ningbo-Zhoushan	7.07	9.43	10.93	10.50	10.00	N/A
Qingdao	7.70	9.46	10.02	10.26	12.00	N/A
Tianjin	5.95	7.10	8.50	8.70	12.00	N/A
Xiamen	4.02	4.63	5.04	4.68	10.00	N/A
Dalian	3.21	3.81	4.53	4.55	8.00	N/A
Lianyungang	1.30	2.00	3.00	3.02	3.4	N/A

* Estimate.

Note: Zhongshan was China's tenth-largest port in terms of annual TEU throughput from 2006–7; since 2008, Suzhou has held that position.

Source: Projections for 2010–11 for Shanghai and Shenzhen from 撰文, 余黄炎 [Zhuan Wen and Yu Huangyan], "全球集装箱港口行业动态—多数港口第三季度吞吐量无明显回升" ["Global Container Port Industry Trends—No Significant Rebound in the Third Quarter for Most Ports"], 中国港口 [*China Ports*] 11 (November 2009): 48. Projections for 2010 for all ports besides Shanghai and Shenzhen as well as 2009 data from "2009年1-12月全国规模以上港口国际标准集装箱吞吐量前10名" ["International Standard Container Throughput for the Top Ten National Ports, January–December 2009"], 1 February 2010, 交通运输部 [Ministry of Transport and Communications], http://www.61226122.com/CSD3.0/profession/detail.jsp?articleid=68587. Data for 2008 from Matt Schiavenza, "An Uncertain Year for China's Ports? The Latest Throughput Figures to Date," *China Intelligence Online*, 11 September 2009, http://www.chinaintelligenceonline.com/News/2009/09/11/something-else-about-something. Data for 2007 from 撰文, 杨震宁 [Zhuan Wen and Yang Zhenning], "加快发展国际集装箱海铁联运的研究" ["Research on Accelerating the Development of International Sea-Rail Intermodal Transport"], 中国港口 [*China Ports*] 1 (January 2009): 19. Data for 2006 from 中国港口协会研究中心 [China Port Association Research Center], "2008年中国港口集装箱运输预测" ["2008 Container Transport Forecast for Chinese Ports"], 中国港口 [*China Ports*] 185, no. 11 (November 2007): 27. Data checked against "China," *Lloyd's List Ports of the World 2010*, vol. 1 (London: Informa Maritime and Professional, 2010), 221–300.

China's rapid port development and economic growth will probably only increase its portion of global container trade.[42] China's policy of deliberately distributing shipping among its different ports (as opposed to the more market-driven approach used in Western economies) may offer additional opportunities for security regulation. Beijing may be able to allocate container traffic in a way that facilitates focus on the most at-risk containers while allowing the others to be processed more rapidly.

Table 4. Top 10 Container Shipping Companies in Order of TEU Capacity (March 2009)

Company	TEU capacity	Market share (%)	Number of ships	Market share (%)
A. P. Moller-Maersk Group	2,031,886	15.5	539	8.91
Mediterranean Shipping Company S.A.	1,469,865	11.20	425	7.03
CMA CGM Group	988,141	7.50	378	6.25
Evergreen Marine Corporation	624,536	4.80	176	2.91
Hapag-Lloyd	488,135	3.70	128	2.12
COSCO Container Lines	485,796	3.70	148	2.45
American President Lines (APL)	473,170	3.60	131	2.17
China Shipping Container Line (CSCL)	450,928	3.40	143	2.36
NYK Line	433,000	3.30	119	1.97
Hanjin-Senator	378,282	2.90	91	1.50
World Fleet Capacity	13,108,859	100	6,048	100

Source: John Konrad, "Container Shipping Companies—The Ten Largest Visualized," *gCaptain*, 7 March 2009, http://gcaptain.com/maritime/blog/the-ten-largest-container-shipping-companies-visualized/.

President Jiang Zemin's announcement at a 25 October 2002 meeting with President George W. Bush in Crawford, Texas, that China would join CSI and his subsequent strong support represented a major step forward for global container security.[43] "I am very pleased that the Chinese government has agreed in principle to join with the United States in the Container Security Initiative," U.S. Customs commissioner Robert C. Bonner responded. "We will be working with the appropriate Chinese government officials to implement the program as quickly possible. This is an important step, not only for the protection

of trade between the U.S. and China, but for the protection of the most critical component of the world trading system as a whole—containerized cargo."[44] In January 2003 General Administration of Customs (GAC) deputy director Sheng Guangzu proposed a set of technical conditions. In early June 2003 presidents Bush and Hu met in Evian, France, to approve a "declaration of principles."[45] On 29 July 2003 China formally joined CSI when Commissioner Bonner and Mu Xinsheng, China's commissioner of GAC, signed a declaration of principles in Beijing.[46]

Hong Kong

The Hong Kong S.A.R.'s proactive participation in both CSI and the Secure Freight Initiative (for which it became a Phase 1 port in July 2007) has been an extremely welcome development; Hong Kong currently ranks first in terms of the volume of both shipments and containers exported to the United States.[47] In 2004 the U.S. received $43.4 billion containerized imports from Hong Kong.[48] In fiscal year 2006, Hong Kong sent 11.48 percent of its 1,333,812 shipments (in 948,876 containers) to the United States, which represented 9.28 percent of all shipping containers the United States received that year.[49] Moreover, 90 percent of Hong Kong's shipments are themselves transshipments, making their safety all the more important to verify.[50]

Recognizing the importance of its trade with the United States, Hong Kong has taken a proactive approach from the start.[51] "As the world's busiest container port, we consider it is our responsibility to work with the international community to safeguard the global maritime trading system from the potential risks facing all of us," declared Secretary for Commerce, Industry, and Technology Henry Tang in 2002.[52] U.S. officials enjoy excellent cooperation with their counterparts in Hong Kong, which has been described by Customs and Border Protection (CBP) Commissioner Bonner as "a model for CSI ports throughout the world."[53] Previously paper-based, Hong Kong Customs and Excise used the implementation of CSI to develop and refine a cutting-edge electronic targeting system/database. It paid for the system and purchased rights to manifest data (e.g., bills of lading and Automated Targeting System [ATS] data for U.S.-bound containers). It implemented twenty-four-hour advanced notice for targeted containers.[54] Although it is not one of the three locations required to implement 100 percent scanning under the October 2006 Security and Accountability for Every Port (SAFE) Ports Act, the Modern Terminal in Hong Kong is nevertheless scanning all U.S.-bound containers that it processes in order to "help determine the impact of scanning at large volume ports." In addition to NII equipment for imaging,

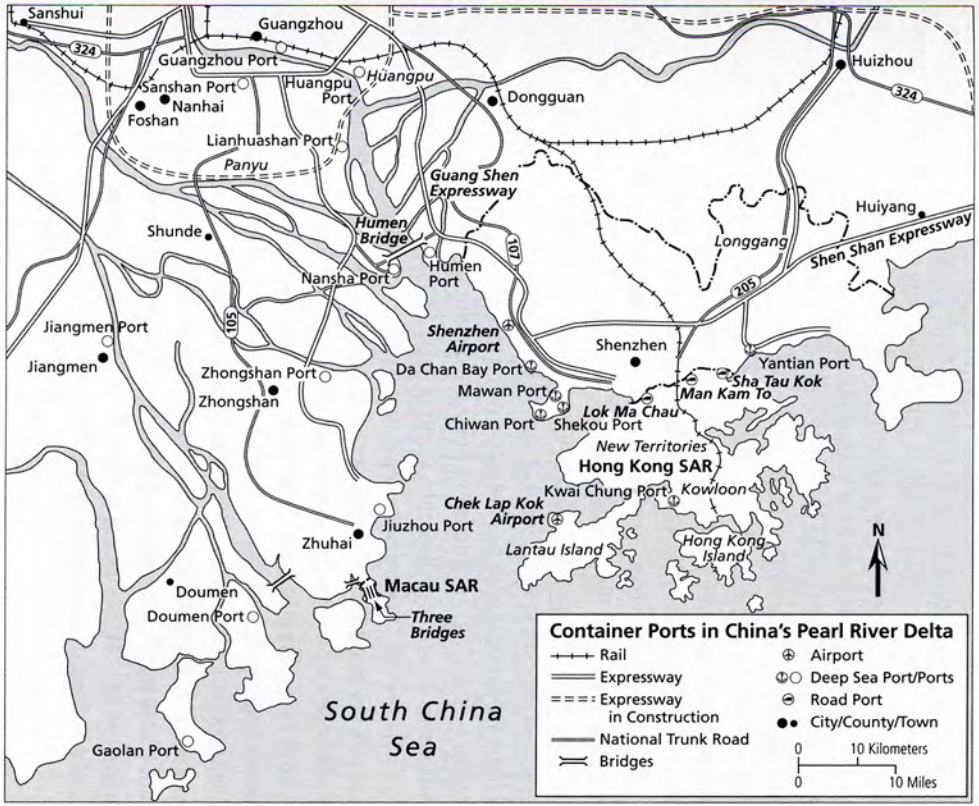
and radio-frequency identification (RFID) for tracking, the Modern Terminal employs such technologies as radiation portal monitor and radiation isotope identification device systems to detect radiation.[55] The results are sent to the CSI team on site and the U.S. National Targeting Center for analysis.[56]

Mainland China

Beijing's accession to CSI has been followed with the participation of two high-volume mainland ports. "We appreciate the continued support of CSI by President Hu Jintao," Commissioner Bonner stated. "The CSI security blanket is now expanding and strengthening as it encompasses the ports of Shanghai and Shenzhen."[57] The inclusion of these ports is logical: both in the top four globally in container throughput, they are China's largest by that measure and are located in regions that have the most international trade.

On 28 April 2005, U.S. Customs and Border Protection Commissioner Bonner and Minister Mu announced that the port of Shanghai would become operational in CSI.[58] "China and the U.S. have great prospects for anti-terrorism cooperation, and both sides' efforts in strengthening cooperation in container security is a good example," Minister Mu declared in a written statement. "The China-U.S. cooperation on CSI that has been launched in Shanghai is a good start for cooperation between customs authorities in China and the U.S."[59] Shanghai has particular significance for container security. Targeted by Chinese authorities to become the world's largest port by 2010, with a major role in "international container transshipment," the port is competing strongly with Singapore for that position.[60] Experts assess that the port retains significant growth potential.[61] In 2008 Shanghai International Port Group, which operates the port's public terminals, unveiled the Shanghai-Savannah Express Trade Lane Project in partnership with the Georgia Ports Authority. This innovative project uses active RFID-based electronic seals (e-seals) from Savi Networks to track containers traveling between Shanghai and Savannah, Georgia.[62] An expert from the Ministry of Communications emphasizes, however, that even as more of Shanghai's forty-two terminals reach technological levels comparable to those of Hong Kong, security remains important.[63]

On 24 June 2005 Minister Mu and Commissioner Bonner announced that the Port of Shenzhen would officially become operational within CSI as well. The Port of Shenzhen comprises three major container ports (Yantian, Shekou, and Chiwan, which contribute more than 98 percent of the port's throughput), the new Da Chan Bay facility, which started operation in December 2007, and several smaller facilities. The main facilities, which serve international vessels, are all CSI-compliant.[64] Bonner applauded the efforts of his Chinese counterpart,



Map 1. Container Ports in China's Pearl River Delta

declaring: "Due to the continued support of CSI by Minister Mu Xinsheng, U.S. borders are more secure and more efficient."[65] For a map that shows the ports of Shenzhen, Hong Kong, and surrounding facilities, see map 1 (previous page).

Given the tremendous scale of China's shipping industry and the nation's significant technical capacity, it is not surprising that CSI has attracted much attention and research.[66] Recognition of the importance of maritime antiterrorism appears to be increasing in China.[67] Local officials are working to raise awareness about the need to follow regulations and prevent human smuggling and other threats to port security.[68] Chinese attention to nontraditional security threats appears to have prompted a variety of unprecedented maritime safety exercises.[69] U.S. and Chinese customs have also cooperated in bilateral exercises.[70] Gong Zheng, vice-minister of China Customs, has stated that "China Customs will make every effort to facilitate global trade [to] ensure its security."[71] Yet, according to a Hong Kong columnist, some CSI-related activities "cannot be done on the mainland by Chinese authorities."[72]

It is hoped that more Chinese ports will enter CSI in the near future because there is significant and growing container activity beyond Shanghai and Shenzhen. The ports of Xiamen and Fuzhou, for instance, already send significant exports to the United States.[73] The Ninth Five-Year Plan called for additional container wharfs to be constructed in Dalian, Tianjin, Qingdao, and Ningbo by 2010.[74] These and other ports are developing rapidly and will likely continue to do so.[75] For example, Central Party School vice president Zhang Zhixin has stated: "We are pursuing a strategy of . . . build[ing] Qingdao into a north China international shipping center. By 2002, our port handling capacity will reach 85 million tons, with our container handling capacity reaching 28 million standard containers, to make Qingdao an international container transfer hub port, with overall port technology and management up to advanced world standards."[76] Dai Xianglong, mayor of Tianjin Municipality, has declared: "In the construction of the Tianjin Port, it is necessary to . . . build it into a big and modern international deep-water port with a handling capacity of 170 million tonnes and a volume of goods transported by containers of 6 million standard containers."[77]

Broader Impact of CSI around the World

In addition to securing the world's major seaports, CSI increasingly serves as a model for security cooperation in general. In June 2002, all 161 member nations of the World Customs Organization (WCO) adopted the Resolution

on Supply Chain Security and Trade Facilitation, which assists with development of programs for their ports modeled on CSI. A subsequent WCO task force devised

- An amended WCO data Model and a list of twenty-seven essential data elements for identification of high risk consignments;
- Customs guidelines for Advance Cargo Information (ACI Guidelines) to enable the advance (pre arrival) electronic transmission of customs data. (Title of these guidelines has recently been changed to "Integrated Supply Chain Management Guidelines" (ISCM Guidelines);
- WCO high-level guidelines for Cooperative Arrangements between Members and private industry to increase supply chain security and facilitate the flow of international trade; and
- A new International Convention on Mutual Administrative Assistance in Customs Matters to assist members in developing a legal basis to enable the advance electronic transmission of customs data.[78]

The G8 has adopted a similar resolution.[79] An agreement signed by the European Union and the Department of Homeland Security on 22 April 2004 envisions the spread of CSI throughout the European Union.[80] A European Commission statement immediately following the agreement, signed by U.S. Homeland Security secretary Tom Ridge and Irish minister of finance Charlie McCreevy on behalf of the EU emphasized the following:

> The Commission fully shares U.S. concerns about improving cargo security and considers that the most effective means to meet these concerns is by co-operation at EU level with the U.S. The new agreement is based on the principle that substantially greater security of legitimate trade can be achieved through a system where the customs authority of the importing country works collaboratively with customs authorities involved in earlier parts of the supply chain to use timely information and inspection technology to target and screen high-risk containers before they are shipped from their ports or places of loading or transshipment.[81]

Clearly the CSI model has broad applicability to enhancing the security of global seaborne trade. But more work is needed because many critical ports are not yet covered (e.g., in mainland China).[82]

Related Programs

The U.S. government and relevant international organizations have initiated several other programs that complement and supplement CSI; China participates in many of these. U.S. Customs and Border Protection is responsible for the U.S. Customs Trade Partnership against Terrorism (C-TPAT) and the National Targeting Center (NTC). The Export Control and Related Border Security Assistance Program (EXBS) and the Megaports/Secure Freight Initiative are run by the departments of State, Energy, and Homeland Security to counter nuclear proliferation. In the international arena, the International Maritime Organization runs the International Ship and Port Facility Security (ISPS) Code, the World Customs Organization is responsible for the SAFE framework of standards, and the International Organization for Standardization (ISO) promotes a variety of other standards. The U.S. Coast Guard plays a major role in supporting all these initiatives for the United States. In keeping with its growth over the past three decades as a major trading nation, China is involved in many of these programs. The following is a selective overview of relevant initiatives and Beijing's involvement in them.

International Organization for Standardization

The ISO, which promulgates standards designed to standardize processes and ensure quality control, is a nongovernmental organization with government and private-sector personnel from 157 nations.[83] It has developed an ISO 28,000 supply-chain security standard. It can be used to certify that a port is in compliance with relevant practices in such areas as "financing, manufacturing, information management and the facilities for packing, storing and transferring goods between modes of transport and locations."[84] "Trouble tickets" are issued for specific areas that need improvement. A port with a poor security reputation can solicit an audit and, if the results are favorable, can petition relevant organizations to upgrade its status (e.g., Lloyd's of London for insurance premiums). While neither the United States nor China might be expected to have such a problematic port themselves, as major importers they are both more secure because of efforts to bring such ports up to standard.

International Ship and Port Facility Security

Beijing joined the International Maritime Organization (IMO) in 1974. Developed by the U.S. Coast Guard under Admiral James Loy in 2001, the ISPS was adopted by 148 members of the IMO in 2002 for implementation by 1 July 2004 following advocacy by the U.S. delegation. An amendment to the Safety of

Life at Sea Convention, SOLAS (1974)/(1987), ISPS establishes minimum mandatory requirements for the security of port facilities and ships over 500 gross tons at different security levels as well as suggestions concerning their implementation and dissemination of relevant information.[85] This risk management mechanism provides the basis for awarding International Ship Security Certificates.[86] It must be emphasized, however, that the IMO lacks the power to penalize violators directly; rather, it relies on market forces to reward safe practices.[87]

The United States met its obligations under ISPS by enacting the Maritime Transportation Security Act, with the U.S. Coast Guard responsible for oversight and implementation.[88] As required by the IMO by 1 July 2004, China's Ministry of Communications designated 620 port facilities as needing ISPS statements of compliance.[89] Under ISPS reciprocal exchanges, the Chinese also inspect U.S. ports. The International Labor Organization and IMO code of practices complement ISPS by regulating "the security of the greater port area and the persons who work in the port."[90]

U.S. Coast Guard Programs

The U.S. Coast Guard promotes the use of best practices to help further port security and thereby keep cooperating ports off its Port Security Advisory.[91] At Modern Terminals, Ltd., Hong Kong, for instance, each ship security officer (or person designated by the master) must work with a port facility security officer (or designated terminal security officer) to complete a ship/terminal security checklist.[92] This is particularly useful because it applies not only to ships but also to barges, which are not covered by ISPS because they do not normally engage in ocean transit but in East Asia may nevertheless engage in cross-border trade. As part of a program with reciprocal visits to Charleston, South Carolina, and New York City, the USCG International Port Security Liaison visited China in 2005 and 2006 to observe ISPS implementation.[93] At the Shekou Container Terminals in mainland China, containers suspected of being used for human smuggling are subjected to carbon dioxide and temperature monitoring as well as visual inspection.[94] At Yantian International Container Terminals, China, a camera-monitored electronic gangway gate allows only those with Frontier Inspection Bureau–issued electronic cards to enter and exit ships.[95]

The Megaports/Secure Freight Initiative

The Megaports Initiative is a Department of Energy/National Nuclear Security Administration program to protect the United States from nuclear

and radiological threats at seaports. It is being implemented in various stages in twelve countries with an addition at eighteen ports. Following the signing of a bilateral memorandum in May 2007, two Chinese ports are in the process of becoming involved.[96] A product of this initiative, as required by the U.S. Safe Ports Act, is the Secure Freight Initiative. Initiated officially on 7 December 2006 in cooperation with the Department of Homeland Security, the Secure Freight Initiative supplements CSI by screening a greater portion of containers, even those not predetermined to be of high risk, with the goal of identifying radiological hazards.[97] It therefore integrates sophisticated scanning technology (e.g., nuclear detection devices) into selected operations at selected ports and subport terminals.[98] This offers the CSI team data beyond bills of lading. In fiscal year 2006, the six ports under evaluation handled more than 10 percent (nearly 1.2 million) of U.S.-bound shipments.[99] Three East Asian ports—Singapore's Brani Terminal, South Korea's Gamman Terminal (in Busan), and Hong Kong—are participating in the Secure Freight Initiative.

Export Control and Related Border Security Assistance Program (EXBS)

The State Department's International Security and Nonproliferation Bureau runs the EXBS program to prevent the proliferation of weapons of mass destruction. Agencies in the Department of Homeland Security such as the Coast Guard and Customs and Border Protection assist with implementation. As part of this program, for instance, Malta's major transshipment port received X-ray equipment to improve cargo screening.[100] In conjunction with its support of the UN Conventions on Terrorism/International Convention for the Suppression of Acts of Nuclear Terrorism, China is participating in EXBS.[101] In cooperation with the Department of Energy's International Nonproliferation Export Control Program (INECP), EXBS has sponsored events in Shanghai and Dalian to train "Chinese frontline Customs enforcement officials and technical experts responsible for interdicting illicit shipments of WMD-related, 'dual-use,' strategic commodities."[102] In January 2008 representatives from Chinese ministries participated in an EXBS-sponsored "industry-government forum." Also in conjunction with EXBS, the INECP program is collaborating with the China Atomic Energy Authority (CAEA) within the CAEA-DOE Peaceful Uses of Nuclear Technology framework on the development of technical guides on nuclear and nuclear dual-use materials, equipment, and technology. As this chapter went to press, State Department officials envisioned a variety of follow-on activities to increase the capacity of Chinese industry and law enforcement officials to review export license applications and to select and investigate illicit shipments. These include training

Chinese Customs officers at the port of Charleston, South Carolina, and helping China to develop an industry "internal control program."[103]

National Targeting Center

Established on 21 October 2001 in Reston, Virginia, the NTC coordinates the integration and sharing of information among a variety of agencies, which have representatives on site.[104] NTC has more than sixty on-site employees, forty-six of whom currently work as "targeters" who examine data, assisted by the Automated Targeting System (ATS), for links to terrorists. NTC plays an important role in CSI.[105]

U.S. Customs Trade Partnership against Terrorism

The Customs Trade Partnership against Terrorism Program (C-TPAT), initiated in 2002, employs U.S. supply chain security specialists who work directly with companies to ensure supply chain security by maintaining twenty-four-hour advance notification. In return for complying with C-TPAT measures, participants benefit from reduced inspections, priority processing, and even potentially the allowance for some self-policing as part of the CBP Importer Self-Assessment program.[106] Starting in 2008 U.S. CBP has assisted China Customs in completing two rounds of joint supply chain security validation visits.[107]

Self-Policing

The institutions and procedures discussed earlier have created incentives for ports and shippers to engage in proactive security measures. Pilot initiatives include the use of such tracking technologies as radio-frequency identification (RFID) and global positioning systems. Dubai Ports World, for instance, has invested $300 million to better secure its forty-two terminals worldwide using X-ray, radiation, and optical container recognition, including in China, in addition to significantly upgrading infrastructure there.[108]

Challenges to U.S.–China Cooperation in CSI

As this book went to press, the global economic slowdown was still affecting container trade, but the overall scale remains significant, and there are already signs of recovery.[109] Global container traffic is forecast to grow by 8.6 percent in 2010, and throughputs at Chinese ports in particular are returning to pre-downturn levels.[110] Potential security threats have not abated, however. CSI

therefore remains relevant, and the United States and China should work hard to ensure its continued success.

Despite CSI's great achievements to date, its further implementation faces a variety of challenges. To maximize chances of success in the future, it is important to address these issues frankly to see how they might be resolved or at least mitigated. A number of Chinese concerns have been addressed already, according to one source: "Some of the issues were clarified in the form of annex to the 'declaration of principles' through bilateral negotiations; some are unresolved, pending consultations on details when the US evaluation team is in China, following the signing of the 'declaration of principles.'"[111]

Nations have different conditions, national interests, and perceptions of what priorities should drive shared security initiatives. This raises the question of the extent to which container security should be linked to other issue areas. Some governments may view the problem of achieving container security in a specific, technical sense while others may insist on addressing larger political and institutional factors that they perceive as being essential to further progress. The question of how to balance the investment of scarce economic and political resources in preparations designed to prevent or mitigate high-risk, low-probability events and low-risk, high-probability events will pose a constant challenge for counterterrorism policy formulation and international cooperation and coordination. Six related challenges are addressed below.

Loopholes and Vulnerabilities

CSI should not be viewed as a panacea. Some experts have voiced concerns that CSI designation of a container as safe could give a false sense of security.[112] Certain ports are known to harbor corruption and organized crime. The electronic targeting system is only as good as the data being inputted, which are subject to both malfeasance and human error.[113] Documents such as bills of lading can contain inaccurate information and even be forged.[114] Even scanning may not be a panacea because harmful items might be disguised (e.g., with lead shielding, in the case of radioactive materials) or otherwise concealed.[115] Detection technologies have different levels of error, and there has not been a unified performance standard.[116] It might be possible to "launder" a container through transshipment from an underregulated port, to sneak in unauthorized contents, or even (in theory, at least) to tamper with a container en route. Also, even if a WMD attack or other port disruption occurred in another country, it could still have a terrible impact on the United States' supply chains and economy.[117] Finally, ship-borne containers—while highly vulnerable—are only one potential means of transporting a dirty bomb or other threatening devices.[118]

It is noteworthy, for instance, that while foreign vessels weighing more than three hundred gross tons must provide ninety-six hours' notice before entering U.S. waters, vessels under three hundred gross tons receive far less scrutiny.[119] It was reported in 2002 that less than 10 percent of noncommercial private vessels in U.S. waters were inspected by Customs.[120] The fact that Columbian drug smugglers already operate submersibles capable of carrying up to ten tons of cocaine, for instance, is worrisome indeed.[121] While security officials must work vigilantly to minimize these possibilities, however, the existing imperfect system is certainly preferable to the previous absence of one. And by significantly increasing the difficulty to shipping dangerous or unauthorized goods, CSI has already created a powerful deterrent effect.[122]

Sovereignty and Legal Issues

Some nations are reluctant to engage in activities that they worry may compromise their sovereignty. Scholars at the China Institutes of Contemporary International Relations, for instance, lump CSI together with other "new international multilateral security mechanisms" promoted by the United States "as the leading authority in the institution of international organizations' regulations." "The new regulations advocated by the United States clash seriously with existing international guidelines, especially with the principles of national sovereignty. The backdrop of counter-terrorism affords these proposals with a degree of rationality, so the U.S. is pushing for them more than ever and an increasing amount of countries are joining."[123]

Perhaps because of such sensitivities, the purpose and procedures of CSI have been misrepresented. An Internet weekly affiliated with the Chinese Communist Party Central Committee's China Youth League, for instance, has claimed that "to a host country, experienced special agents and intelligence experts coming from the United States stationed in its ports are . . . of potential threat. . . . No one can guarantee that they will not 'hunt rabbits while cutting grass' [搂草打兔子] when they are engaged in collecting anti-terrorism intelligence."[124] But unarmed and lacking arrest powers, foreign officers stationed in host country ports conduct themselves strictly in accordance with CSI guidelines and bilateral agreements, with local law being the deciding factor. Because these personnel are essentially law enforcement officials, and not military officials, they can more easily share relevant information, which is related strictly to law enforcement activities. In fact, in multiple rounds of consultation, the Chinese team reportedly negotiated vigorously to make sure that the agreement was advantageous for China. According to one source,

> by following the basic principle of "putting ourselves first, turning it to our advantage, dealing with them cleverly, and submitting to the overall interests," [以我为主, 为我所用, 巧妙周旋, 服从大局] China appropriately controlled the progress of negotiations and consultations and managed to obtain some results that were favorable to us. This was somewhat different from the "declarations of principles" signed by other countries, which were roughly the same in content and contained broad principles. On some rather sensitive issues, China consistently refrained from committing itself too easily, leaving room for future in-depth consultations. These issues included the diplomatic immunity for members of the U.S. CSI teams stationed in China.[125]

It has been reported, moreover, that the "declaration of principles" negotiated by the United States and China for CSI implementation specifies that "neither party may access the other party's customs computer system or database and any data required by either party shall be provided in accordance with the scope and method agreed between the two parties. More importantly, the data provided by either party to the other party may not be used for any purpose other than those expressly specified in the latter's request."[126] Specifically, the "declaration of principles," Article 1, annex, states that

> the U.S. side must respect the sovereignty of China. Any personnel sent by the U.S. CBP to the Chinese ports for the purpose of implementing the CSI must strictly abide by the pertinent laws and regulations of China and the pertinent provisions of its customs and other departments and work under the framework of the bilateral CSI arrangements. These personnel deployed by the United States shall not perform any enforcement acts and, therefore, may not carry weapons and have no right to detain either cargo or personnel.[127]

Moreover, China does not allow U.S. technicians direct access to its ports. (Chinese inspectors offer X-ray images to U.S. counterparts, who can then request a more thorough examination by the Chinese.) While reciprocal inspection ability is offered under CSI, China has reportedly not requested it thus far.[128]

A related possibility is that Chinese policymakers believe that their nation's own growing network of port security regulations and domestic discussion of related issues already provides sufficient safeguards.[129] On a similar note, some Western scholars interpret recent U.S. efforts to enhance such nonproliferation regimes as CSI as a fundamental reformulation of the process of develop-

ment of international law of the sea from "multilateral, negotiated consensus" to "cooperative unilateralism."[130]

Regulatory Burden

There are expenses and potential delays associated with complying with security regulations. The prevailing U.S. view is that these are the price of safeguarding international security, for which all nations are responsible, as well as the cost of access to the lucrative U.S. market. Representatives of U.S. factories based in China with whom the author spoke wished the system could be more flexible but did not feel that it unduly harmed their exports to the United States.[131] Technology- and trade-focused nations such as Singapore seem to share this view in many ways. It is the view of some observers in Asia, however, that there is a "widespread belief that the CSI is designed to serve U.S. interests by shifting the terrorism threat elsewhere. As it is a bilateral measure, the CSI is difficult to enforce, but the U.S. nonetheless applies subtle pressure on ports and shipowners by dictating that cargo from countries outside the initiative be subjected to more thorough checks, often leading to long delays in processing."[132] In response to concerns that cargo flow in participating ports would be reduced, China has apparently stipulated that cargo reinspection should not be requested unless substantial new information surfaces.[133]

One Chinese view (as expressed to author) is that container security is a U.S. Homeland Security issue. By this logic, the United States has more ability to afford security upgrades than does China and should therefore bear the cost.[134] A similar debate is taking place among the U.S. federal, state, and local governments as well as the maritime industry.[135] Presumably, there is a parallel debate in China. Here it is important to realize that costs of operation will ultimately be passed on to U.S. consumers regardless of which procedures are followed. On a related note, there have reportedly been disagreements concerning who should pay for various exchanges and who should attend them (specialists versus more senior bureaucrats with less involvement in the specific subject matter area).[136]

While it is understandable that nations will have different views and interests, one must ask where there is a more concrete basis (in both economic and national security terms) for bilateral and multilateral cooperation than in the field of container security. If the United States and China cannot achieve robust, broad-based cooperation here, where can they do so? It is hoped that, just as the United States tolerates large trade deficits with China (however grudgingly) in part because its consumers benefit from China's production of affordable consumer goods, China will continue to be proactive in increasing

container security standards because it is in its own national interest to continue to export large amounts of goods to the U.S. market expeditiously.

Scanning Systems

A fourth challenge concerns national and commercial interests in different detection technologies and systems. The United States, China, and Europe each have major companies seeking to have their own technology selected for use. Within the United States, different companies are lobbying Congress to adopt their system. While this competition over commercial standards is likely to cause complications, it is important to note that China stands to benefit significantly from the sale of its scanning technology around the world as its private corporations increase container security in every region. China's state-owned Nuctech Co. Ltd. (威视股份), for instance, is a leader in scanning technology and already dominates Asian markets.[137]

Nuctech, which originated from Qinghua University, was founded in 1997. Nuctech has developed a wide variety of products, including a fast scan container/vehicle inspection system. It holds 90 percent of China's domestic market and has been selected to provide security scanners for China's 147 airports. It has exported more than 220 system sets to more than sixty countries and regions worldwide.[138] Nuctech's foreign clients include Australian Customs. In February 2006 "Nuctech's new X-ray scanners were installed in the Dublin port at a cost of €3 million ($4 million) to assist on the inspection of containers and commercial vehicles."[139] As part of a program to improve Suriname's port security and infrastructure, Nuctech set up a container scanner in its main port, Nieuwe Haven (Paramaribo), in January 2009.[140] Supported by a $3.2 million loan, this effort will speed the port's container processing.[141]

Hualixing Sci-Tech Development Co. Ltd., China (HLX), has also entered the global scanning market. In 2005 National Logistics Cell, the Pakistan army transport wing, received a five-year contract to be HLX's sole agent in Pakistan, with responsibility for sales promotion in the Middle East.[142] In 2006 China agreed to provide Cambodia with an HLX THSCAN mobile container scanning system.[143]

Port Infrastructure

Nations have different levels and ages of port infrastructure and consequent ability to implement scanning equipment and procedures at affordable cost. Smaller, older European ports, for example, tend to be at a disadvantage vis-à-vis their Asian counterparts, including some of the newest, largest in capacity yet

relatively compact, and most efficient in the world.[144] This factor works in China's favor because China has some of Asia's foremost container ports and is rapidly upgrading related infrastructure.[145] In 2006, for instance, Beijing announced a $242 million plan to develop 28,000 km of railroads by 2020, which will help better service ports.[146]

New Requirements

Additional security regulations may be issued by such bodies as the U.S. Congress. An ambitious measure thus passed under the 9/11 Commission Act of 2007 mandating 100 percent scanning of containers before their arrival in U.S. ports now appears both politically and economically unrealistic, and implementation has already been postponed until at least July 2014 while the issue is studied further.[147]

Before 2001, 2–4 percent of containers entering the United States were physically inspected by U.S. Customs.[148] Currently, 86 percent of containers entering the United States come from CSI ports.[149] On 9 January 2007 U.S. House Resolution 1 (PL110-53) was passed by an overwhelming majority.[150] HR 1 amended the SAFE Ports Act to mandate a 100 percent container-scanning requirement by 2012.[151] Section 501 of the bill would "prohibit cargo shipping containers from entering the United States unless they have been sealed and scanned with imaging and radiation-detection equipment." Specifically, the U.S. Department of Homeland Security "would promulgate standards for scanning equipment and for container seals that could detect breaches in containers after they have been scanned. The new requirements would become effective within three years (for containers loaded in countries that originate more than 75,000 '20-foot equivalent' containers) and within five years (for countries originating a smaller volume of container shipping traffic)."[152]

This legislation built on Section 232 of the October 2006 Security and Accountability For Every Port (SAFE) Ports Act (Public Law 109-347), which "also requires DHS to ensure all containers have been scanned before they arrive in the United States . . . as soon as possible—and establishes several conditions for the scanning system, including the requirement that it does not significantly affect trade capacity and the flow of cargo at foreign or U.S. ports." From November 2007 to May 2009, the Department of Homeland Security ran a pilot program at three ports (in Southampton, United Kingdom; Puerto Cortés, Honduras; and Port Qasim, Pakistan) as well as a more limited feasibility study in South Korea, Singapore, and Oman. These programs were run under the Secure Freight Initiative, which had cost U.S. taxpayers $100 million as of December 2009.[153] They covered less than 1 percent of U.S.

container exports to the United States in 2005, yet no port achieved more than 86 percent scanning. Rain in Southampton and heat at Port Qasim rendered scanners dysfunctional on a regular basis.[154] In fiscal year 2007 alone, the U.S. departments of Homeland Security and Energy were projected to spend $60 million on radiation-detection and imaging equipment, additional personnel, and necessary computer systems and infrastructure for these programs.

According to the U.S. Congressional Budget Office (CBO), the Department of Homeland Security would have to spend $160 million from 2008–12 to meet H.R. 1's container security–related requirements, an increase over the gradually growing sum that it would otherwise spend. The CBO estimates that

> most of these amounts would be used to hire, equip, train, and support an additional 300 to 400 DHS employees in the United States and at foreign ports to review container scans and enforce the law's requirement that containers be sealed and scanned . . . much of the estimated funding would be used to develop guidelines and regulations . . . and to coordinate the development of sealing technology with private industry and foreign ports. Also, funds would be used to help foreign ports develop scanning systems and procedures and to develop software to be used by DHS to monitor scans and seal integrity.

Roughly $2 million would be spent at each of the largest foreign container ports serving the U.S. market "to review ship manifests, screen selected containers, inspect high-risk cargoes, and assist foreign ports with security measures." These estimates assume that

> the cost of acquiring, installing, and maintaining the systems necessary to comply with the act's requirements would be borne by foreign ports in order to maintain trade with the United States. Industry experts have estimated that up-front costs to acquire and deploy the necessary scanning and detection equipment for the [large] foreign ports that ship the vast majority of containers entering the United States would be about $1.5 billion over three years . . . [although] some larger ports may receive federal assistance such as that provided by the pilot program under Public Law 109-347, at an estimated cost of up to $10 million per port.

For estimated costs to the U.S. government associated with container scanning requirements associated with H.R. 1, see table 5.

Table 5. Hypothetical Budgetary Effects of H.R. 1, Scanning Containers in Foreign Ports Subcomponent

Fiscal Year, in Millions of Dollars

	2007	2008	2009	2010	2011	2012
Estimated authorization level	$10	$15	$30	$40	$45	$45
Estimated outlays	$2	$10	$25	$35	$45	$45

Source: "H.R. 1: Implementing the 9/11 Commission Recommendations Act of 2007, as passed by the House of Representatives on January 9, 2007," *Congressional Budget Office*, 2 February 2007, http://www.cbo.gov/ftpdoc.cfm?index=7780&type=0&sequence=0.

As the CBO acknowledges, "imposing such a mandate could affect the efficiency of the international transportation system and thus have broad economic implications." This legislation, Homeland Security Secretary Janet Napolitano herself acknowledges, would impose $8 million in shipping costs for each of the 2,100 shipping lanes at the more than 700 ports that ship to the United States.[155]

In addition, the private sector would develop standardized seals that would then be used to secure containers prior to their shipment to the United States. While such seals are projected to cost approximately $30 to $45 per container, the overall expense is indicated by the fact that 10 million maritime containers were forecast to enter U.S. ports in 2010 alone.

Regardless of the exact details in practice, this departure from the previous doctrine of risk management may cause increased expenses, shipping delays, and foreign opposition. A key challenge is maintaining high container throughput if scanning of every container is required—a port the size of Hong Kong's processing three thousand boxes per day, for instance, would lose 750 hours, or 4.5 weeks, of productivity off of the current timetable, if it took 15 minutes to scan each box.

Another problem has been identified by the U.S. Government Accountability Office: at least some other nations would want to the United States to scan 100 percent of goods coming to their ports from the United States.[156] An American port security expert told the author that Singapore wanted precisely such reciprocity, and that he saw no evidence of U.S. congressional officials being attuned to this or prepared to address it.[157]

As this volume went to press, it seemed highly unlikely that 100 percent scanning would be funded sustainably or implemented. Given the likely reluctance of politicians to abandon anything that promises (at least on paper) to protect the United States from future terrorist attacks, the law seems unlikely to be reversed in the near future. Further extensions are possible. Eventually, however, the law may be subtly recast to make its implementation far more realistic. One source reportedly told *Fairplay* that the mandate to scan 100 percent of containers or "[physically inspect] with a technological device" will be replaced with a mandate to screen them, or engage in "non-physical analysis of a box's manifest."[158] Such an approach would seem far more realistic and grounded in security and commercial realities. We must accept that there is no such thing as absolute security and then work to reduce the risk of serious disasters, all the while keeping our efforts in the context of larger interests and priorities.

While these challenges are significant and will require substantial effort to mitigate, it is important to remember that CSI was never designed as a one-size-fits-all solution to address all maritime security concerns. Its strength lies in its specificity. While vital, it is merely one component of a broader array of complementary initiatives.

Conclusion

The Asia-Pacific region boasts increasing maritime commerce but faces growing unconventional security threats. A wide variety of bilateral and multilateral maritime security cooperation initiatives that recognize both the gravity of extant threats and the interests of those responsible nations involved (e.g., CSI and global maritime partnerships) can help provide a set of frameworks for collective security. CSI, in particular, has enjoyed great success thus far. It is important to consider how the CSI experience might be used to inform and strengthen other maritime security initiatives. Following are some of the lessons from CSI to date.

- Measures that allow for true reciprocity are more likely to be accepted.
- Linking robust economic and security interests appeals to the interest of many nations.
- Access to the U.S. market is highly valued regardless of the international political atmosphere.
- Incorporation of new technologies allows for new capabilities and new incentives.

- Despite these positive factors, implementation of effective security initiatives will still be complex, expensive, and time consuming.
- They must therefore be employed judiciously, with maximum effectiveness and efficiency in mind.

In addition to CSI's success thus far, there are other positive indications that analysts in China increasingly seek cooperative solutions to maritime security concerns. Establishing specific security measures, such as CSI, offers prospects for increasing trust, fostering goodwill, and enhancing maritime security in East Asia. The United States and China, as the world's largest developed and developing nations, respectively, as well as two major Pacific powers, have a critical role to play in this process. Effective bilateral communication in this regard will maximize prospects for positive results. According to Yang Mingjie, director of the Arms Control and Security Studies Division, China Institute of Contemporary International Relations,

> In view of the fact that counterterrorism will become the primary concern of U.S. national security in the coming period, and in the view of Americans counterterrorism and anti-proliferation are two sides of the same coin, counterterrorism and anti-proliferation will become two major contents of Sino-U.S. relations. On the counterterrorism issue, the United States hopes . . . that China will cooperate with its counterterrorism actions in a number of specific fields, especially in certain counterterrorism measures related to economic issues, such as . . . container security at ports. . . . Due to the changes in the international situation, China's status, and the international community's ardent strategic expectations of us, we will naturally consider things from new angles when analyzing the security environment confronting us.[159]

An analyst at the Chinese Academy of Social Sciences Asia-Pacific Institute assesses that "cooperation in nontraditional security fields" such as container security "can promote bilateral understanding and lay the foundation for higher-level cooperation."[160]

Beyond the specifics of bilateral cooperation, important questions need to be addressed by all Asia-Pacific maritime stakeholders in the future: How have nonstate threats combined to form a new challenge to international maritime commerce and security? What is the nature and level of the threat? Will the maritime realm be a continued target for terrorism? How will the national interests of regional states be safeguarded? Are the international responses and reforms accomplishing what they set out to do? Finally, what are the specific

implications for East Asia? Each nation will have its own interests and priorities, but it will be important to reach a common understanding on these broader issues.

One issue that all parties can agree on already is that the multiple, complex security challenges that confront the region call for cooperative security measures that are no less sophisticated than the threats that they are designed to address. As former U.S. chief of naval operations (now Chairman of the Joint Chiefs of Staff) Admiral Michael Mullen has emphasized,

> Today's reality is that the security arrangements and paradigms of the past are no longer enough for the future. And today's challenges are too diverse to tackle alone and require more capability and resources than any single nation can deliver. Our level of cooperation and coordination must intensify in order to adapt to our shared challenges and constraints. We have no choice in this matter because . . . no nation today . . . can go it alone, especially in the maritime domain. There is no inherent conflict between a country's national interests in maritime security and the greater security of the global commons. They are mutually reinforcing and inextricably linked—they are two sides of the same coin in today's globalized world.[161]

Notes

The views expressed in this draft paper are solely those of the author as a private individual. This study is based only on publicly available sources and does not represent the official position or analysis of the U.S. Navy or any other organization of the U.S. government. The author thanks Peter Dutton; Lyle Goldstein; Captain Bernard Moreland, USCG; William Murray; Erik Tiemroth; Andrew Winner, and several anonymous interviewees for their invaluable insights. Lieutenant Commander Brendan Kettner, USCG, provided particularly detailed information and suggestions as well as permission to cite a valuable student paper that he wrote as a student at the U.S. Naval War College, "Port Security Status and Implementation in Chinese Ports," 30 May 2008.

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3. "A Cooperative Strategy for the 21st Century Seapower," U.S. Chief of Naval Operations and the Commandants of the U.S. Marine Corps and U.S. Coast Guard, 17 October 2007, http://www.navy.mil/maritime/MaritimeStrategy.pdf, 5. While statistics vary to some extent, at least 80 percent of world trade by volume is transported by sea. The percentage may differ with respect to value because airfreight can move small-sized, high-value, time-sensitive freight such as electronics.
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