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THESIS

PORT SECURITY IN THE PERSIAN GULF

by

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PORT SECURITY IN THE PERSIAN GULF

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ABSTRACT

The United States and the international community have implemented numerous measures since 2001 designed to improve the security of maritime commerce. Special attention has been paid to the vulnerability of port facilities to exploitation by terrorists or other illicit actors. While the implementation of enhanced port security measures in Saudi Arabia, UAE, and Iraq may have improved some aspects of maritime security, significant vulnerabilities remain. While strong physical security at ports and stringent inspection regimes for container cargo are important elements in protecting maritime infrastructure worldwide, port security measures may yet be undermined by a failure to provide mechanisms which verify the identities and credentials of all individuals with access to ports, secure non-container cargo, and prevent illicit actors from accessing and exploiting port facilities.

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I.   INTRODUCTION

A.   PURPOSE

The United States and the international community have implemented numerous measures since 2001 designed to improve the security of maritime commerce. Special attention has been paid to the vulnerability of port facilities to exploitation by terrorists or other illicit actors. The International Maritime Organization (IMO) ratified the International Ship and Port Facility Security (ISPS) Code in 2002, and called for member states to implement the code by 2004. U.S. legislation such as the 2002 Maritime Transportation Safety Act (MTSA), and the 2006 Security and Accountability for Every Port Act (SAFE Port), although designed primarily to enhance national maritime security, both have international components designed to improve security at facilities through which U.S.-bound goods travel.

This thesis demonstrates how these port security measures have been implemented in Persian Gulf ports. While they have improved some aspects of maritime security, these port security measures have failed to address significant vulnerabilities which terrorists or other illicit actors may be able to exploit. While strong physical security at ports and stringent inspection regimes for container cargo are important elements in protecting maritime infrastructure worldwide, port security measures can be undermined by a failure to provide mechanisms which verify the identities and credentials of all individuals with access to ports, secure non-container cargo, and prevent illicit actors from accessing and exploiting port facilities.

Many observers in the international maritime community expressed concerns regarding the potential economic impact of ISPS and the U.S. measures when first ratified and implemented, fearing that shippers would be forced to ultimately bear the burden of the costs associated with implementing them, and that poor states, unable to pay for their facilities to comply with the new standards, would see risk-averse shippers direct their traffic elsewhere. The data associated with the three case studies addressed in this thesis neither validates nor disproves that prediction. Ports in Saudi Arabia, UAE,

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and Iraq have experienced increases in maritime trade since the implementation of ISPS and the various U.S.-led programs, as well as significant investment by the state (or the coalition, in the case of Iraq) or state-owned firms in port security programs. Whether that increased traffic resulted from enhanced port security, happened in spite of enhanced security, or was unrelated and caused by other economic factors is a question deserving additional research and scrutiny.

B.   IMPORTANCE

Since 2001, international agreements such as the International Ship and Port Facility Security (ISPS) Code (an amendment to the Safety of Life at Sea Convention (SOLAS), as well as U.S. legislation such as the 2002 Maritime Transportation Safety Act (MTSA), and the 2006 Security and Accountability for Every Port Act (SAFE-Port), have been implemented in order to protect maritime infrastructure from terrorism and illicit activity. While the primary aim of the U.S. initiatives has been the protection of the U.S. itself from terrorism, the inclusion of multiple programs in MTSA and SAFE-Port addressing non-U.S. ports demonstrates a realization that, due to the interdependent nature of maritime commerce, security standards and practices must be effectively implemented both internationally and domestically to prove effective. Terrorists could theoretically exploit any unprotected port on the globe through which U.S.-bound cargo travels in order to carry out an attack.

While the U.S. has taken the lead in encouraging improved international port security, these measures are primarily motivated by a fear of attack against United States territory. The actual success and impacts of these multilateral and supranational programs, however, remains relatively unexamined. It is not entirely clear whether these measures effectively "solve" the problem of vulnerable ports. Although numerous authors and think-tanks have generated an abundance of hypothetical worst-case scenarios which depict shipping containers being used to move materials, weapons, manpower, etc., for use in a potential terrorist attacks, there has been no serious and exhaustive analysis of exactly how terrorists can exploit ports, and whether state or international regulation can realistically stop terrorists from using them. In addition, there has been little debate over the international impact of possible attacks against ports,

or the precise manners in which ports or maritime infrastructure can be exploited by illicit actors or networks. Rather than improving port security worldwide, programs such as ISPS may possibly alter global trade by creating a two-tiered system of secure and insecure ports supporting completely separate global economies. An assessment of port security in Persian Gulf ports may provide insight into whether the various post-2001 maritime security measures have made the world safer from terrorism, or are simply cosmetic alterations that fall short of fully addressing the complex security requirements of global maritime trade.

C. POST-2001 MARITIME REGULATIONS

1. ISPS and Other International Programs

The International Maritime Organization (IMO, the UN agency responsible for regulating global maritime activity) drafted the International Ship and Port Facility Security Code (ISPS), a series of amendments to the 1974 Safety of Life at Sea Convention (SOLAS), in 2002 as a response to the threat of terrorism to international maritime commerce. ISPS consists of mandatory "security-related requirements for Governments, port authorities and shipping companies," "non-mandatory" guidelines for those requirements, and "a series of resolutions designed to add weight to the amendments, encourage the application of the measures to ships and port facilities not covered by the Code and pave the way for future work on the subject."[1]

ISPS calls for the development of "minimum functional security requirements for ships and port facilities." Ships (and ship owners) are required to implement ship security plans, designate ship security officers, company security officers, and install onboard equipment (including the Automatic Identification System (AIS) and the Ship Security Alert System (SSAS)). Ports are required to implement port facility security plans, identify port facility security officers, as well as install their own security equipment. Both ships and port facilities are required to develop plans to assist the

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[1] "IMO adopts comprehensive maritime security measures," International Maritime Organization, http://www.imo.org/Newsroom/mainframe.asp?topic_id=583&doc_id=2689 (accessed September 12, 2007).

monitoring and controlling access to ships and ports, monitoring the activities of people and cargo, and ensuring the availability of appropriate security communications. Due to the "different risks" faced by different ships and ports, the states signing the agreement are responsible for ensuring compliance with these measures as they deem appropriate.[2] Under SOLAS, "there is no remit under the Convention for IMO as a body to monitor compliance," but rather "provides for individual Contracting Governments to adopt the rules into their own national legislation."[3] ISPS took effect on 1 July 2004.

ISPS has inspired other international agreements designed to address additional aspects of maritime security. In response to the need identified by the drafters of ISPS for secure, standardized documents to be issued to the world's merchant seamen, another arm of the UN, the International Labour Organization (ILO), drafted the Revised Seafarer's Identity Documents Convention in 2003. This convention called for the development of globally standardized documents that would be impossible to counterfeit or falsify, provide biometric identification of document-holders, and yet be cheap enough that they would "be generally accessible to governments at the lowest cost." Concerns for minimizing the costs associated with producing such documents were reflected in ILO's mandate that the "the equipment needed for the provision and verification of the biometric is user-friendly and is generally accessible to governments at low cost." Like ISPS, responsibility for enforcement of the convention is the sole responsibility of the signatory states, including the issuing of documents, verification of the qualifications of individuals receiving the documents, and maintaining a "national electronic database" of its citizens who are licensed merchant seamen.[4] This is problematic because, unlike ISPS, which has been almost universally ratified by states worldwide, the Revised Seafarer's Identity Documents Convention has been ratified by only thirteen states,[5] and

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[2] "IMO adopts comprehensive maritime security measures."

[3] Ibid.

[4] "C185 Seafarers' Identity Documents Convention (Revised), 2003," International Labour Organization, http://www.ilo.org/ilolex/cgi-lex/convde.pl?C185 (accessed March 11, 2008).

[5] The convention has been ratified by Albania, Azerbaijan, Bahamas, France, Hungary, Jordan, South Korea, Lithuania, Madagascar, Moldova, Nigeria, Pakistan, Vanuata, http://www.ilo.org/ilolex/cgi-lex/ratifce.pl?C185 (accessed March 11, 2008).

the states whose citizens form the bulk of the world's merchant seamen are also among the poorest. The five states with the five most merchant seamen in the world are the Philippines, Indonesia, Turkey, China, and India.[6] It seems naive to expect that these states will graciously accept the burden of taking the lead in paying for and developing effective biometric identity documents for a particularly impoverished portion of their workforce.

2.   MTSA (2002) and SAFE-Port (2006)

The two primary pieces of legislation enacted by the U.S. government designed to improve maritime security are the Maritime Transportation Security Act of 2002 (MTSA, Public Law 107-295) and the Security and Accountability for Every Port Act of 2006 (SAFE Port Act, Public Law 109-347). MTSA implemented the ISPS code for the U.S., as well additional security measures. The SAFE Port Act enacted further programs designed to improve maritime security, and codified several other initiatives that had been implemented since 2001 by U.S. government agencies.

MTSA "is designed to protect the nation's ports and waterways from a terrorist attack," by "requiring completion of security assessments, development of security plans, and implementation of security measures and procedures." By using a "risk-based methodology, the security regulations focus on those sectors of maritime industry that have a higher risk of involvement in a transportation security incident."[7]

In addition to the measures implemented through MTSA, the SAFE Port Act calls for additional security enhancements, some of the more significant being the creation of the "Transportation Worker Identification Credential," a universal, counterfeit-proof document issued to individuals with access to ports,[8] the Container Security Initiative (CSI), and the "Customs Trade Partnership Against Terrorism" (C-TPAT).[9] CSI and C-

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[6] *Security in Maritime Transport: Risk Factors and Economic Impact*, OECD Directorate for Science, Technology, and Industry: Maritime Transport Committee (2003), 46.

[7] *Protecting America's Ports: Maritime Transportation Security Act of 2002*, U.S. Department of Homeland Security (July 1, 2003), 3.

[8] *Secure Seas, Open Ports: Keeping our Waters Safe, Secure, and Open for Business*, U.S. Department of Homeland Security (June 21, 2004), 9.

[9] *Secure Seas, Open Ports: Keeping our Waters Safe, Secure, and Open for Business*, 5.

TPAT are designed to enhance U.S. maritime security by securing the interconnected "Global Supply Chain," effectively protecting the U.S. homeland by enhancing the security of global transportation infrastructure.

D.   LITERATURE REVIEW

Regulating global commerce requires a delicate balancing act between the means and capabilities of states, supranational actors, and commercial interests. Historically, states have often only consented to "international prohibition regimes" when faced with "the inadequacy of unilateral and bilateral law enforcement measures in the face of criminal activities that that transcend national borders."[10] There are instances, however, when positive instead of negative incentives can drive compliance with these sorts of regimes. This may be true in the realm of port security, as "governments have an incentive to cooperate with the inspections because it means that cargo shipped from their ports will face no extra delays upon arrival."[11] "International trade corridor security," is not necessarily all encompassing, however. To be truly effective, it must balance commercial and security concerns in a process of "credible risk management."[12] The tension between commercial interests and the security needs of states was exemplified during the negotiation of ISPS when the maritime industry's conceded "the need for new safeguards," but still emphasized that "increased security could not impede daily operations."[13] Achieving the appropriate balance between security and profitability is difficult in the maritime world, however, for it is the "very things which have allowed maritime transport to contribute to economic prosperity" which "render it uniquely vulnerable to exploitation by terrorist groups."[14]

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[10] Ethan A. Nadelmann, "Global Prohibition Regimes: The Evolution of Norms in International Society," *International Organization* 44 (Autumn 1990): 481.

[11] Peter Andreas, "Redrawing the Line: Borders and Security in the Twenty-First Century," *International Security* 28 (Fall 2003): 99.

[12] Lisa H. Harrington, "Can We Secure International Trade?" *Transportation & Distribution* 43 (November, 2002): 54.

[13] Jared Wade, "Maritime Security." *Risk Management* 52 (December 1, 2005): 41. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[14] Alexandros M. Goulielmos and Agisilaos A Anastasakos, "Worldwide security measures for shipping, seafarers and ports: An impact assessment of ISPS code." *Disaster Prevention and Management* 14 (August 10, 2005): 472. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

Both ISPS and unilateral U.S. efforts represent significant developments in the evolution of global maritime commerce. The ISPS code has been called the "most important global security initiative ever, with impacts affecting the entire international shipping industry and beyond."[15] ISPS has even changed the language of maritime commerce. Due to its lack of jurisdiction over actual "ports," the IMO was forced to create "the term "port facility" to refer to areas where a vessel covered by SOLAS receives services."[16] The U.S. approach represents a similar revision to previously accepted notions of what a port is, and what security there entails, attempting to "raise standards by working within the maritime transportation industry and local port authorities, while pressuring major trading partners to consent to the harmonization of international law enforcement strategies, resources, and support systems."[17]

Despite the potentially revolutionary implications of ISPS and other post-2001 programs, port security encompasses much more than the physical protection of the facilities themselves, and it is not clear whether these measures address those broader concerns. "Port facilities represent a more complex issue, considering the difficulty of controlling such a large volume of traffic, personnel and cargo inspection and expensive, recurring issues such as waterside security."[18] While ISPS may successfully protect "international shipping against physical terrorist attacks," it ignores other, non-seaborne or pier-side "vulnerabilities associated with information systems and technology."[19] In

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[15] Khalid Bichou, "The ISPS Code and The Cost of Port Compliance: An Initial Logistics and Supply Chain Framework for Port Security Assessment and Management." *Maritime Economics & Logistics* 6 (December 1, 2004): 323. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[16] Keith Nuthall, Philip Fine and Jonathan Thomson. "IMO sets course for port security." *Security Management*, April 1, 2003, 84-87. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[17] Jessica Romero, "Prevention of Maritime Terrorism: The Container Security Initiative." *Chicago Journal of International Law* 4 (October 1, 2003): 603. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[18] Robert Botelho, "Maritime Security: Implications And Solutions." *Sea Technology*, March 1, 2004, 18. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[19] Shashi K. Shah, "The Evolving Landscape of Maritime Cybersecurity." *Review of Business* 25 (October 1, 2004): 32. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

their model of a port's "security cycle," C. Ariel Pinto and Wayne K. Talley differentiated three different categories for "potential port security incidents:" "waterside, landside, employee and information-release related."[20]

While some authors claim that measures such as ISPS and CSI have been successful because the maritime "industry feels the U.S. government has done a good job of balancing industry's business concerns and the need for improved supply chain security,"[21] much of the literature identifies flaws within these programs. Pointing out IMO's inability to enforce the mandates of ISPS, other authors have derided ISPS because "compliance lies largely in the eye of the beholder," and that "each nation is allowed to determine whether its vessels or port facilities are up to par."[22]

The actual implementation of these programs was challenging, with only 53% of ships and ports possessing the mandatory "officially approved security plans" when ISPS came into effect in 2004.[23] Although "89.5 per cent of over 9,000 declared port facilities had had their Port Facility Security Plans approved" soon after by August 2004, this perception of poor compliance with the spirit of ISPS continued as "400 masters and ship security officers" claimed in a survey that they had seen " no noticeable improvement in security measures since the introduction of the ISPS Code."[24] Although its is probably unfair to blame them solely on the shortcomings of ISPS, piracy incidents also increased after implementation in 2004.[25]

The new system also may have disturbed the delicate balance between security and commerce, particularly by increasing the costs of shipping. A report commissioned

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[20] C. Ariel Pinto and Wayne K. Talley. "The Security Incident Cycle of Ports." *Maritime Economics & Logistics* 8 (September 1, 2006): 270. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[21] Marc Thibault, Mary R. Brooks, and Kenneth J. Button, "The Response of the U.S. Maritime Industry to the New Container Security Initiatives." *Transportation Journal* 45 (January 1, 2006): 13. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[22] Stephen E. Flynn, "The morning-after problem." *Journal of Commerce*, January 8, 2007, http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[23] "Perils on the sea," *Economist.com / Global Agenda*, July 7, 2004, http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[24] Lynda Davies, "New Maritime Security Measures Not all Plain Sailing," *Technical Review Middle East*, January, 2005.

[25] Dale Ferriere, "Carrot or stick?" *Journal of Commerce*, August 7, 2006, http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

by the OECD downplayed this fear, however, arguing "the extent of their costs is uncertain but is likely to be much less than the extent of costs linked to inaction."[26] The perception of how burdensome those costs may be probably reflects the degree to whether a port or state sees itself as a terrorist target. Despite the excessive costs that would result from a successful attack against an important component of maritime trade such as oil transport, some observers feel that "ports and shipping lines" have been "dragging their feet on complying" with the new and expensive security measures, feeling that other ports are the real targets for terrorists while they are safe.[27] In addition, these regulations may be changing "shipping patterns" and the "international shipping environment." Some feel that the "costly information sharing and exchange" as well as "the privacy protection pitfalls" associated with these programs are so burdensome, that the world needs to develop an alternative approach to maritime security than the current U.S.-led approach.[28] Ultimately, critics allege that "U.S. and international initiatives have added rules, procedures, and technology to improve security without changing the underlying ways that people enter and operate within the maritime system."[29] This is of particular concern in the developing world, where the implementation of ISPS may have been hampered by "a lack of technical infrastructure, expertise, and know-how."[30] Revelations by the governments of India and Kenya in 2007 that both states still needed to improve port security has been seen by some as an admission that neither states' ports actually met ISPS security standards when they announced compliance in 2004.[31] Of course the manner in which ISPS has been implemented may be irrelevant, if terrorists or criminals choose to obey the new regulations while using the sea for their own gain. It is

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[26] *Security in Maritime Transport: Risk Factors and Economic Impact*, 56.

[27] "Perils on the Sea."

[28] Dinos Stasinopoulos, "Maritime Security - The Need for a Global Agreement." *Maritime Economics & Logistics* 5 (September 1, 2003): 318. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[29] John R. Harrald, "SEA TRADE AND SECURITY: AN ASSESSMENT OF THE POST-9/11 REACTION," *Journal of International Affairs* 59 (October 1, 2005): 175. http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[30] *Container Security: Major Initiatives and Related International Developments.* United Nations Conference on Trade and Development, 2004.

[31] Frank Kennedy, "Port ISPS Compliance Remains Problematic," *Gulfnews.Com*, October 14, 2007, http://archive.gulfnews.com/articles/07/10/15/10160260.html (accessed October 23, 2007).

precisely the maritime gray-zone between the state and the international system in which illicit maritime actors operate, having "learned to work without the need for a home base and, more significantly, to escape the forces of order not by running away, but complying with the laws and regulations in order to move freely and to hide in plain sight."[32]

Relatively few studies of the impacts of this generation of maritime security programs have been published to date. One commissioned by the government of Malaysia after the code's drafting predicted that ISPS would increase costs for all parties involved in shipping, including governments, ports, and shippers, due to the new costs required for training, insurance, and operations.[33] Another focusing on the Caribbean assessed that the "adoption and implementation of the ISPS Code has been difficult and expensive for ports and shipping lines," but that ports had become more productive after ISPS implementation, probably due to a reduction in theft, better training for security personnel, and improved coordination between shippers and ports.[34] One study encompassing several major ports across the globe offered a similar outlook, arguing that the costs associated with implementation would "be resolved with time," particularly if accompanied by a renewed emphasis from the international maritime community on the need for a "standardized biometric identification card," and increased global awareness of "the benefits of compliance."[35]

In 2007 the UN Conference on Trade and Development (UNCTAD) published an assessment of the global impacts of ISPS. According to the 55 ports (mostly "in developed countries") surveyed by UNCTAD, "full compliance seems to have been achieved with no major difficulties," with the "initial costs" of implementation between $3,000-35,000 per port, and with "annual costs" between $1,000 and $19,000 per port, with equipment accounting for the bulk of the initial costs, and personnel accounting for

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[32] William Langewiesche, *The Outlaw Sea* (New York: North Point Press, 2004): 7.

[33] Noor Apandi Osnin and Syahriman Baharom Shah, *MIMA Information Paper: The Implications of the ISPS Code for Malaysia*. Centre for Ocean Law and Policy, Maritime Institute of Malaysia (MIMA), 2003, 7.

[34] Linda T. Babins, "Measuring the Impacts of Increased Security on Ports and Shipping in the Caribbean Basin." (Master of Arts, Public Policy & Public Administration, Concordia University, 2006), iii, 68.

[35] *Port and Supply-Chain Security Initiatives in the United States and Abroad* (Austin, Texas: Lyndon B. Johnson School of Public Affairs, the University of Texas at Austin, 2006), 55.

a majority of the recurring annual costs.[36] Globally, costs ranged "between US$ 1.1 billion and US$ 2.3 billion initially and approximately US$ 0.4 billion and US$ 0.9 billion annually thereafter," the "equivalent to increases in international maritime freight payments of about 1% with respect to the initial expenditure and 0.5% with respect to the annual expenditure."[37] According to the survey, the majority of ISPS costs had been paid for by a combination of security charges levied by ports, or state-provided "public funding and assistance." Despite some negative impressions by ports regarding "operational interferences, as well as cost implications and related funding requirements,"[38] the overall impacts of ISPS in terms of trade seem positive. The majority of ports surveyed reported either an increase or no change in the areas of Competitiveness, Efficiency, Throughput, the use of "Information and Communication Technologies," Delays, and Theft.[39]

E.   METHODOLOGY

The Persian Gulf provides numerous examples of maritime activity and port facilities that both comply and do not comply with ISPS or U.S. programs under MTSA and SAFE-Port. Ports in UAE, Saudi Arabia, and Iraq demonstrate the wide spectrum of maritime commerce and port security measures designed to combat illicit activity. That spectrum ranges from the large tankers and offshore oil facilities that play a critical role in global energy markets, to the small dhows carrying a variety of cheap (and often smuggled) consumer goods. While most of these ports claim full compliance with post-2002 security measures, the diverse maritime environment of the region offers useful comparisons and similarities between the most "primitive" ports and "modern" ones fully integrated into the global system.

The Saudi government proclaimed that all of its port facilities were fully in compliance with the ISPS code before the 2004 deadline. As the leading petroleum

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[36] *Maritime Security: ISPS Code Implementation, Costs and Related Financing.* United Nations Conference on Trade and Development, 2007, 5.

[37] Ibid., 6.

[38] Ibid.

[39] Ibid., 24-26.

exporting state in the world, and faced by an indigenous Al Qaeda threat, the security of its maritime oil infrastructure is critical to both the Saudi state and the entire global economy. The ability of the Saudi government to ensure the security of Persian Gulf ports such as Ras Tanura, its primary crude oil and LPG export terminal, as well as whether those efforts resulted from international or internal pressure, may measure the effectiveness of these regulations. While increased awareness of the potential impacts of seaborne terrorism has led the Saudis to invest heavily in maritime security, and not necessarily in direct response to the drafting of the ISPS Code, several maritime vulnerabilities remain in the Kingdom. The potential for infiltration of Saudi security forces or its oil industry by Al Qaeda sympathizers or operatives, and upheavals in the security forces tasked with securing coastal Saudi oil infrastructure may undermine the hundreds of millions of dollars that the Saudi government has thrown at the problem.

UAE is the maritime hub of the Persian Gulf. Port facilities in Dubai both participate in CSI and host port calls of U.S. naval vessels. UAE has also pioneered a system of Free Trade Zones and ports that play a crucial role in the economic life of the region. Ports in the Emirates of Ajman, Sharjah, (both adjacent to Dubai) and Fujairah (on the Arabian Sea) dominate both the trade of consumer goods to the Iraqi ports opened after the fall of Saddam Hussein, as well as the trade of smuggled or resold fuels from Iraq (just as they dominated the trade in oil smuggled from Iraq during the period of UN sanctions). UAE's success or failure in maintaining a schizophrenic maritime system characterized by highly regulated and security conscious ports complying with measures such as ISPS and CSI, as well as laissez-faire ports characterized by much more informal and often illegal trade, may provide useful lessons into whether international security regulations work, and their impact on pre-existing transnational commercial networks. Large UAE ports such as Jebel Ali are among the world's leaders in modern port operations, and are the industry leaders in port security standards and practices. If these ports are not protected from terror by the implementation of rigorous security measures, then few ports anywhere in the world are safe from potential attack. The co-location of

highly regulated international trade and smaller, traditional forms of dhow-borne commerce may provide an opportunity for illicit entry into the global supply chain, however.

Iraq's ports and maritime infrastructure are key sources of wealth and serve as vital connections to the global economy. Since 2003 both Iraqi and coalition leaders have realized that the restoration of Iraqi port facilities to their full capability (they have been the victims of neglect and targets of military attack since the Iran-Iraq War) is critical to Iraq's reconstruction, and attempts have been made to bring them up to international standards. However, the opportunities for patronage, graft, and smuggling available to those who control them have made ports such as Umm Qasr and Abu Flus, as well as the offshore oil terminals, the objects of much inter-party competition (and violence). The manner in which Iraq's ports become either a tool supporting national economic regeneration (by full incorporation into the global maritime economy) or simply fiefdoms for competing militias, can demonstrate whether international initiatives such as ISPS make the world's ports safer, or actually create a two-tiered maritime economy by excluding states incapable of ISPS compliance. To date, despite not complying with ISPS, Iraqi ports have implemented a variety of improvements to port security, primarily as part of wider coalition reconstruction efforts. Despite the 2004 attack against an Iraqi oil platform in the northern Persian Gulf, pervasive violence in Iraq since the 2003 coalition invasion, and widespread militia infiltration of the ports and Iraqi security services tasked with protecting them, maritime trade in Iraq has been brisk, likely reflecting Iraq's opening to the world after being shut out of the global marketplace by war and sanctions for so long. Iraq's ports retain several vulnerabilities to terrorism, but the success of Iraqi ports in spite of widespread chaos seems to reflect that at least some shippers will sail into danger when potential profits outweigh the risks.

In much the same way that Pinto and Talley differentiated port security incidents into waterside, landside, and employee or information-release related categories, this thesis attempts to measure port security along four different lines. The first category, Identity and Credential Verification, involves the ability for a port to regulate the entry of individuals and cargo into the facility. If a port is unable to prevent unauthorized

personnel or cargo from traveling through its confines, it is not secure, regardless of whether such a phenomenon occurs due to lax physical security, the widespread availability of counterfeit documents, or other factors. The second category, Supply Chain and Cargo Security, involves the ability for port officials to know what cargo is traveling through the port, their ability to identify illicit cargo, and their ability to inspect potentially illicit cargo. The third category, Physical Security, encompasses more than just the fence around a port. It also encompasses the capabilities of agencies, firms, or individuals tasked with keeping the port secure, and includes both landside and waterside security. The fourth category, Illicit Use of Ports, involves the ability of the port to prevent illegal access or exploitation of the port's resources. These illicit activities could be accomplished by individuals or groups that have snuck into the port, or involve crimes committed by people with legal access to the facility. If dockworkers, customs officials, or law enforcement are using their access to steal, smuggle, or collect bribes, then a port is not secure.

Implementing programs that address these vulnerabilities may prove costly, and the ultimate impact of these particular vulnerabilities on security may vary. Programs designed to scan cargo for radioactive materials may be more likely to directly prevent the shipment of a "dirty bomb" than an anti-corruption campaign, and may therefore seem a more cost effective way to prevent a high-profile terror act. Such an assessment ignores that all aspects of security are interlinked in ports, however. Ignoring one aspect imperils the success of measures addressing another factor, by providing vulnerabilities that illicit actors can use to circumvent those measures. A strong fence around a port with only one gate is not particularly useful if terrorists can bribe their way in, or have already infiltrated the security service protecting the facility.

II.   SAUDI ARABIA

A.   INTRODUCTION

The security concerns surrounding Saudi maritime infrastructure are unique both because of the prominence of oil exports in Saudi maritime trade, and the presence of an indigenous terrorist threat in the form of Al-Qaeda militants in Saudi Arabia (often referred to as Al-Qaeda in the Arabian Peninsula), who have attacked oil targets, and may have some intent of striking directly at Saudi petroleum export facilities. The Saudi government declared that all Saudi ports had fully complied with ISPS-mandated port security measures in 2004. Both the Saudi government and the national oil company, Saudi Aramco, claim to have invested massive resources in order to ensure the security of vital infrastructure. It is unclear, however, whether large expenditures on security personnel and equipment provide the best mechanisms for protection against potential Al-Qaeda attacks. Saudi ports may still be vulnerable to infiltration from within by potential terrorists joining the various security forces, or the potential incompetence of those security personnel. On the other hand, however, the impacts of potential attacks may not be as bad as some of the doomsday scenarios painted by analysts convinced that global economic collapse would certainly follow a significant attack. While the effectiveness of Saudi port security is debatable, there have been no successful maritime attacks against Saudi ports to date. Similarly, while the economic impacts of enhancing Saudi port security are unclear (particularly in terms of hindering or encouraging trade through increasing costs or decreasing theft), and it is difficult to isolate the effects of new port security measures from other factors, such as record-high oil prices and other macroeconomic effects, as port throughput at Saudi ports has increased since ISPS implementation.

B.   PORT OVERVIEW (SAUDI AND ARAMCO PORTS)

The major Saudi port facilities on the Persian Gulf include several operated by the Saudi Ports Authority (SPA), clustered around the cities of Jubail, Dammam, and Khobar

in Saudi Arabia's Eastern Province. They include King Abdulaziz Port in Dammam and King Fahd Industrial Port in Jubail. Of particular interest is King Fahd in Jubail, which accounts for almost a third of total SPA port throughput, three-quarters of which is liquid bulk cargo, primarily petrochemicals and LPG.[40]

Petroleum exports shipped through Saudi Aramco-controlled ports are also significant. After Saudi oil is pumped from fields in the Eastern Province, it is processed at nearby facilities and then exported in a variety of forms. A pipeline connects the fields and "petrochemical complex" of the Eastern Province to the export terminals on the Red Sea at Yanbu, and on the Persian Gulf at Ras Tanura and Ju'aymah. Estimates of the amount of oil pumped and exported from Saudi Arabia are huge, as "80% of the near 9m barrels of oil a day pumped out by Saudi is believed to end up being piped from fields such as Ghawar to Ras Tanura in the Gulf to be loaded on to supertankers bound for the west,"[41] and that "a tenth of global oil supply flows daily" through the Ras Tanura and Ju'aymah facilities on the Persian Gulf.[42] The U.S. Department of Energy estimates that Ras Tanura and Ju'aymah can export approximately 6 million barrels of crude oil a day (2.5 million at Ras Tanura itself, another 3.5 million at Ju'aymah).[43] The operations on the Gulf are massive, as the "(p)ipelines from six oil fields feed into the terminals and to several tank farms housing some of the biggest oil storage vessels ever built."[44]

The Ras Tanura export facility (which includes the South Pier, the North Pier, and the Sea Islands) contains eighteen berths, the largest of which are "designed to serve up to 500,000 deadweight ton (DWT) tankers," and can handle "Arab crude oil, refined

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[40] "All Saudi Ports Comply with ISPS Code," Saudi Ports Authority, http://www.ports.gov.sa/section/full_story.cfm?aid=250 (accessed January 10, 2008). According to the Saudi Ports Authority, Saudi Ports (excluding Aramco-controlled ports) handled 134 million DWT of cargo in 2006, of which 39 million DWT went through King Fahd Jubail. Of that 39 million DWT, 28 million DWT was liquid bulk cargo.

[41] Terry Macalister, "Once Seen as an Alarmist Fear, an Attack on Key Saudi Oil Terminal could Destabilise West," *The Guardian*, June 3, 2004, http://www.guardian.co.uk/oil/story/0,11319,1230311,00.html (accessed October 11, 2007).

[42] Gal Luft, "Terror's Next Target?" *The Journal of International Security Affairs* 6 (Winter 2004): 96.

[43] *Country Analysis Briefs: Saudi Arabia* (Washington, DC: Energy Information Administration, February 2007), www.eia.doe.gov (accessed October 15, 2007).

[44] Kim Murphy, "WAR WITH IRAQ / LAW AND ORDER; Saudis Tighten Oil Security; War or no war, the industry is an obvious and vulnerable terrorist target, experts warn [HOME EDITION]," *Los Angeles Times*, April 18, 2003, http://www.proquest.com.libproxy.nps.edu/ (accessed January 10, 2008).

products and RLPG (Refrigerated Liquefied Petroleum Gas)." The nearby Ju'aymah facility is also substantial, with another six berths able to handle vessels up to 750,000 DWT. Ju'aymah also has another sea island with two RLPG berths.[45] Some analysts feel that the maze of causeways, pipelines, underwater hoses/lines, and walkways connecting these coastal and offshore facilities present an inviting target to terrorists wishing to strike at a critical node of the interconnected global economy. In accordance with that threat, and increased concern for the security of critical global infrastructure of all sorts, the Saudi Ministry of Transportation announced on 13 June 2004 that all ports operated by the Saudi Ports Authority or Saudi Aramco had complied with the provisions of the International Ship and Port Facility Security Code (ISPS), and had "approved Port Facility Assessments and Port Facility Security Plans."[46]

C. TERRORISM AND SAUDI ARABIA

Usama bin Laden has clearly expressed Al-Qaeda's (AQ) desire to attack oil infrastructure in order to strike at the United States economy:

> Targeting America in Iraq in terms of economy and loss of life is a golden and unique opportunity…One of the most important reasons that our enemies control our land is the pilfering of our oil…prevent them from getting the oil and conduct your operations accordingly, particularly in Iraq and the gulf.[47]

Some analysts question the extent to which oil is actually a viable strategic target for future Al-Qaeda operation, arguing instead that AQ's "operational preference is to create mass casualties rather than target specific economic targets."[48] AQ attacks on energy infrastructure, however, would be consistent with a previous conflict, however. During the Iran-Iraq War, attacks on Saudi oil infrastructure included the bombing of "a petrochemicals facility in Jubail, sabotage on the naphtha unit at the Ras Tanura refinery,

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[45] "Saudi Aramco Refining & Distribution," Saudi Aramco, http://www.saudiaramco.com (accessed October 12, 2007).

[46] "All Saudi Ports Comply with ISPS Code."

[47] Anthony H. Cordesman and Nawaf Obaid, *Al-Qaeda in Saudi Arabia: Asymmetric Threats and Islamic Extremists* (Washington, DC: Center for Strategic and International Studies, January 26, 2005), 10.

[48] "Saudi oil comes under threat," *Petroleum Economist*, July 1, 2004, 1, http://www.proquest.com.libproxy.nps.edu/ (accessed January 10, 2008).

and various oil pipeline bombs."[49]   In Saudi Arabia, the presence of potentially vulnerable oil targets along the coast may be even more significant due to potential AQ interest in maritime attacks. AQ has conducted multiple seaborne suicide attacks against various targets, including USS COLE (DDG-67) in 2000, the French tanker LIMBURG in 2002, and offshore Iraqi oil terminals in 2004. Vice Admiral Patrick Walsh, then commander of the U.S. Naval Forces Central Command, stated in July 2006 that he was "wary" of possible seaborne attacks.[50]

While there is no evidence that AQ has conducted actual maritime attacks (or attacks on coastal installations) in Saudi Arabia, its Saudi branch has attacked Saudi oil infrastructure on land, and the Saudi security services claim that they have prevented AQ attacks. In May 2003, Saudi authorities stated that AQ cells were planning attacks on "the Ras Tanurah oil facility."[51] "Killing sprees" in Yanbu and Khobar during May 2004 sent "shock waves through the global energy industry" despite the attackers not "even firing a shot in anger at any physical oil infrastructure."[52] In May 2007, Saudi television aired confessions of a captured AQ member who claimed that the February 2006 suicide attack on the Abqaiq oil refinery near Ras Tanurah was ordered by Usama bin Laden as part of the Saudi AQ cell's plan to attack "the main oil facilities and areas, such as Ras Tanura and Jubail."[53] In November 2007 the Saudi government claimed that they had detained "more than 200 suspected militants, including a cell that had been planning an

[49] "Saudi oil comes under threat."

[50] Stefano Ambrogi, "Navies Help Keep Guard on Saudi Oil Facilities," *Reuters*, October 27, 2006, http://uk.reuters.com/article/oilRpt/idUKL2788660120061027?pageNumber=2 (accessed October 12, 2007).

[51] Alan Sipress and Peter Finn, "Terror Cell Had Recent Gun Battle With Police [FINAL Edition]," *The Washington Post*, May 14, 2003, http://www.proquest.com.libproxy.nps.edu/ (accessed January 10, 2008).

[52] Martin Asser, "Analysis: Saudi Security Questions," *BBC News Online*, December 6, 2004, http://news.bbc.co.uk/2/hi/middle_east/3763959.stm (accessed October 11, 2007); "Saudi oil comes under threat."

[53] P.K. Abdul Ghafour, "Terrorists Plotted to Storm Jail," *Arab News*, May 23, 2007, http://www.arabnews.com/?page=1&section=0&article=96547&d=23&m=5&y=2007 (accessed October 11, 2007).

imminent attack on a support installation in an oil-rich eastern province and others who were attempting to smuggle missiles into the country."[54]

Much analysis has been devoted to the possible impacts of a terrorist attack on Saudi oil infrastructure. Former CIA officer Bob Baer hypothesized a devastating worst-case scenario in his 2003 book *Sleeping with the Devil: How Washington Sold our Soul for Saudi Crude*. Baer, citing the work of "Reagan-era disaster planners," claimed that "if terrorists were to simultaneously hit only five of the many sensitive points in Saudi Arabia's downstream oil system, they could put the Saudis out of the oil-producing business for about two years."[55] Among those "sensitive points" include maritime targets at Ju'aymah and Ras Tanurah, particularly offshore "surface metering equipment and control platforms," "underwater pipelines," "mooring buoys", and "onshore tank farms." According to Baer, "the waters surrounding the arid Arabian peninsula remain, vessel for vessel, one of the most dangerous navigable sites on earth." A seaborne attack against this infrastructure "would be devastating." In addition, more complex attack scenarios, such as a September 11-style hijacked airliner crashing into the Ras Tanurah complex, would "bring the world's oil-addicted economies to their knees."[56]

Baer is not alone in viewing the Saudi oil industry as a vulnerable target, which if struck by terrorists, would cause dire global economic impacts. One assessment claims that a successful airborne attack against major Eastern Province infrastructure such as Abqaiq or Ras Tanura "could take up to 50% of Saudi oil off the market for at least six months and with it most of the world's spare capacity, sending oil prices through the ceiling,"[57] thereby "throwing a wrench into the global economy."[58] Another assessment claims that a successful attack on the Ras Tanura export terminal "could knock out half of

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[54] Andrew England, "Saudis hold 200 suspected militants," *FT.com*, November 29, 2007, 1, http://www.proquest.com.libproxy.nps.edu/ (accessed January 10, 2008).

[55] Robert Baer, *Sleeping with the Devil: How Washington Sold our Soul for Saudi Crude* (New York: Crown Publishers, 2003), xx.

[56] Ibid., xxi-xxiii.

[57] Luft, 96.

[58] Murphy.

Saudi Arabia's supplies for weeks."   Other "vulnerable" infrastructure is "the 10-km trestle system that transports liquefied petroleum gas to the offshore Juaymah terminal."[59]

These analysts fear an attack on Saudi oil infrastructure due to Saudi Arabia's dominant role in global oil production, as well as the critical importance of oil to the world economy itself. Saudi Arabia possesses the world's largest known oil reserves, is the world's largest oil exporter, and has "consistently acted as "swing producer" inside the Organisation of Petroleum Exporting Countries (Opec) to try to iron out supply/demand blips."[60]   In 2005, "Oil Shockwave," a simulation sponsored by the National Commission on Energy Policy, examined the possible consequences arising from a hypothetical scenario in which oil prices, already high due to instability in Nigeria, are driven even higher by a coordinated series of Al-Qaeda attacks against coastal oil infrastructure in both Saudi Arabia and Alaska. The models employed in the scenario predicted the resulting impacts would drive world oil prices from $58 per barrel (the late 2005 market price) to $161 (oil prices in early 2008 have since regularly reached $100 per barrel).[61] According to Oil Shockwave, this would "choke economic growth," with the global economy experiencing recession, a decline in GDP, "loss of over 2 million jobs in 2007 relative to baseline forecasts, an historically significant decline in the S&P 500, and a dramatic increase in the current accounts deficit."[62]

Not everyone views Saudi oil infrastructure as a particularly vulnerable target, or a target whose impacts will automatically ripple through the global economy, however. They believe that the system is geographically vast enough to prevent attack, and possesses enough redundancies at critical nodes to ensure that even a well-placed attack would be unable to disrupt the system for long. This camp includes Aramco's CEO, who in 2004 (whether speaking out of actual confidence with his firm's security measures, or to soothe the fears of nervous consumers) stated "that the oil would keep flowing even in the event of an attack," and that "a terrorist incident, if it were to happen, it's not going to

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[59] "Saudi oil comes under threat."

[60] Macalister.

[61] *Oil Shockwave: Oil Crisis Executive Simulation* (National Commission on Energy Policy, 2005), 7.

[62] Ibid., 12.

be worse than an industrial accident in a volatile industry like ours."[63] As noted earlier, the export facilities at Ju'aymah and Ras Tanurah on the Gulf, and Yanbu on the Red Sea, are interlinked. While attacks on these facilities would degrade their ability to process petroleum products for export (and some observers, particularly Baer, vehemently argue that a few critical nodes, such as Pump Station One, near Abqaiq, are vulnerable to attack)[64] the system is set up so that exports can be shifted from one terminal to another in case of emergency, a redundancy which would lessen the potential impacts of a terrorist attack.[65] Analysts citing these redundancies believe that terrorists "would have to step up several levels in sophistication to do lasting damage to the Saudi industry" as "most of the high-capacity links are redundant and repairable,"[66] and that "if one were damaged, it's most likely another one would be able to come on line very quickly and replace the lost production."[67] The Saudi government has also implemented a system designed to store oil in advance in preparation for contingencies. Under the "Saudi Strategic Storage Program (SSSP)," the Saudis "will invest more than $2.9 billion to build five storage facilities in Riyadh, Jeddah, Abha, Madinah, and Qassim to ensure energy supplies in emergency situations,"[68] although the extent to which this program could address global oil supply in the aftermath of a catastrophic attack, or just simply meet the Kingdom's own energy needs, is unclear.

Some analysts are also skeptical of apocalyptic scenarios predicting global economic collapse after an attack on Saudi oil. Because oil infrastructure has already been identified as a desirable terrorist target, they feel that markets have imposed a

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[63] Henry Schuster and Nic Robertson, "How Secure is Saudi Oil?" *CNNMoney.com*, November 24, 2004, http://money.cnn.com/2004/11/24/news/international/saudi_oil_security/ (accessed October 11, 2007).

[64] Baer, xxiii.

[65] Murphy.

[66] Stanley Reed, Stephanie Anderson Forest, and Peter Coy, "OIL ANXIETY HITS A SLIPPERY SLOPE; The prospect of more attacks in Saudi Arabia will keep the markets on edge," *Business Week*, June 14, 2004, 35-36, http://www.proquest.com.libproxy.nps.edu/ (accessed January 10, 2008).

[67] Richard Allen Greene, "Is the Saudi Oil Industry Safe?" *BBC News Online*, June 3, 2004, http://news.bbc.co.uk/2/hi/middle_east/3771097.stm (accessed October 11, 2007)..

[68] "US, Saudis step up war safety programs in kingdom," *Oil & Gas Journal*, March 17, 2003, 30-33, http://www.proquest.com.libproxy.nps.edu/ (accessed January 10, 2008).

"security premium" which "is already factored into the price of oil."[69] As of 2004, some analysts argued that the price of a barrel of crude oil (then only $40) already included $8-$10 of "risk premium,"[70] with specific events driving up prices and the risk premium including the then-recent Madrid train bombings, attacks on Iraqi oil infrastructure (particularly the offshore ABOT and KAAOT terminals), and the attacks in Yanbu.[71] If at least some of the increase in oil prices has been driven by security concerns (and not just higher global demand), then future attacks may not be accompanied by commensurate price increases (or at least increases which are not as large as those predicted in the worst-case scenarios), as, theoretically, those future increases have already taken place in the form of a risk premium. Unfortunately, until an attack occurs, and actual price increases can be measured against the worst-case predictions, there is no clear way to determine how much current prices levels have been driven by a risk premium.

Usama bin Laden's declared intent to strike at the West through Saudi oil, coupled with his distaste for the Saudi monarchy, seems to make Saudi oil infrastructure, particularly its maritime components in the Eastern Province, a plausible target for future terrorist attacks. Analysts disagree, however, whether the history of recent attacks on the Saudi oil industry presage a continued assault on oil infrastructure. Some feel that AQ attacks against the Saudi oil industry over the last few years indicate a shift away from Al-Qaeda's "operational preference" for "mass casualties" to a focus on "specific economic targets" such as oil infrastructure,[72] and that the industry, regardless of the large investment in security by the Saudi state and Aramco, is still essentially a "soft

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[69] Nawaf Obaid, "Attack Highlights Threat to Saudi Infrastructure," *Jane's Intelligence Review* (June 1, 2004): http://www.janes.com/security/international_security/news/jir/jir040520_2_n.shtml (accessed October 12, 2007).

[70] Reed, Forest, and Coy.

[71] Paul Blustein, "Oil Prices Reach New Peak; Saudi Attack Feeds Terrorism Fears [FINAL Edition]," *The Washington Post*, June 2, 2004, http://www.proquest.com.libproxy.nps.edu/ (accessed March 12, 2008).

[72] "Saudi oil comes under threat."

target," "accessible to dispersed groups of young men who receive their inspiration from the pronouncements of global and regional terrorist leaders who have little or no contact with regional facilitators."[73]

Meanwhile, other analysts argue instead that oil is not a "soft target" at all, and "that terrorist successes have been few and far between." In fact, they claim that the failure of recent attacks against the industry will drive a shift towards real soft targets such as people, because "the security forces seem much more able to cope than in earlier attacks" against critical infrastructure. [74] Some Saudis have argued that the fact because many of the attacks in 2004 were prosecuted against housing, company offices, and other places far from the actual oil processing facilities themselves, AQ has shifted its operational preference towards that sort of soft target and not infrastructure.[75] The 2006 failed attack can variously be explained as an aberration from this new emphasis on soft targets, or indicate a continued AQ desire to attack significant oil infrastructure.

D. SECURITY MEASURES: IDENTITY AND CREDENTIAL VERIFICATION

While physical security is clearly an important factor in preventing illicit activity, that security can be circumvented if not accompanied with an equally effective manner of issuing credentials and verifying the identities or intentions of individuals, ships, or cargo entering the port. The strongest lock is useless if thieves know the combination or have the key. Saudi maritime authorities claim that all "vessels bound for any Saudi port must produce on arrival their valid International Ship Security Certificate (ISSC), issued by the vessel's flag state in accordance with the ISPS Code," and "must furnish a pre-arrival statement in line with the Gulf Co-operation Council rules providing extensive detail."[76] Anecdotal descriptions paint an impressive picture of the security measures taken to ensure that only authorized personnel have access to Saudi maritime and oil

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[73] Theodore Karasik and Kim Cragin, "Case Study: The Arabian Peninsula," in *Ungoverned Territories: Understanding and Reducing Terrorism Risks*, ed. Angel Rabasa, et al. (Rand Corporation, 2007), 100.

[74] Asser.

[75] Blustein.

[76] Davies.

infrastructure. A BBC reporter stated that "he had to pass through six checkpoints staffed by armed guards to reach the Ras Tanura refinery,"[77] while another journalist claimed that at Ras Tanura, "employees must pass through a gate with 12 armed guards, then approach a second one where 18 guards and a bomb-sniffing dog stand at the ready," and also "surrender their passports for coded ID cards that they swipe through an electronic reader, then enter PIN numbers."[78] The extent to which these measures are actually effective at preventing infiltration by terrorists, criminals, or other illicit actors is unclear, however. While not actually taking place in a port, the 2004 AQ rampage in Khobar demonstrated "major flaws in the security operations," as the attackers were reportedly able "to slip through numerous security checkpoints and shoot their way into a number of buildings."[79]

Even a system with identification cards and checkpoints can be vulnerable to infiltration from within. "Thousands of foreigners from Asia and the west work in the Saudi oil industry,"[80] and insufficient checks of these individuals' backgrounds may present security risks. In addition, there are many concerns that Saudi employees may present the biggest security risk. At least some of the attackers who killed seven at a petrochemical company's office in Yanbu during May 2004 "apparently worked at the company and used their entry passes to gain access to their victims."[81] Even though many observers assess Aramco's security as "superb," vulnerabilities to an "inside job" remain as "the weakest point of the system."[82] While Aramco and the Saudi government claim that "no employees have been linked to terror plots," some sources have claimed that several Aramco employees (working in Information Technology support) have been "interrogated" by Saudi security officials. While the government deemed that these

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[77] Greene.

[78] Murphy.

[79] "Saudi oil comes under threat."

[80] Greene.

[81] Asser.

[82] Murphy.

individuals "weren't Al Qaeda," and "there was no determination of an actual plot," the Aramco employees were described as "Al Qaeda sympathizers."[83]

Another possibility is "that Jihadi militants have penetrated Saudi security forces."[84] While some AQ sympathizers or operatives may have infiltrated the Saudi security forces, the number of individuals who may have done so, and their ability to gain access to important or sensitive billets, is still unclear. Some analysts assess that while at least some degree of AQ "recruitment was inevitable," the negative impacts of such infiltration has been minimal, as "it occurred at so limited a level that most of the few cell members with any ties to the military or security services only had limited prior service and training and have only held minor positions."[85]

E. SECURITY MEASURES: PHYSICAL SECURITY

The Saudi government and Aramco have made significant investments towards improving physical security in their ports, especially in port facilities through which petroleum products are exported. The Saudi government views its oil infrastructure as a strategic national asset, meriting state (including the military) protection. Estimates of the (classified) Saudi security budget were $5.5 billion in 2003, and over $7 billion in 2004, with $750 devoted to security at oil facilities in 2003 and 2004.[86] Meanwhile, Aramco officials claimed that the firm had spent $250 million in improving its security in 2006 and 2007, "completely revamping its internal security" in order to improve its "very good commercial security measures" to better "deal with a concerted terrorist attack."[87]

Saudi authorities claim that the "sheer vastness" of the Kingdom's oil facilities, "spread out over thousands of square miles," are an effective first-line-of-defense against terrorist attack.[88] Saudi and Aramco officials have devoted much of their spending on

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[83] Murphy.

[84] "Saudi oil comes under threat."

[85] Cordesman and Obaid, *Al-Qaeda in Saudi Arabia: Asymmetric Threats and Islamic Extremists*, 13.

[86] Obaid.

[87] Simon Webb, "Saudi Builds Security Force of 35,000 to Guard Oil," *Reuters*, November 16, 2007, http://www.reuters.com/article/newsOne/idUSL1528115720071116?sp=true (accessed January 10, 2008).

[88] Schuster and Robinson.

security towards purchasing a variety of sensors and other technologically advanced equipment, including "cameras, motion sensors and helicopter patrols."[89] The Ras Tanura facilities are protected by electric "double fencing,"[90] motion detectors, video cameras, and an "antiaircraft missile battery."[91] The Saudis also claim that "many of the more elaborate security precautions are hidden from view and that Saudi oil facilities have the same level of protection as military bases."[92] Aramco infrastructure in the Eastern Province is linked through a centralized command-and-control network, with the "Abqaiq Area Emergency Control Center (ECC)" responsible for "radio and telephone communication systems" linking "the Shaybah field, export stations, and pipeline control hubs."[93]

Investment in personnel is matched by investment in equipment. Saudi officials claim that their security officers have effectively dealt with these types of threats before, citing the May 2004 attack in Yanbu, in which they "quickly cordoned off the industrial portions of Yanbu and forced the attackers away from the compound."[94] Other analysts, however, argue that enhanced security has "done little to reduce a growing number of attacks on key installations."[95]

Estimates of the size of Aramco's armed security forces range from 5,000 to 7,500 individuals.[96] The Saudi military and internal security forces also devote significant manpower to these efforts. As many as 30,000 men currently secure the Kingdom's oil infrastructure, conducting numerous activities and manning a variety of equipment. Their activities include regular patrols of military aircraft (including Saudi Air Force F-15s), operating "anti-aircraft installations," and Saudi Navy and Coast Guard

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[89] Greene.

[90] Schuster and Robinson.

[91] Murphy.

[92] Schuster and Robinson.

[93] Khalid R. Al-Rodhan, *The Impact of the Abqaiq Attack on Saudi Energy Security* (Washington, DC: Center for Strategic and International Studies, February 27, 2006), 3.

[94] Obaid.

[95] Macalister.

[96] Murphy; Obaid.

vessels escorting tankers in and out of port.[97] Analysts assess that the "Saudi navy, coast guard, and National Guard are able to provide adequate security screening for key ports, desalination facilities, and petroleum export facilities with roughly two weeks of warning," and that while the Saudi government concedes that some security officials "have been implicated in smuggling by sea" in the past, "this activity is severely punished and does not seem to be more common than in other countries."[98] Meanwhile, some oil industry figures have criticized Saudi maritime security measures, claiming that the Saudi Navy did not possess enough ships, and lacked "sufficient trained personnel-especially divers-to carry out counter-terrorism measures on their own."[99]

The Ministry of Interior has also established a special unit devoted to protecting critical infrastructure, featuring representatives from "the Special Security Forces, Special Emergency Forces, the General Security Service (the domestic intelligence service), regular forces of the Public Security Administration (including police officers) and specialised brigades of the National Guard," as well as "the Petroleum Installation Security Force (PISF)."[100] Apparently, Saudi leaders felt that this unit was not capable enough to combat the perceived threat from terrorism, however, and was "hamstrung by its reliance on cooperation from the police, the military or the Saudi national guard." In late 2007 the Saudi government announced that a 35,000 man "rapid reaction force" will replace the Ministry of Interior's special unit. The new force "will operate independently of other Saudi state security forces, allowing it to react more quickly to any threat."[101]

F.   ASSESSMENT OF SECURITY MEASURES

The Saudi government and Aramco have devoted a great deal of resources towards securing maritime infrastructure, particularly as so much of that maritime infrastructure is also a vital component of its strategic oil industry. It is difficult to argue

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[97] Obaid.

[98] Anthony H. Cordesman and Nawaf Obaid, *Saudi Internal Security: A Risk Assessment* (Washington, DC: Center for Strategic and International Studies, May 30, 2004), 22.

[99] "US, Saudis step up war safety programs in kingdom."

[100] Obaid; Al-Rodhan, 3.

[101] Webb.

that the implementation of ISPS is the root cause of this Saudi concern with security, however. The purported vulnerability of Saudi oil to terror attacks has been well addressed in mainstream journalism, particularly after the attacks of 2003 and 2004, and the publication of Baer's book in 2003. This terror scenario has even entered popular culture, with two television movies, the BBC's *The Man Who Broke Britain* (2004), and FX's *Oil Storm* (2005), dramatizing the possible global economic chaos following a significant terrorist attack at Ras Tanura. One can argue that the Saudis have to at least look like they are doing something to keep their oil industry safe. Regardless of whether Saudi oil infrastructure is an irresistible target for terrorists, it is impossible to empirically determine whether Saudi investment in security has been well spent in the absence of a successful attack. It is clear, however, that there has been no maritime or seaborne attack against Saudi ports or oil infrastructure by AQ or any other terrorist group since 2001 (or at least that Saudi authorities have not publicly acknowledged any such attacks). The most serious attacks have either been land attacks against land targets, land attacks against coastal targets, or attacks against personnel in coastal cities.

Security measures can also be considered in terms beyond their ability to prevent attacks, and instead by their impact on trade. High costs for new security measures (new equipment, training, and personnel) may be passed on to consumers, or place a strain on governments and firms involved in maritime trade. There are numerous factors impacting the amount of cargo processed through a port, though, and it is difficult to isolate those resulting solely from increases in ISPS-driven security costs. Data published by the Saudi Ports Authority and Aramco indicate that trade through Saudi ports has not declined since ISPS was implemented in 2004.

Between 2004 and 2006, total throughput in all SPA-managed ports increased 11.6% (from 120 million DWT to 134 million DWT). Throughput at the Persian Gulf ports increased 28.6% at King Abzulaziz Dammam, 7.0% at King Fahd Jubail, and 38.9% at Jubail Commercial during the same time frame. The only significant decline in any category was a 36% decline in the number of passengers traveling through Saudi

ports between 2004 and 2006, dropping from 2.1 million to 1.3 million.[102] Liquid Bulk Cargo processed through King Abdulaziz Dammam did drop 5% (although that port accounts for less than 1% of total Saudi bulk cargo throughput). Liquid bulk cargo throughput also dropped 4.8% at King Fahd between 2004 and 2005, but rebounded in 2006, growing 10.7% over the two-year period between 2004 and 2006.[103]

Saudi Aramco does not provide statistics differentiating exports through individual ports, but does publish export data for its Saudi ports as a whole. Calls by tankers at Aramco ports declined between 2004 and 2006 in all classes (2,145 to 1,913 for crude oil tankers, 1,809 to 1,417 for refined product tankers, and 534 to 470 for LPG tankers). That decline is not reflected in terms of volume, however. Actual barrels of crude and LPG increased 2.5% and 4.2%, respectively (from 2.4 trillion to 2.5 trillion crude, and 266 million to 285 million LPG), with only refined products experiencing a 4% decline.[104] Apparently fewer, larger, tankers have been carrying exports from Saudi Arabia.

Correlating this data with ISPS-driven security measures is difficult. Changes in Saudi port throughput during this period may have been driven by a strong global demand for oil (and high oil prices), thus overwhelming any possible negative impacts resulting from outlays on security. Saudi Arabia's role as the globe's "swing producer" may also prove significant, as the Kingdom's exports do not necessarily reflect only responses to changes in global demand, but also attempts to decrease or increase production in order to keep world prices at what they deem the most desirable level. As of January 2008, despite record high oil prices, Saudi daily production of 9 million barrels per day was approximately 2 million barrels less than full capacity.[105] Another

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[102] Most of that decline occurred in passengers traveling through the Red Sea ports of Diba and Jeddah, which together account for over 90% of passengers traveling through Saudi ports. Increased security and lower quotas implemented for travel to Mecca and Medina for the *hajj* and other pilgrimages (for which Jeddah is the primary point of entry) may account for that decline, but are outside the scope of this study.

[103] Saudi Ports Authority Annual Statistics Reports, 2004, 2005, and 2006, Saudi Ports Authority, http://www.ports.gov.sa/section/full_story.cfm?aid=525 (accessed January 10, 2008).

[104] *Saudi Aramco by the Numbers: Facts and Figures 2006* (Dhahran: Saudi Aramco, 2006), 33-34.

[105] Michael Abramowitz, "Citing Prices, Bush Urges OPEC to Boost Output," *The Washington Post*, January 16, 2008, http://www.proquest.com.libproxy.nps.edu/ (accessed January 16, 2008).

possible explanation is that the Saudi monarchy, very much intertwined with the oil industry (and almost every other significant part of the economy), may be absorbing the security costs without passing them on to consumers or anyone else in an obvious way. The authoritarian nature of the Saudi monarchy ensures that they are able to keep state finances opaque. What is clear is that the costs of ISPS or other security measures were not strong enough on their own to drive down aggregate throughput in Saudi ports.

G.   CONCLUSION

The importance of the Saudi oil industry and the presence of an active Al-Qaeda cell in Saudi Arabia present a unique maritime security challenge. Implementing the ISPS code security measures has not been a challenge for the Saudi state, but ensuring that maritime (and other) security measures address the vulnerabilities of Saudi maritime infrastructure may be more difficult to accomplish. Pouring money into expensive equipment and manpower-intensive special security forces may not address weaknesses from within, and assessments are mixed regarding the actual ability of Saudi security forces to prevent or deal with a major attack on important infrastructure. While these measures can be deemed a success in the absence of an attack, and efficient in the sense that Saudi port throughput has not decreased, other factors, particularly stratospherically high oil prices, which make Saudi port security difficult to assess in isolation.

III. UNITED ARAB EMIRATES

A. INTRODUCTION

The United Arab Emirates is the regional maritime hub for the Middle East. Ships ranging in size from the largest tankers and container cargo vessels to rickety wooden dhows carry goods to and from this busy crossroads. UAE governments (both that of the central state and the various Emirates, particularly Dubai) have invested heavily in commercial infrastructure. State-owned firms such as DP World have successfully implemented a program to make UAE and UAE-based firms among the world leaders in trade and tourism. An important element of that investment has been the funding of a significant port security program, involving physical security measures, technology, and training security personnel. DP World, the state-owned port management firm that is now a global colossus managing major facilities on every continent, has received numerous awards and recognition as having security and management practices on par with or better than any practiced across the globe. What remains unresolved is whether the industry best practices at Jebel Ali, DP World's flagship port, are matched by practices at the smaller, nearby dhow ports in both Dubai and neighboring Emirates.

UAE is a regional business center and a relatively unregulated laissez-faire environment. Dubai's success be attributed in large part to its business-friendly atmosphere; however, that atmosphere also may provide an opportunity for corruption and exploitation by illicit actors. UAE authorities do seem to be simultaneously establishing an economy dominated by free-trade zone, and friendliness to multi-national firms, but from within the context of a surveillance state intent on deterring a variety of internal security threats. On one hand, UAE has been the site of significant Al-Qaeda (AQ) fundraising, and the location in which alleged AQ operative Abdul-Rahim al-Nashiri was arrested while allegedly planning maritime attacks, indicating that UAE may face significant threats from maritime terrorism. At the same time, UAE has implemented significant security measures, and has cooperated closely with Western

security and intelligence services. UAE authorities turned Nashiri over to the U.S. upon his capture, possibly indicating a conscientious effort to combat terrorism. Maintaining UAE as a business and tourist haven may require compromises between driven by the often competing desires for freedom and security.

Data available on UAE port activity since the 2004 implementation of the ISPS standards indicate that the costs of implementing those standards has not been large enough (or passed on to shippers) to negatively impact trade. Throughput in Dubai-area ports has increased in almost every category since 2004. Possible explanations include the booming local economy, or the ego of local leaders, intent on making the Dubai metroplex a glamorous, prosperous world-class business center, regardless of the cost to the state. Booming trade through smaller ports may in large part be driven by demand for consumer goods in Iraq, Iran, and the Horn of Africa. Just as in the case of Saudi Arabia, the actual economic impact of ISPS and other port security standards is difficult to determine, although it is clear that any costs that may have been incurred have not been significant enough to overwhelm those other economic and political factors.

B.   PORT OVERVIEW

UAE, particularly the Emirate of Dubai, is a major regional maritime hub, acting as a commercial gateway for much of the Indian Ocean basin, connecting the Far East, South Asia, East Africa, and the Middle East. In 2006, UAE ports handled almost 11 million TEUs (Twenty-foot Equivalent Units, the standard measure used to quantify containerized cargo), the seventh-most containers of any state in the world.[106] The primary ports in Dubai, Jebel Ali and Port Rashid, are operated by DP World, a subsidiary of the state-owned firm Dubai World. The Dubai ports complex is huge, handling almost 9 million TEUs in 2006, the eighth most of any single port in the world.[107] The Dubai ports are the "flagship facilities" in DP World's global empire (42 terminals in 22 countries), with Jebel Ali the "largest container port between Rotterdam and Singapore." DP World claims it is the "world's largest man-made harbor." Dubai's

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[106] *Review of Maritime Transport: 2007* (Geneva: United Nations Conference on Trade and Development, 2007), 86.

[107] DP World Website. http://www.dpworld.ae/default.asp (accessed January 23, 2008).

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rulers view the Jebel Ali port and adjacent free-trade zone, coupled with a nearby international airport and "Dubai Logistics City" as important elements in maintaining the Emirate's prominent position in global trade. Another element in UAE and Dubai "solidifying" their "role as a shipping center is the development of Dubai Maritime City, the world's most comprehensive maritime complex," a future home to "ship repair and maintenance companies," office space, and "retail outlets and commercial showrooms for yachts, ships and boats, as well as for high-end design services."[108]

Realizing the high-stakes in maintaining their prominent position, Jebel Ali's operators have placed a heavy emphasis on security. The fact that Jebel Ali is "the most heavily visited overseas US navy shore leave location in the world, receiving 200 warship visits a year and providing unequalled berthing facilities for US naval vessels in the Gulf,"[109] seems to indicate that extremely force-protection-conscious organizations such as the U.S. Navy recognize and appreciate that investment in security, and deem Jebel Ali as the most safe and accommodating facility in the Gulf, an important operational and logistical asset in a region characterized by a high tempo of US Naval operations.

Modern facilities such as Jebel Ali and Port Rashid, well integrated into the global economy and servicing the major shipping lines, are not the only port facilities in Dubai, however. Dubai Creek, the site of the original settlement in Dubai and "the traditional center of Dhow traffic between the Gulf ports and Iran, Pakistan, India and all of East Africa, continues to provide a strong economic boost to the economy," as well as serving as a tourist attraction.[110] Nearby Hamriyah port also serves vessels shipping cargo between Dubai and South Asia, the Horn of Africa, Iran, Iraq, and other ports on the Arabian Peninsula.[111] The "small and medium ships" that call at Hamriyah take

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[108] "The East-West Transport Hub," *US-Arab Tradeline* 15 (June, 2007), 6.

[109] Michael Knights, "Southern Gulf Co-Operation Council Countries Brace for Terrorist Attacks," *Jane's Intelligence Review*, November 1, 2005, http://www.janes.com/security/international_security/news/jir/jir051020_1_n.shtml (accessed October 23, 2007).

[110] "The East-West Transport Hub," 6.

[111] "Dubai Ports Authority Announces Major Expansion and Modernization of Al Hamriyah Port," *AME Info*, May 2, 2006, http://www.ameinfo.com/84811.html (accessed October 23, 2007).

advantage of "the port's role as a major re-exporting hub."[112]   Dubai (and ports in the neighboring Emirates of Sharjah and Ajman) serves as a link between the modern, global economy, and smaller, regional and sub-regional economies served by traditional vessels such as dhows. Twenty-first century and millennia-old commerce occur side-by-side in Dubai (although the exact extent to which the commerce of the new Dubai favored by the international jet-set will push aside the old ways remains unclear).

Dubai's neighbor, Sharjah, also contains ports active in regional trade. In fact, Port Khalid in Sharjah was "the first container berth in the Gulf." The Emirate of Sharjah also encompasses the large Khor Fakkan terminal on the Arabian Sea, which is capable of handling 3 million TEUs of container cargo.[113] The Sharjah ports are operated by the firm Gulftainer.

Ajman, another Emirate adjacent to Dubai, has a much smaller port, but one still capable of handling a wide variety of cargo, including containers, break-bulk cargo, bulk cargo, and vehicles on RO-RO vessels (Roll on-Roll off). Re-exports from Ajman are shipped throughout the region.[114] That trade includes shipping to a variety of ports. Emirates Port Services, which manages the Ajman port, advertises that vessels from Ajman offer "direct services" to Iraq (including Umm Qasr, Khor az Zubayr, and Abu Flus), Somalia, and Iran (Bandar Abbas). Those services, plus Ajman's "proximity to the inter-emirate highway and to the main industrial and Trading centers of UAE," [115] make it a link between the developed western economies whose trade moves through the big Dubai ports such as Jebel Ali, and the small dhows serving the developing world, including regional trouble spots.

DP World also manages the port of Fujairah, outside of the Straits of Hormuz on the Arabian Sea/Gulf of Oman. Fujairah is particularly important as it has become "one of the three most important bunkering centres around the world after Singapore and

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[112] "DPA to Modernise Al Hamriyah Port," *Gulfnews.Com*, May 7, 2006, http://archive.gulfnews.com/articles/06/05/03/10037221.html (accessed October 23, 2007).

[113] Jason J. Nash, "The UAE's Booming Northern Ports," *ArabianBusiness.Com*, June 3, 2007, http://www.arabianbusiness.com/13805-the-uaes-booming-ports- (accessed October 23, 2007).

[114] Nash.

[115] "About Ajman Port," Department of Ports & Customs Ajman, http://www.ajmanport.gov.ae/www/?Main_id=5&Sub_id=7 (accessed October 23, 2007).

Rotterdam" (reminiscent of Jebel Ali's status as the busiest container port geographically between Singapore and Rotterdam). In addition, its convenient location outside of, yet close to, the Persian Gulf has propelled Fujairah into the ranks of larger container ports as well, expanding its cargo handling capabilities to 1.7 million TEUs.[116]

The re-export of used cars by Dubai and Sharjah is one example of these regional commercial linkages and relationships. In 2005 the Japan Auto Appraisal Institute estimated that 200,000 used vehicles were exported from Japan to Dubai. Another group, Business Monitor International, calculated that in 2006, 70,800 vehicles were then re-exported from Dubai and sold to consumers throughout the region (indicating that if the number of Japanese exports is correct, then the numbers on re-exports are understated (or inaccurate), or that over half of the cars shipped to Dubai are purchased for use in UAE). Dubai's "physical and legal infrastructure" which enables this trade is its large, modern port facilities, and the "free-trade Dubai Cars and Automotive Zone" which was established in 2000.[117] Approximately 350 vendors at the "Ducamz" serve customers from around the region, selling up to 700 used vehicles, mostly Toyotas, per day.[118] A similar market in nearby Sharjah features at least 500 dealers selling used cars.[119]

Among the primary destinations of re-exported cars are Qatar, Iran, Iraq, Afghanistan, and Libya.[120] Demand is particularly high in war-torn states such as Iraq and Afghanistan, which had been largely isolated from the global consumer economy under the respective rule of Saddam Hussein and the Taliban. One pair of Iraqi car dealers interviewed in 2004 indicated that during their "frequent" visits to Dubai, they would "buy as many as 25 cars at a time," paying mechanics later to switch the steering

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[116] Davies; Nash.

[117] "UAE Channeling Cars," *Executive*, July, 2007, http://www.executivemagazine.com/96/article.php?id=1143 (accessed October 23, 2007).

[118] Todd Zaun and Jason Singer, "Driving Change: How Japan's Second-Hand Cars Make Their Way to Third World; Sophisticated Market Handles Big Used-Vehicle Surplus; Way Station in Dubai; Odyssey of a White Corolla," *Wall Street Journal*, January 8, 2004, Eastern Edition, http://www.proquest.com.libproxy.nps.edu/ (accessed January 24, 2008).

[119] Mahmood Saberi, "Sharjah used Car Dealers Call for Proper Facilities," *Gulfnews.Com*, May 8, 2006, http://archive.gulfnews.com/indepth/trafficwatch/more_stories/10038083.html (accessed October 23, 2007).

[120] "UAE Channeling Cars."

wheels of the Japanese vehicles from the right to the left side.[121] Cars are then shipped via RO-RO vessels (or any other ship that vehicles can be loaded on) from ports in Dubai, Ajman, or Sharjah, to southern Iraqi ports such as Umm Qasr, Abu Flus, and Khor az Zubayr. As for Afghanistan, vehicles are shipped in containers to Iranian ports such as Bandar Abbas and then transported to Herat in Afghanistan. Local customs officials in 2005 estimated that "that about 80-100 vehicles" crossed the border via this route daily.[122] While no one has been able to identify insurgents who had purchased vehicles from the large used-car markets in Dubai or Sharjah, then shipped them to Iraq or Afghanistan for the specific purpose of using them as Vehicle-Borne Improvised Explosive Devices (VBIEDs), the flood of vehicles into these countries (driven primarily by pent-up demand after decades of privation) has provided valuable opportunities for insurgents to procure the means for a relatively cheap and deadly weapon. The trade in vehicles offers a clear example of UAE's status as a commercial link between developed and developing economies. The key, unresolved, question for states such as the U.S. is whether UAE's commercial linkages between the developing and developed world make it a gateway through which illicit actors can attack the West.

Most UAE ports announced their compliance with the ISPS regulations before the July 1, 2004 deadline. Some analysts have identified that initiative to promptly implement ISPS, as well as Dubai's membership in the U.S.'s Container Security Initiative (CSI, Dubai is the only Middle East port participating in the program), as an attempt to earn a valuable "seal of approval," which would cement the various Dubai-area ports' status as the premier regional maritime center, with standards and practices are on par with or better than the most advanced facilities in the world. Those same analysts feel that Dubai's membership in CSI will initiate a "ripple effect" of better safety and security standards throughout the Gulf because they "give participating ports a security

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[121] Zaun and Singer.

[122] Anna Paterson, *Understanding Markets in Afghanistan: A Study of the Market in Second-hand Cars* (Afghanistan Research and Evaluation Unit, 2005), 19.

rating that merchants and shippers welcome," meaning that neighboring ports will be forced to keep up with the higher standards in order to remain competitive.[123]

The DP World-managed ports of Port Rashid and Jebel Ali in Dubai were "the first two ports in the UAE to receive the International Ship and Port Facility Security (ISPS) Code certificate."[124] Fujairah "was awarded compliance with the ISPS Code shortly after Port Rashid and Jebel Ali port in July."[125] Sharjah's ports were also compliant with the ISPS regulations ahead of schedule.[126] A review of the IMO's Global Integrated Shipping Information System database indicates that among the major Dubai-area ports servicing primarily larger commercial vessels, only Ajman missed the deadline; its approved Port Facility Security Plan (PFSP) was filed and approved as of December 18, 2004.

DP World's recent global expansion may have played a role in the firm's efforts to implement industry-leading security practices. DP World-managed ports include high-profile facilities in Asia, North and South America, Australia, and Europe. Its 2006 purchase of the British firm P&O entailed DP World assuming operations of six P&O-managed ports in the U.S. A major political firestorm derailed that portion of the P&O purchase (nominally caused by the concerns of U.S. politicians that UAE nationals had taken part in past AQ attacks, including the September 11, 2001 hijackings, and that UAE and UAE-based financial institutions have provided and enabled AQ financing), despite support from President Bush and approval by all concerned U.S. government agencies. Although that element of the firm's expansion ultimately failed, DP World aggressively attempted to portray the firm as an industry leader in the areas of port management and security, and compliance with the most stringent standards played an integral part of a public relations strategy that continues even in the aftermath of the deal's collapse.

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[123] Josh Martin, "Arab port security tightens," *Middle East*, February 1, 2007, 40-41. http://www.proquest.com.libproxy.nps.edu/ (accessed January 24, 2008).

[124] Saifur Rahman, "Dubai ports become ISPS code compliant," *Gulfnews.Com*, November 23, 2005, http://archive.gulfnews.com/articles/04/07/04/125341.html (accessed January 23, 2008).

[125] Davies.

[126] "Sharjah Ports Achieve ISPS Status," *The Emirates News Agency*, June 7, 2007, http://uaeinteract.com/docs/Sharjah_ports_achieve_ISPS_status/12685.htm (accessed October 23, 2007).

C.   TERRORISM AND UAE

Despite Dubai's current reputation as one of the globe's most dynamic commercial centers, the same laissez-faire attitude which has made it the Middle East's premier destination for globe-trotting businessmen and tourists may have also increased its vulnerability to exploitation by a variety of illicit actors. Its status as the regional maritime hub ensures that at least some of these vulnerabilities involve potential illicit seaborne activities. Some analysts have described the "bustling roguish entrepot of the UAE" "as an easy operating environment for terrorists, characterised by porous borders and soft targets." In addition, just like their counterparts engaged in legitimate commerce, "non-native terrorists" are also able to take advantage of UAE's role as the region's transportation nexus.[127]

Large, "intertwined criminal and financial services elements" in Dubai were used by AQ planners to help finance the September 11 attacks. Muslim terrorists have made UAE home, including members of the Pakistani AQ-affiliated group Harkat ul-Jihad-e-Islami. Fighters fleeing Afghanistan after the 2001 U.S. invasion also allegedly used dhows to smuggle themselves into the country. While UAE authorities claim to have successfully implemented strict maritime security and immigration measures to inhibit illicit maritime entry into the country, skeptics predict that smugglers will simply shift the landfall of their dhows to Oman in response to this pressure, now choosing to enter UAE through the land border between UAE and Oman.[128]

To date, the most significant connection between Al-Qaeda, maritime terrorism, and UAE, was the 2002 capture by Dubai authorities of Abdul-Rahim al-Nashiri. Nashiri allegedly "conceived and oversaw the attacks on U.S. Embassies in Nairobi and Mombasa in August 1998, the October 2000 USS Cole bombing in Yemen, and finally the attack on the French-flagged oil tanker Limburg in October 2002." When captured, he was reportedly "taking advantage of the transnational trafficking networks based in" UAE, "attempting to procure small speedboats and scouting possible freighters to hijack

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[127] Knights.

[128] Ibid.

and use as a mother ship or indeed as a floating bomb in future maritime attacks."[129] The notion that a known AQ leader who executed a series of successful maritime attacks (successful in the sense that both COLE and LIMBURG were engaged by AQ, although ultimately neither ship was actually destroyed) was planning future attacks near the site of a busy international port frequented by the US Navy, likely chilled both UAE and U.S. leaders.

Nashiri has lately become the subject of a different sort of international attention. Currently detained at Guantanamo Bay, Nashiri, along with another alleged senior AQ leader, Abu Zubaida, was water-boarded during interrogations by U.S. intelligence personnel after his capture.[130] Journalists have argued that U.S. descriptions of Abu Zubaida as a senior AQ operational planner are false, and that instead he was just "a mentally ill minor functionary" who admitted to involvement in multiple al-Qaeda plots only after being tortured.[131] Nashiri has himself claimed that he admitted to involvement in the COLE, embassies, and LIMBURG attacks only after being tortured, although he did admit in his Combatant Status Review Tribunal to have accepted money from Usama bin Laden in order to purchase a boat in Dubai for use in what bin Laden described as "military actions." Despite the instructions from bin Laden, Nashiri claimed that instead of proceeding with that attack, he "dissolved the project," sold the boat and intended to live peacefully in Dubai.[132] Nashiri's story that he could take AQ's money and not go through with an attack seems implausible, but while it is likely that Nashiri had ties to AQ and was involved in or aware of multiple terrorist attacks, the actual extent of operational planning regarding a seaborne attack in Dubai remains unresolved.

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[129] Knights.

[130] Joby Warrick and Walter Pincus, "Station Chief Made Appeal To Destroy CIA Tapes; Lawyer Says Top Official Had Implicit Approval," *The Washington Post*, January 16, 2008, http://www.proquest.com.libproxy.nps.edu/ (accessed January 21, 2008).

[131] Dan Froomkin, "Bush and the Torture Tapes," *washingtonpost.com*, December 7, 2007, http://www.washingtonpost.com/wp-dyn/content/blog/2007/12/07/BL2007120701201.html (accessed January 23, 2008).

[132] *Verbatim Transcript of Combatant Status Review Tribunal Hearing for ISN 10015*, March 14, 2007, 10, 21, 26.

D. SECURITY MEASURES: PHYSICAL SECURITY

DP World has declared that enhanced port security is an important corporate goal. In 2007 the firm announced that it planned to spend approximately "$300 million to secure 42 terminals that we operate worldwide."[133] Although that investment will be spread throughout its global operations, Dubai ports such as Jebel Ali are centerpieces for DP World's program to demonstrate that "Hundred per cent security is no longer a myth, but a reality,"[134] and observers have described security at Jebel Ali as "a model for the post-9/11 world."[135] Dubai physical security measures include "CCTV, alarm systems as well as anti-invasion systems across all its ports and terminal facilities."[136] Coupled with the "elaborate web of technologically advanced barriers and detection systems" that the Dubai government is installing throughout the Emirate, Dubai maritime infrastructure is among the safest in the world. Observers argue that for DP World, lavish investment on security is seen as a sound business move, "in the belief such measures will boost the perceived security of their ports, making them more attractive transshipment points."[137] Regardless of whether the high tech security measures implemented in Dubai actually result in better physical security, Dubai's leaders see them as a critical element of their plan to maintain the Emirate's status as a regional and global business center.

While the major ports in Dubai seem to have taken the lead in implementing strong physical security measures, the extent to which effective physical security has been put in place at other regional ports is unclear. While authorities in Sharjah announced that along with ISPS implementation that they had imposed "stricter port

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[133] Saifur Rahman, "DP World Will Invest Dh1.1b in Port Security," *Gulfnews.Com*, October 20, 2007, http://archive.gulfnews.com/articles/07/10/20/10161539.html (accessed October 23, 2007).

[134] Rahman, "DP World Will Invest Dh1.1b in Port Security."

[135] Hassan M. Fattah and Eric Lipton, "Gaps in Security Stretch All Along the Way From Model Port in Dubai to U.S.," *New York Times*, February 26, 2006, Late Edition (east Coast), http://www.proquest.com.libproxy.nps.edu/ (accessed January 24, 2008).

[136] Rahman, "DP World Will Invest Dh1.1b in Port Security."

[137] Martin.

entry controls,"[138] it is as yet unclear whether these concepts have filtered down to the smaller dhow ports engaged in trade with less secure parts of the world (Iraq, Iran, and the Horn of Africa).

E.   SECURITY MEASURES: ILLICIT USE OF PORTS BY CRIMINALS AND TERRORISTS

A prominent example of illicit use of UAE ports occurred before the coalition invasion of Iraq in 2003. According to the UN investigation chaired by former Federal Reserve chairman Paul Volcker into corruption under the Oil-for-Food program,[139] at least two UAE-based shipping companies paid bribes to a Saddam-owned front company in Dubai for the rights to ship Australian wheat to Iraq.[140] A vigorous trade in consumer goods currently takes place between ports in UAE and Iraq. Another commodity traded between the two states is oil, including both crude oil exports from Iraq, as well as fuel oil (diesel, gasoline, kerosene, etc.) imports to Iraq from other states in the region (Iraq currently has very little capability to refine crude oil). Possible illicit elements of that trade will be discussed at length in the next chapter covering Iraq, however, it is important to note here that UAE-based shippers and energy interests may be profiting by trading in either oil (both crude and fuel oil) stolen from Iraq, or fuel resold on Iraq's "gray market" (Iraq subsidizes fuel, meaning that Iraqis can often make more money selling fuel to those who can ship it elsewhere to places such as UAE where it is then sold at market price, rather than use it. This sort of a transaction requires access to imported fuel, however, meaning that entities involved directly in facilitating imports are more able to engage in this type of activity).

The depiction of UAE as a home of international criminals, corruption, and smuggling is not entirely accurate, however. UAE, particularly cosmopolitan Dubai, is increasingly a high-tech surveillance state, "a place where great care has to be taken to

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[138] "Sharjah Ports Achieve ISPS Status."

[139] Oil-for-Food was a UN program which allowed Saddam's Iraq to export oil in exchange for humanitarian goods which were unavailable at that time due to the then-prevailing international sanctions regime.

[140] "UAE Firms "Paid $100m in Bribes" to Saddam," *Khaleej Times Online*, April 3, 2006, http://www.khaleejtimes.com/DisplayArticle.asp?xfile=data/theuae/2006/April/theuae_April70.xml&section=theuae (accessed October 23, 2007).

avoid the attention of local and Western security services," due to vigorous efforts to "crack down on crime, people and narcotics-trafficking and economic migration."[141] Nashiri's capture in UAE, and the local authorities subsequently turning him over to U.S. custody, indicates at least some intent to stop terrorist activity, and a degree of willingness to cooperate with Western intelligence agencies. Technological measures include a "national identification card system, iris-scanning technology, and other advances in immigration documentation," with "closed-circuit television… incorporated into metropolitan areas."[142] To prevent the suspected shift of illegal entry to the land border with Oman caused by tighter security in sea and airports, "the UAE is constructing an anti-vehicle barrier along the accessible areas of the UAE-Oman border to channel traffic to legal points of entry."[143] In addition to the large investment in security by the UAE government, Dubai has devoted considerable resources to protect the Emirate's current status as a premier business and tourist center. Officials have claimed that Dubai's "smart system," including "an electronic monitoring system on every building that will trigger the fire extinguishers and report accidents, once they happen, via satellites linked to a central civil defence operations room." will make Dubai "the world's safest city by 2010."[144]

F.   SECURITY MEASURES: SUPPLY CHAIN/CARGO SECURITY

The major UAE ports are also the regional leaders in terms of efforts to ensure cargo security and protect the integrity of global supply chains. In 2004, authorities in Sharjah announced that in addition to being in compliance with ISPS, "all empty containers entering any of Sharjah's facilities have been physically inspected" along with additional "cargo inspections."[145]

DP World states that its flagship Dubai ports meet the most strict cargo inspection and security measures practiced worldwide. By any objective measure, DP World port

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[141] Knights.

[142] Ibid.

[143] Ibid.

[144] Martin.

[145] "Sharjah Ports Achieve ISPS Status."

management practices are on par with or better than all others in the world. In 2006, "Lloyd's List selected DP World as "Port Operator of the Year.""[146] Also in that year, the firm received the "the first ISO/PAS 28000 certificate of approval for international supply chain security" in the world from Lloyd's Register Quality Assurance.[147] The International Organization for Standardization's (ISO) ISO/PAS 28000 security initiative "is designed to enable better monitoring of freight flows, to combat smuggling and to respond to the threat of piracy and terrorist attacks as well as to create a safe and secure international supply chain regime."[148] DP World has "commissioned a three-tier fool-proof container security initiative that involves X-ray, radiation and Optical Container Recognition (OCR)," which DP World claims "can detect any radiation being emitted from the container, while the OCR captures container data and manages the supply chain."[149] Dubai was also among the first ports taking part in the U.S.'s Container Security Initiative (CSI). Dubai is one of the 58 ports worldwide in which American Customs officers "use non-intrusive inspection (NII) and radiation detection technology to screen high-risk containers before they are shipped to U.S. ports."[150]

This seemingly robust inspection program has its critics, however. Skeptics question the ability of the scanners currently employed to identify dangerous items in a container. In particular, they are incapable of detecting "a key radioactive ingredient in a nuclear bomb, even if it was just modestly shielded." In addition, "only a small fraction of the millions of containers" are currently inspected, and the techniques employed to identify suspect containers for inspection makes use of "often-incomplete data."[151] Clearly CSI and other container inspection programs are well intentioned in their desire

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[146] "DP World: A Home Grown Success Story," *US-Arab Tradeline* 15 (June, 2007), 32.

[147] "LRQA approves DP World to ISO/PAS 28000:2005, a world first," Lloyd's Register, September 11, 2006, http://www.lr.org/News+and+Events/LRQA+approves+DP+World+to+ISOPAS+280002005+a+world+first.htm (accessed January 28, 2008)

[148] "ISO offers systematic approach to security management in global supply chains," International Organization for Standardization, November 11, 2005, http://www.iso.org/iso/pressrelease.htm?refid=Ref981 (accessed January 27, 2008).

[149] Rahman, "DP World Will Invest Dh1.1b in Port Security."

[150] *CSI Fact Sheet*, U.S. Customs and Border Protection, October 2, 2007, 1-2.

[151] Fattah and Lipton.

to prevent radioactive materials from being hidden and shipped in containers. However, CSI has serious weaknesses, particularly in the equipment's inability to identify all radioactive materials in containers, the program's overemphasis on radioactive materials (there are plenty of other dangerous materials and illicit items which can be smuggled in containers), the program's inability to either inspect all containers or successfully identify the suspicious ones for inspection, and an overemphasis on containerized cargo (terrorists could use non-container cargo vessels to smuggle illicit materials or execute a seaborne attack).

G.   ASSESSMENT OF SECURITY MEASURES

Various UAE authorities have provided some clues as to the costs of these security measures' implementation. The operations manager at Gulftainer, who operates the Sharjah and Khor Fakkan facilities for the Sharjah Ports Authority, claimed that the firm's "initial investment in ISPS compliance" was Dh30 million, (approximately $8 million dollars), as part of a total $40 million dollar investment in security at the Sharjah ports.[152] In 2007 DP World's security chief announced that the company was investing another $300 million in security for the firm's 42 terminals, approximately $7 million per terminal if those costs were spread around DP World's facilities evenly.[153] When announcing the initial ISPS-driven investment in security for Sharjah, Gulftainer did admit that the requirements of ISPS would probably cause an increase in port costs and fees both within UAE and around the world.[154]

To date it is unclear whether ISPS has encouraged trade through UAE ports by improving security standards, discouraged trade by increasing security costs, or had no real effect at all. The impacts of ISPS-driven security measures are difficult to separate from security measures implemented due to other motives (DP World's global expansion and accompanying campaign to be perceived as the best port management firm in the

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[152] Jamila Qadir, "Sharjah Ports Authority to Invest $40m for Security Measures," *Khaleej Times Online*, July 30, 2004, http://www.khaleejtimes.com/DisplayArticle.asp?xfile=data/business/2004/July/business_July515.xml&section=business (accessed October 23, 2007).

[153] Rahman, "DP World Will Invest Dh1.1b in Port Security."

[154] Qadir.

world), or the economic boom in Dubai which has spread to neighbors such as Ajman and Sharjah. Available data indicates that trade has not decreased since ISPS implementation in 2004. Throughput at Dubai's container ports increased 17% between 2005 and 2006, after increasing 18.5% between 2004 and 2005, and 24.9% between 2003 and 2004.[155] "Container and General Cargo volumes" increased an average of 23% yearly between 2004 and 2007.[156] Dubai's "total non-oil foreign trade" increased across the board in 2007, 29.6% overall, including a 48% increase in exports, 35% increase in imports, and a 28.7% increase in re-exports.[157] Any costs associated with implementing port security measures clearly have not hindered trade in a thriving Dubai. Both container throughput and tonnage of other cargo increased in Ajman during the same period as well.[158] Port calls at Ajman, however, a hub for the dhow trade between turbulent spots such as Iraq and the Horn of Africa, actually decreased between 2006 and 2007, with the decline blamed on "turmoil in Iraq" and "renewed violence in Somalia." Piracy and conflict between Somali militias, the Islamic Courts Union, and Ethiopian forces may have hit UAE-based shipping especially hard, as "about 90% of merchant vessels entering Somali waters are from the UAE."[159]

H.   CONCLUSION

Port and maritime security in UAE is not uniform, as it is characterized both by the industry-leading practices of multi-national conglomerates such as DP World and the customary business practices of the small dhow ports engaged in a regional trade that has existed largely without change for centuries. Dubai and its surrounding environs are undergoing drastic changes, with substantial investment by the state and its subsidiary commercial entities in a so far successful plan to transform the Emirate into a sort of Las

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[155] DP World Websit; *Review of Maritime Transport: 2006* (Geneva: United Nations Conference on Trade and Development, 2006), 78; *Review of Maritime Transport: 2007*, 88.

[156] DP World Website.

[157] "Dubai's non-oil foreign trade rises 29.6 percent to AED 678.5b," *Mena Report*, January 27, 2008, http://www.menareport.com/en/business/221449 (accessed January 28, 2008).

[158] "Expansion for Ajman Terminal," *Gulf Industry Magazine*, August, 2006, http://www.gulfindustryworldwide.com/bkArticlesF.asp?IssueID=240&Section=767&Article=4684 (accessed October 23, 2007).

[159] Nash.

Vegas/Singapore/London hybrid on the Persian Gulf. Poor security practices in the smaller ports may provide a window for terrorists to attack maritime infrastructure and exploit the sea for their own gain. That potential mismatch between security practices in UAE ports may undermine the Emirates' significant investments in all aspects of state security, and its demonstrated willingness to cooperate with Western security agencies (at least in cases such as Nashiri's).

The scanning and inspection of container cargo has been one of the primary areas of emphasis for port security in UAE and the world as a whole. While the inspection of container cargo is a desirable goal and an effective inspection regime may prevent the shipment of dangerous items such as radioactive materials, serious concerns remain regarding the effectiveness of current scanning technology, and the ability to target containers for inspection. There are many containers, and it is impossible for authorities to inspect them all. Devoting an inordinate amount of resources to programs which may not be able to accomplish the mission of total container inspection, may allow illicit actors to still use containers to ship their cargo, and also exploit other forms of transport, neglected by authorities fixated on containers. Corruption and lax enforcement of the current strict security standards may also leave ample room for illicit actors to operate.

No port in UAE has been the site of a terrorist attack since the implementation of ISPS, and the ports have flourished along with the burgeoning local economy. Regardless of the local rulers' attitude towards radical Muslim terrorists, it seems likely that terror attacks within the Emirates would probably be bad for business, and development in Dubai has been shaped by a desire to create a business-friendly environment. The potential for attacks remain, as well as vulnerabilities as yet unaddressed by the physical and technological measures that have been the primary area of investment in security thus far. If there are costs associated with stricter security standards, UAE, particularly Dubai, demonstrates an instance where the state has been capable of absorbing those costs on behalf of shippers and consumers.

IV.   IRAQ

A.   INTRODUCTION

If maritime security vulnerabilities in Saudi Arabia revolve primarily around threats from indigenous Al-Qaeda cells, and in UAE from difficulties in reconciling modern and traditional maritime standards and practices, in Iraq they currently derive mainly from the infiltration of the security forces charged with protecting Iraq's maritime infrastructure by militias and criminal groups engaged in widespread corruption and theft. This concern with the illicit use of Iraqi ports compounds those associated with more traditional conceptions of maritime terrorism, as an actual seaborne terror attack has occurred in Iraq. Although operatives of Abu Musab al-Zarqawi's Al-Qaeda in Iraq failed to strike home against Iraq's Al Basra Oil Terminal (ABOT) in the northern Gulf, killing only three U.S. servicemen, that April 2004 act represented one of the few actual attempts by jihadists (the only one since the 2002 attack against the French tanker LIMBURG) to engage in the sort of seaborne terrorism against a significant maritime target so often hypothesized in the worst-case scenarios of terrorism analysts. Despite the potential dangers associated with such an attack, observers of Iraq's maritime sector have since shifted their focus to the negative impacts of militia infiltration on maritime security. While the threat from another ABOT-style attack is significant enough that the coalition has devoted its efforts at sea primarily to protecting the oil export terminals, Iraq presents other examples of how implementing better port security measures may not ultimately keep ports safe.

Unlike Saudi Arabia and UAE, Iraq's ports are not in compliance with the ISPS code. Like Saudi Arabia and UAE, however, significant investments have been made in improving Iraq's port security. In Iraq these improvements have been financed by the coalition, as part of a larger reconstruction plan ideally aimed at repairing the damage inflicted by decades of war and sanctions. Since reopening after the invasion, Iraq's ports have been very busy; a development probably caused more by pent-up consumer demand than any feelings of security experienced by shippers trading in Iraq.

The majority of port security measures implemented in Iraq address physical security, leaving significant vulnerabilities in the area of verifying identities and credentials (widespread corruption means that anyone with the right amount of cash or party ties can secure some access to port facilities) or cargo and supply chain security. While turning major ports into armed camps and building a strong Iraqi Navy are positive steps towards implementing strong physical security measures, many avenues remain for the possible illicit use of Iraq's ports. Militias associated with Shia political parties have infiltrated many of the Iraqi security services charged with protecting maritime infrastructure. Corruption and crime have blossomed, with trade in stolen crude oil and resold refined fuel products a lucrative business. Conflict over the spoils associated with control over Iraq's ports and maritime oil installations presents a serious vulnerability that may undermine significant coalition investment in other port security programs.

B.   PORT OVERVIEW

Possessing only a narrow, marshy coastline on the Persian Gulf, squeezed between Iran and Kuwait, Iraq has few deepwater ports. Ensuring or maximizing access to the sea has played a central role in disputes and conflicts with its neighbors since Iraq was carved out of the remains of the Ottoman Empire by the British after the First World War. The effect of "coastal scarcity" on Iraq's maritime access has been compounded by other factors, as the Shatt al-Arab (the waterway formed by the mouths of the Tigris and Euphrates, which empties into the northern end of the Persian Gulf), has long been degraded by environmental factors (silting of the mouth of the Shatt) and armed conflict. Almost thirty years of war have prevented Iraq's ports from operating freely and normally.

Iraq's primary formal port facilities are Umm Qasr and Khor al Zubayr (KAZ). Both Umm Qasr and KAZ are located along the Khor al Abdalla waterway, a channel which forms the west side of the Al Faw Peninsula. The Shatt al Arab is along the eastern side of Al Faw. Another facility, Abu Flus, located along the Shatt south of Basra, rose to prominence during the nineties, when state-sponsored oil smugglers used it during the post-Desert Storm sanctions era to load oil for shipment and sale elsewhere in

the Persian Gulf, primarily UAE. All of the Iraqi ports have been busy since the 2003 invasion, with commercial operations recommencing quickly after Saddam's fall.

After the invasion the coalition quickly declared Umm Qasr the "official port of entry into Iraq," and regular RO-RO service carrying reconstruction and humanitarian goods between Dubai and Umm Qasr began in June 2003.[160] Service to Abu Flus has been more irregular than at Umm Qasr, driven largely by concerns over the navigability of the Shatt, but has nevertheless been heavy despite a lack of actual RO-RO berths, with vessels (including RO-ROs) traveling there from multiple UAE ports, including Ajman, Hamriyah, and Dubai.[161] Despite these ports' decrepit infrastructure and Iraq's infant consumer economy, they have proved vital gateways for the entry of both reconstruction supplies and consumer goods.

In addition to these inland ports, two offshore oil terminals located in the northern Gulf, the Al Basra Oil Terminal (ABOT) and the Khor al Amaya Oil Terminal (KAAOT), serve as the primary export facilities for Iraqi oil. ABOT and KAAOT "deliver some 1.6 million barrels of crude oil, at least 85 percent of Iraq's output, to buyers from all over the world."[162] It is almost impossible to overstate the importance of these facilities to the Iraqi economy and government, as oil exports from the Basra governorate accounted for "nearly 90 percent" of Iraq's "budget of $40 million" in 2007.[163]

The U.S. has declared that rebuilding Iraq's ports is a critical reconstruction goal, and that eventual ISPS certification (at least for Umm Qasr and KAZ) is part of that process.[164] As of 2006 the U.S. had "contributed over $34 million dollars towards port

[160] Terence B. Moran, "Port of Umm Qasr: Challenges and Opportunities," *United States Naval Institute. Proceedings*, July 1, 2006, 72-74, http://www.proquest.com/ (accessed February 21, 2008).

[161] "Port of Abu Flus," UK Maritime Trade Operations - Dubai, 2005, 1.

[162] Pratep Chatterjee, "Mystery of the Missing Meters: Accounting for Iraq's Oil Revenue," *Corpwatch*, March 22, 2007, http://www.corpwatch.org/article.php?id=14427 (accessed October 24, 2007).

[163] Sam Dagher, "Basra Oil Fuels Fight to Control Iraq's Economic Might," *The Christian Science Monitor*, September 19, 2007, http://www.csmonitor.com/2007/0919/p12s01-wome.html (accessed October 24, 2007).

[164] "Iraq Reconstruction Director Visits Umm Qasr Port," U.S. Embassy Baghdad, 2006, http://www.usembassy.gov/iraq/20060528_umm_qasr_port.html (accessed October 24, 2007); "Umm Qasr - Port Management Update," UK Maritime Trade Operations - Dubai, 2005, 1; "Khor Az Zubayr - Port Management Update," UK Maritime Trade Operations - Dubai, 2005, 1.

projects,"[165] and by 2007 the U.S. Army Corps of Engineers had "invested $67.5 million to rehabilitate" ABOT.[166]   Port reconstruction projects, in addition to building new berths, dredging old ones, removing unexploded ordnance, repairing cargo-handling facilities, and upgrading RO-RO berths, have also directly addressed security needs, most prominently "a 9.7 km security fence around the perimeter with 19 observation posts" at Umm Qasr. Reconstruction of the facilities at Umm Qasr has greatly increased the port's operations. By 2006, at least 80 ships were offloading monthly, with volume increasing "across a range of commodities including cement, sugar, and wheat."[167]   The port's capacity also increased, as U.S. Army Corps of Engineer improvements to Umm Qasr's RO-RO terminal doubled "the number of the ships that can dock and unload simultaneously" meaning "more goods delivered and more income for the port and its workers."[168]

Despite some successes at restoring Iraq's vital maritime infrastructure, the U.S. and coalition reconstruction effort has entailed complications, difficulties, and failures as well. As noted earlier, oil exports are critical to the functioning of Iraq's economy and government, with ABOT and KAAOT critical nodes in crude oil's flow from Iraq. However, for much of the occupation, the "oil metering system that is supposed to monitor how much crude flows into and out" of the terminals did not work. Recently repaired, the failure to implement what seemed to have been be a relatively simple technical fix over a period of several years has been variously blamed on insecurity in Iraq, or the incompetence of Halliburton and Parsons, the two firms contracted to fix the meters. The lack of an effective metering system meant that there was no way to measure how much oil was exported through the terminals and loaded onto tankers. In addition to being wasteful, this situation provided opportunities for shippers to smuggle oil since there was no certifiable way to measure the amount of oil taken onboard.[169]

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[165] "Iraq Reconstruction Director Visits Umm Qasr Port."

[166] Grant Sattler, "Al Basrah Oil Terminal Renovation Project Nears Completion," U.S. Army Corps of Engineers, August 11, 2007, 1.

[167] "Iraq Reconstruction Director Visits Umm Qasr Port."

[168] Mohammed Aliwi, "Roll-on Roll-Off Basrah Berth Turned Over to the Iraqi Port Authority," U.S. Army Corps of Engineers, September 26, 2007.

[169] Chatterjee.

Halliburton and Parsons are not the only firms under fire because of contracts they received for the reconstruction of Iraq's maritime infrastructure. The coalition awarded Maersk, the Denmark-based conglomerate and shipping giant, a contract to operate KAZ after the 2003 invasion, a move seen by critics as a simple quid pro quo from the Bush administration in order to gain Danish support for the invasion. Before it transferred control of KAZ to the Iraqi Ports Authority (IPA) in March 2005, Maersk was faced with numerous allegations of mismanagement and mistreatment of Iraqi employees.[170]

Journalists have leveled similar criticism at Stevedoring Services of America (SSA Marine), a staunch anti-union U.S. firm with "a history of tight political connections with the White House," who the coalition awarded "a $4.8 million no-bid contract to operate the port of Umm Qasr" in 2003. Anti-globalization activists believe that the SSA contract was not just a reward given to an administration friend, but an effort to strangle at birth any embryonic labor movement in post-Saddam Iraq.[171] SSA turned operations of Umm Qasr over to the Iraqi Ports Authority in June 2004, immediately before the dissolution of the Coalition Provisional Authority (CPA).[172]

Regardless of the validity of these allegations, they have placed a cloud over coalition attempts to reconstruct Iraq. Even if these disputes were simply the result of misunderstandings between the locals and reconstruction officials, they have hurt the coalition's maritime reconstruction program, which requires not just the rehabilitation of physical infrastructure, but also the Iraqi adoption of internationally recognized maritime standards and practices. While the physical status of port facilities is important, the manner in which port operations are conducted is also important, particularly in areas regarding port security. According to one participant in the port reconstruction efforts, Iraqis are "unfamiliar with the inter-modal system or the business processes of the shipping industry," practices which "have evolved over the many years since Iraq traded

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[170] Lotte Folke Kaarsholm, Charlotte Aagaard, and Osama Al-Habahbeh, "Iraqi Port Weathers Danish Storm," *Corpwatch*, January 31, 2006, http://www.corpwatch.org/article.php?id=13196 (accessed October 27, 2007); "Khor Az Zubayr - Port Management Update," 1.

[171] David Bacon, "Umm Qasr -- from National Pride to War Booty," *Corpwatch*, December 15, 2003, http://www.corpwatch.org/article.php?id=9408 (accessed October 27, 2007).

[172] "Umm Qasr - Port Management Update," 1.

legitimately." Shipping is no longer the "cash-and-carry business" it was in the Saddam era.[173] If Iraqis suspect that reconstruction efforts are simply the local manifestations of American neocolonialism, then they may be less likely to embrace industry-standard port security practices.

C.   TERRORISM AND IRAQ

Iraq has been the site of one of the most famous recent maritime terror attacks. The April 2004 suicide small boat attack by Al-Qaeda in Iraq (AQI) operatives against the ABOT, although unsuccessful in the sense that it failed to hit the platform itself (two U.S. Navy and one U.S. Coast Guard personnel were killed when their small boat was struck while attempting to intercept the AQI attack), sent shockwaves through the oil and maritime industries. As mentioned earlier in the chapter on Saudi Arabia, this attack occurred around the same time as several attacks by AQ in Saudi Arabia against oil-related targets, all of which helped to push global oil prices higher. One assessment at the time was that if the attack had succeeded, "Iraq could have been dealt a serious economic blow and the oil spill might have rivaled the 1989 Exxon Valdez environmental disaster in Alaska." Continued protection of these "lucrative targets" by Iraqi and coalition forces has become an essential, high profile mission.[174] The oil terminals are not Iraq's only maritime vulnerability, however. Iraqi ports and the vessels calling at them may be susceptible to small arms attack. One American naval officer involved in the reconstruction efforts assessed that such an attack "could effectively end traffic" to Umm Qasr, citing the drastic increase in maritime insurance for ships calling in Iraq after the 2004 ABOT attack.[175] Of course, this reasoning assumes that shippers trading in Iraq have actually purchased insurance, or that when faced with a choice between trading in Iraq without insurance, or not trading due to the high costs of insurance, would choose the latter option. Despite those considerable vulnerabilities,

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[173] Moran.

[174] Tony Perry, "THE CONFLICT IN IRAQ; Sailors Guarding Oil Live on 'Target No. 1'; After a failed effort by insurgents to blow up platforms for essential exports of crude, the Navy put personnel aboard the terminals [HOME EDITION]," *Los Angeles Times*, February 25, 2005, http://www.proquest.com/ (accessed February 21, 2008).

[175] Moran.

however, there have been no attacks by AQI or other groups against Iraq's maritime infrastructure since the 2004 ABOT attack, a development that can possibly be explained by the strong presence of Shia militias in the region's security services, or the effective implementation of coalition maritime security practices.

Another aspect of maritime terrorism that impacts Iraq is the pervasive presence of Shia militias and political parties in the Basra region. While not necessarily a threat to coalition forces (although the Sadrist-aligned Jaysh al-Mahdi and its splinter groups have regularly engaged coalition forces in the past), militias aligned with Shia parties such as the Supreme Islamic Iraqi Council (SIIC, formerly known as the Supreme Council of the Islamic Revolution in Iraq, or SCIRI), Fadhila, and the Sadrists, have infiltrated the security services which protect and operate Iraq's maritime infrastructure, including ports and oil export facilities. Numerous reports have alleged that these parties are either complicit with, or are directing, elements that are engaged in widespread illicit maritime activities, particularly the smuggling of crude oil and refined fuel products. While smuggling and the crime associated with it may not present immediate security threats, the inability of Iraq's security services either to protect Iraq's maritime infrastructure, or to refrain from exploiting their access to graft and corruption, may significantly degrade Iraq's economic development. Continued militia involvement in corruption may also fuel the continuing (often violent) struggle by these parties for control of the resources of the Iraqi state, ultimately forestalling the establishment of a peaceful political system in Iraq.

D.   SECURITY MEASURES: PHYSICAL SECURITY

A significant portion of the coalition reconstruction efforts in Iraqi ports have been devoted to improving physical security. In Umm Qasr, the U.S. Army Corps of Engineers erected a "9.7 kilometer chain link security fence around the perimeter of Umm Qasr North Port and South Port," and built "19 observation posts, two points of entry, and interior and exterior truck staging areas."[176] According to British forces located nearby, the 280 guards at Umm Qasr have been "reasonably well trained and motivated" as well as "receptive to any advice offered with regard to security

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[176] A. Al Bahrani, "Army Engineers Help Develop Iraq's Port Capacity," U.S. Army Corps of Engineers, January 21, 2007.

enhancements" from the coalition.[177] In KAZ, meanwhile, the coalition built a "2 meter wall topped with barbed wire" around the facility, enclosing the port with only a single point of entry.[178] Royal Navy personnel from Britain's Maritime Trade Operations office in Dubai (UKMTO-D) assessed in mid-2005 that both Umm Qasr and KAZ were "safe environments in which to work and do business."[179]

Another pillar in the effort to enhance the physical security of Iraq's ports is the development of a well trained Navy and Coast Guard, capable of securing Iraqi waters and operating as a partner with the U.S.-led naval coalition in the Gulf. By 2006 the new Iraqi Navy was composed of 10 "fast aluminum boats, each 15 feet long; five Chinese-made patrol boats, each 40 feet long; and 10 dinghy-style boats."[180] In addition to this small naval force, a new Iraqi Coast Guard is also standing up, with its new facility at Umm Qasr giving it "a secure forward operating base along the Khor Az Zubair waterway," vital to increasing "the level of security for both the ports of Umm Qasr and Khor Az Zubair."[181] By June 2006, the Iraqi Navy had become "fully integrated into the Coalition Maritime Force," and the operational relationship with Kuwait had improved as well, with "Iraqi and Kuwaiti Naval and Coastguard units" participating in "monthly joint exercises."[182] New Iraqi doctrine emphasizing a combined approach to operations is reflected in how the coalition protects the oil terminals. Often described as "possibly the most heavily guarded pieces of economic infrastructure owned by the Iraqi government," ABOT and KAAOT are manned by both U.S. and Iraqi military personnel.[183]

Despite these clear improvements, the operational capabilities of the Iraqi forces engaged in maritime security vary. Optimists claim that "the additional security will

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[177] "Umm Qasr - Port Management Update."

[178] "Khor Az Zubayr - Port Management Update."

[179] "Umm Qasr - Port Management Update."

[180] James Glanz, "Iraq's Big Port has Commerce, Crime - Even Camels," *New York Times*, July 1, 2006, http://www.nytimes.com/2006/07/01/world/middleeast/01port.html (accessed October 24, 2007).

[181] "UMM QASR BASE BOOST TO STABILITY," *US Fed News Service, Including US State News*, October 5, 2006, http://www.proquest.com/ (accessed February 21, 2008).

[182] "UKMTO Dubai Briefing 28 June 2006: Transfer of Command - CTF158 (Northern Gulf)," UK Maritime Trade Operations - Dubai, 2006, 2.

[183] Perry.

foster prosperity and enhance the unity of the Iraqi people," and "give Iraqis the tools to effectively fight" enemies and illicit actors such as "oil smugglers."[184] One U.S. naval officer even claimed that despite "challenges of training and equipment," The Iraqi navy is competent enough that "if we pulled out today" it "could run itself."[185] The Iraqi forces have demonstrated competence in terms of their ability to "carry out the routine law enforcement chores" such as "intercepting smugglers," and combating "small-time pirates."[186] There is evidence, however, which indicates that a great deal of illicit activity still occurs in Iraqi waters. In particular, at least one Iraqi naval officer has identified cooperation between Iraq's Navy and Coast Guard as a major stumbling block, claiming that the Ministry of Interior-controlled Coast Guard has been infiltrated by "local militias" complicit in smuggling. The strained relations between the two organizations have led to claims that operations with Kuwait have been easier to coordinate than those between Iraq's sea services.[187] While Iraq's ports seem more secure now than in the immediate aftermath of the 2003 invasion, the full extent and success of these improvements in physical security remain largely unclear, particularly if they do not address the problems of widespread access to ports by individuals engaged in illicit activities.

E.   SECURITY MEASURES: ILLICIT USE OF PORTS

The illicit use of Iraqi ports is not a phenomenon dating from the 2003 invasion. Corruption and smuggling have long been fixtures in Iraq's coastal region. The roots of much of the current activity in Iraq's ports can be traced to the state-sanctioned oil smuggling of the nineties. Saddam's government helped build a "sophisticated network of people smuggling contraband diesel fuel and commodities nourished during the 14 years of embargoes and UN sanctions."[188] During the nineties the most important smuggling activity was that of crude oil illegally shipped from Iraq, directly contravening

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[184] "UMM QASR BASE BOOST TO STABILITY."

[185] Glanz.

[186] Ibid.

[187] Ibid.

[188] Moran.

post-Desert Storm UN Security Council Resolutions, with the proceeds going only to Saddam and his ruling clique. Crude oil smuggling still takes place, alongside a burgeoning gray market in refined fuel products. The current smuggling networks are dominated by a web of corrupt officials, party militias, and tribal/family/clan groups. The economic and security impacts on Iraq are significant, with the proceeds from the state's most vital resource, oil, being skimmed off for the benefit of the few, and government-subsidized fuel being stolen and sold for a profit before it can be used by the population at large. Both forms of smuggling finance continued crime and internal conflict between militias and parties, as well as fueling additional competition over access to these state resources.

Smuggling of Iraqi oil is still widespread, despite the lifting of the Saddam-era sanctions, and the legalization of Iraqi oil exports. As mentioned earlier, broken meters on ABOT and KAAOT gave smugglers opportunities to steal oil. Shippers simply brought more fuel onboard than the "officially requested quantity," or produced falsified documents.[189] At the time, loads were measured manually by with a ""dhara" – a long ruler inserted into the tank," a human element in the loading process which allowed dishonest shippers to bribe the Iraqi officials (generally affiliated with a militia or party) to falsify the relevant reports.[190]

Even after the repair of the meters, smugglers are still able to steal oil from other points within Iraq's oil export infrastructure. The state-owned Southern Oil Company's "oil pipelines are regularly sabotaged and drilled into to steal crude and smuggle it outside Iraq." The Oil Protection Force, an Iraqi law enforcement agency within the Oil Ministry, manned primarily by members of Basra governor Muhammad al-Waili's Fadhila Party, has been accused of directly "colluding with the smugglers" (which the governor has denied).[191] The Basra Centre of Reconstruction, an Iraqi NGO, accused

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[189] Ghaith Abdul-Ahad, "Oiling the Wheels of War: Smuggling Becomes the Real Economy of Iraq," *The Guardian*, June 9, 2007, http://www.guardian.co.uk/Iraq/Story/0,,2099072,00.html (accessed October 24, 2007).

[190] "Smuggling Thrives in Basra," *Institute for War and Peace Reporting*, September 7, 2007, http://iwpr.net/index.php?apc_state=hen&s=o&o=l-EN&p=icr&s=f&o=338511 (accessed October 24, 2007).

[191] Dagher.

Iraqi law enforcement "of facilitating smuggling operations valued at an estimated 50 million dollars" during a two year period between 2005 and 2007. The Oil Ministry denies "that large-scale smuggling is taking place in Basra," blaming inefficiencies in the export process on factors other than theft. While "conceding" that 100,000 of the 1.6 million barrels exported from Basra daily ("worth about five million dollars") "went missing each day," an oil ministry spokesman argued that the discrepancy resulted not from "smuggling but on wastage – "useless materials like water and gas that are contained within crude oil but are not counted as part of the total amount.""[192]

Despite these official government denials, the anecdotal claims of shippers indicate that crude oil smuggling is widespread and lucrative. In one shipper's narrative of crude oil smuggling, he stated that "you rent an oil tanker and after your first trip you can buy the tanker." The potential profits of smuggling are correlated with the potential risks. Shippers claim that the price of stolen oil "depends on how far the smugglers carry it towards deep water, where there is more risk of being caught," with the oil ultimately ending up at "refineries in Yemen, the United Arab Emirates or as far as India."[193]

The smuggling of refined fuel products is also prevalent in Iraq. Multiple factors drive fuel smuggling, particularly the limited capacity of Iraq's refineries, high consumer demand for fuel caused by the proliferation of cars on Iraq's roads, and the widespread use of generators by many Iraqis to supplement the state's erratic and overwhelmed power system. In response to the need for fuel, Iraq's government imports refined fuel products from neighboring states, and resells that fuel to the public at a heavy discount, providing a significant subsidy. As of early 2007, gasoline which was then imported by the Iraqi state at 65 cents per liter was being officially resold at 25 cents.[194] The differential between the subsidized price in Iraq and market prices in neighboring countries, coupled with an inefficient system of state distribution of fuel (it is extremely difficult for the average Iraqi to actually get access to that $.25/liter gas) ensures that black market trading in stolen or diverted fuel has flourished since 2003.

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[192] "Smuggling Thrives in Basra."

[193] Abdul-Ahad

[194] "Smuggling Thrives in Basra."

This diversion of fuel occurs mainly in two ways. Individuals with access to Iraqi refineries or fuel imports can take possession of fuel cargo bound for sale in Iraq on tanker trucks or tanker ships, and instead redirect that cargo to tankers in Iraqi ports, which then carry that fuel from Iraq for resale somewhere else in the region such as UAE or Iran, a process generally facilitated by a few well-placed bribes.[195] Another common practice is for Iraqi fishermen to sell their government-subsidized fuel allotments to fuel consolidators or other vessels at sea and in need of fuel. Iranian ships can save a great deal of money by bunkering with these gray-market dealers, as the Iraqi-subsidized fuel may be up to 100 times cheaper than that available in Iran. Reselling their government-issued fuel can be a much more lucrative profession for Iraqi fishermen than fishing.[196] This phenomenon can cut both ways, with reports of Iranians selling stolen or subsidized fuel to Iraqi mariners as well. As of 2006 fishermen were smuggling approximately 1000 tons of diesel per day to consolidators waiting in the gulf.[197] Like crude, smuggled fuel is shipped throughout the region for resale.[198]

Of the 10 million liters of fuel (including gasoline, diesel, and kerosene), imported by Iraq daily, "between 10 per cent and 20 per cent of these legal imports will end up being diverted and sold on the black market," a process that hurts Iraqi consumers not only by limiting their access to vital commodities, but also by strengthening illicit distribution networks and their ability to engage in additional corruption. One expert has claimed that income from smuggling, benefiting only a tiny portion of the population, has triggered "high inflation in Basra…with the prices of everyday products soaring and living conditions deteriorating for most of inhabitants."[199]

The profitability of oil smuggling and a variety of other illegal activities have helped to make Iraq's ports the home of all sorts of criminal activity. Individuals and groups with access to the ports such as police, crane operators, and dockworkers exploit

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[195] Rory McCarthy, "Making a Killing in the New Iraq as Cars, TVs, Food and Fridges Flood in," The Guardian, December 8, 2003, http://www.guardian.co.uk/Iraq/Story/0,2763,1102143,00.html (accessed October 24, 2007); Abdul-Ahad.

[196] Chatterjee; Abdul-Ahad.

[197] Moran.

[198] Abdul-Ahad.

[199] "Smuggling Thrives in Basra."

those positions by taking bribes. Despite the positive assessments of Umm Qasr's safety mentioned earlier, corruption remains a significant vulnerability. According to the Iraqi Port Authority's liaison with the American embassy in Baghdad, "corruption is all but guaranteed" at Umm Qasr.[200] The ports are not valuable to Iraq's political parties just as a source of graft, however. They provide a rare source of employment in an Iraq which currently lacks a significant private sector economy, making port-related sinecures lucrative rewards for those linked to parties and militias. One local resident claimed that "you can only work at the port if you join a militia."[201] Despite official denials, some estimate that Iraqi ports employ "thousands of unnecessary workers," whose salaries account for a large percentage of Iraqi government waste.[202] Violent crime also plagues Iraq's ports. At least six murders were reported during 2006,[203] which may sound like a small number in an Iraq wracked by all sorts of violence, but nonetheless indicates some conflict over control of the ports. These "mafia-style killings" are linked to the "extremely lucrative oil-smuggling rackets."[204]

The Ashur are one family or tribal group that has allegedly benefited from oil smuggling and illicit activities in the ports. This group, described by one journalist as "a small clan of about 50 families" living along the Shatt al-Arab south of Basra, allegedly earns "about $5m (£2.5m) a week from smuggling oil." After low-level involvement in Saddam's oil smuggling apparatus as "guards at Abu Flus," the Ashur clan now possesses "underground oil tanks in their farms" along the river, which feed the fleet of small boats that deliver oil and fuel to waiting tankers in the northern Gulf.[205] Due both to their complicity in illegal activity, and "to avoid being targeted" by Iraqi Security Forces or the coalition, local tribal leaders such as Ashur notables have proved to be "not reliable

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[200] McCarthy; Glanz.

[201] Dagher.

[202] Glanz.

[203] Ibid.

[204] Michael Knights and Ed Williams, *The Calm before the Storm: The British Experience in Southern Iraq* (Washington: The Washington Institute for Near East Policy, 2007), 31.

[205] Abdul-Ahad.

partners in the fight against smugglers."[206] In addition to driving criminal violence, conflict over the lucrative smuggling apparatus has encouraged the development of relationships between smugglers and party-affiliated militias. The Ashur reportedly pays "$250,000 every week for gunmen just to make sure that we keep our terminals and preserve our rights."[207] The riches coming from access to Basra's ports and the region's maritime infrastructure virtually guarantee that they will remain a point of contention between Iraq's various Shia parties and their affiliated militias. By 2007, "with literally billions of dollars worth of oil bypassing the national oil export system into the domestic and external black markets, Basra had become financially indispensable to Iraq's Shiite militias."[208]

The politicization of Iraq's maritime infrastructure has ensured that port security is not the primary aim of those charged with providing it. Iraq's ports have become a battlefield contested by political parties and militias as part of an intense, often violent, intra-Shia feud. According to local observers, the various "Shia groups have divided up control of the city's resources - including the country's only seaport as well as its largest oilfields – in a precarious power arrangement which could implode at any time."[209] This "Fadhila-SIIC-Sadr feud" over economic "fiefdoms" has become "central to the balance of power between vying Shiite militia groups," and has led to the "weakening" grasp by Baghdad over southern Iraq, while conversely cementing the control by local militias and factions over the region.[210]

Iraqis claim that party and militia control over oil smuggling is particularly pronounced. The party-affiliated militias, after infiltrating the various security services, have allegedly used those powers to enrich themselves rather than protecting the state's critical assets, with "police and government officials" exploiting "the lucrative oil smuggling business run by clans and overseen by militia groups in the southern city of

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[206] *Where is Iraq Heading? Lessons from Basra* (Damascus/Amman/Brussels: International Crisis Group, 2007), 12.

[207] Abdul-Ahad.

[208] Knights and Williams, 31.

[209] "Smuggling Thrives in Basra."

[210] Babak Rahimi, "The Militia Politics of Basra," *The Jamestown Foundation Terrorism Monitor*, July 6, 2007, 3.

Basra." Honest officials claim that police cooperate "with mafia gangs to smuggle oil," and that they have been prevented from arresting "gang members because of their links to the authorities and the militias."[211] The oil smuggling infrastructure set up by Saddam in the nineties has been taken over by "Shia militias and their cronies,"[212] who control "each stage of the export process," ranging "from extracting the oil from the refineries or terminals, to bringing it safely past the border guards and navy vessels."[213]

Among the parties who have attempted to exert their control over the Basra region's resources include SIIC, whose paramilitary wing had been known as the Badr Corps or Badr Brigade before becoming the Badr Organization after the 2003 invasion. The most powerful of Iraq's Shia parties (and one of the senior partners in Iraq's ruling coalition), SIIC/Badr has been very successful at placing its members in important billets within Iraq's security services, with its members particularly "influential in the intelligence service." Some reports claim that SIIC personnel are the real authority in KAZ.[214]

Despite the presence of SIIC members and other smaller parties/militias in Iraqi ports, most of the conflicts there have pitted partisans of Fadhila (the Islamic Virtue Party) against those of the Office of the Martyr Sadr (OMS). Both parties are "Sadrist" in the sense that they revere the legacy of Muhammad Sadeq al-Sadr (Muqtada al-Sadr's grandfather). Fadhila is led by Ayatollah Muhammad al-Yaqubi and is primarily a regional party with its membership concentrated in the Basra area. Muqtada al-Sadr's OMS (and its affiliated militia, Jaysh al-Mahdi or JAM) possesses a much more national following, with Shia residents of Baghdad its main support base (but with adherents spread throughout all of Iraq's Shia communities).

Fadhila's main asset has been control of the state-owned Southern Oil Company (SOC) by Basra governor and senior party member Muhammad al-Waili, as well as intermittent possession of the oil ministry in the national government, which has allowed

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[211] "Smuggling Thrives in Basra."

[212] Abdul-Ahad.

[213] "Smuggling Thrives in Basra."

[214] *Where is Iraq Heading? Lessons from Basra*, 11-12.

its members to infiltrate and dominate the ranks of the Oil Protection Force (OPF).[215] The stakes of Iraqi politics are high, with the governor already having deflected multiple attempts by rival parties and the Baghdad government to remove him from office.[216] Fadhila has used its control over the Basra government "to name its members to important positions," providing a local base of power. Through its control over SOC and the OPF, which is "responsible for safeguarding wells, refineries, and pipelines," Fadhila "essentially is in charge of the oil infrastructure." The party has also allegedly used control of Umm Qasr to transform the port into "the locus of all kinds of trafficking." Fadhila adherents are reportedly involved in every stage of the smuggling process, accused of "siphoning off diesel at its source, embezzling what it is supposed to monitor," and then supporting the "gigantic and highly sophisticated mafia, comprising smugglers, middlemen, accomplices within the oil ministry and so forth" which make the trafficking possible.[217] The governor and Fadhila have faced a great deal of criticism regarding their handling of Iraq's oil infrastructure, with Muqtada al-Sadr blaming them for energy shortages which have crippled the entire country.[218] The governor rebutted that charge with nationalist rhetoric, labeling the allegations "a smear campaign orchestrated by pro-Iranian parties."[219]

The Sadrists have also been accused of bearing a great deal of responsibility for smuggling. They have infiltrated multiple security services, including the police force, the Facilities Protection Service (an agency tasked with securing infrastructure from within the Transportation Ministry, a cabinet post occupied by the Sadrist parties until their withdrawal from the governing coalition in April 2007),[220] and the Basra port

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[215] "Smuggling Thrives in Basra."

[216] *Iraq's Civil War, The Sadrists and the Surge* (Baghdad/Damascus/Brussels: International Crisis Group, 2008), 15.

[217] *Where is Iraq Heading? Lessons from Basra*, 11-13.

[218] Rahimi, 3.

[219] Dagher.

[220] The current Interior Minister, Jawad al-Bolani, although currently nominally independent, has previously been affiliated with a variety of Shia parties including Fadhila, Da'wa (Prime Minister Nouri al-Maliki's party), Hizbollah, and Ahmed Chalabi's Iraqi National Congress. He now maintains "reportedly close ties to the Sadrist movement." *Iraq's Civil War, The Sadrists and the Surge*, 5.

authority.[221] Abu Flus is reportedly the main port controlled by the Sadrists.[222] The extent to which this activity is condoned by the party's leadership is unclear. One party member claimed that when meeting with Sadrist leaders in Basra, Sadr "scratched his nose and said mockingly, "I smell the smell of gasoline,"" thereby "accusing his own representatives of smuggling oil."[223]

Whether smuggling is an activity directed or condoned by the party leadership, when coupled with Sadrist control of a "network of petrol stations" providing "staple commodities" like "petrol, propane, and kerosene," the Sadrists have established a vertically-integrated near-monopoly dominating the importation of vital commodities and their distribution to the consumer.[224] Whether or not control of Iraq's ports is an explicit strategy of these Shia parties and militias, control of Iraqi maritime infrastructure has proved highly lucrative for Iraqi political actors.

The widespread corruption of Iraqi authorities has largely pushed the responsibility of maritime security and law enforcement to the coalition. Smugglers claim that their primary concern is "being stopped by patrolling US or British vessels," although they think those risks are mitigated when carrying some form of documentation, even if false or inaccurate, as smugglers believe that the coalition only checks to see if shippers are carrying "official papers," regardless of whether that paperwork is actually accurate. Shippers (rightly) believe that Iraqi or Iranian authorities are much more susceptible to bribes than the coalition.[225] Iraqi smugglers have also reportedly flown Iranian flags in order to use Iranian waters (off-limits to coalition, Iraqi Navy, and Iraqi Coast Guard vessels), with Iraqi maritime police killed or wounded by Iranians while chasing smugglers along the border between the two states' territorial waters.[226] Even if caught in the act, it is difficult for the coalition to take action against smugglers: it is not necessarily clear whether fishermen selling their fuel allotments constitute an illegal act,

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[221] "Smuggling Thrives in Basra."

[222] Abdul-Ahad.

[223] *Where is Iraq Heading? Lessons from Basra*, 12.

[224] *Iraq's Civil War, The Sadrists and the Surge*, 7.

[225] Abdul-Ahad.

[226] "Smuggling Thrives in Basra."

and it can also be difficult for coalition personnel to differentiate between the various products being sold, smuggled, or transferred at sea. When caught, smugglers can evade capture by simply "leaking" or "dumping" their cargo and pretending that nothing untoward had happened.[227]

F.   ASSESSMENT OF SECURITY MEASURES

Coalition efforts to restore Iraq's maritime infrastructure have been quite successful in terms of increasing port throughput and capacity, with a significant investment in physical security an important part of that effort. By 2006, "as many as 80 ships" were offloading at Umm Qasr monthly, that amount of cargo filling "over 20,999 trucks." Cargo volumes have increased "across a range of commodities including cement, sugar, and wheat."[228] Revenues also rose, with "port fees collected at Umm Qasr" increasing "from around $600,000 a month in late 2004 to more than $2.5 million" by mid-2006,[229] likely reflecting a combination of increased throughput and the capacity of organizations entrusted with collecting the fees. Maritime crime has even decreased, with 70 merchant vessels reporting criminal attacks in 2004, a number falling to 25 between January and June 2005, and zero between January and June 2006.[230]

These impressive gains in cargo throughput and port productivity reflect a degree of success in rebuilding Iraq's ports and implementing some security improvements. Seaborne terrorism remains a threat, however. While the coalition and Iraqi authorities significantly increased the size and scope of security forces deployed at the oil terminals after the April 2004 attack, Iraq's maritime infrastructure still has vulnerabilities not addressed by having more men guarding ports and more ships patrolling in the vicinity of the oil platforms. The potential economic cost of a future attack is daunting. "War risk insurance" for vessels calling in Iraq increased from $35,000 to $140,000 after the ABOT attack.[231] While not on the same scale as that attack, a relatively low-risk attack by

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[227] Moran.

[228] "Iraq Reconstruction Director Visits Umm Qasr Port."

[229] Glanz.

[230] "UKMTO Dubai Briefing 28 June 2006: Transfer of Command - CTF158 (Northern Gulf)," 2.

[231] Those rates were for a "500-container vessel."

RPGs or mortars could "wreck" a port such as Umm Qasr's "commercial viability" if shippers decide that the benefits of their currently profitable Iraq routes are outweighed by the potential danger and costs associated with violence in the ports.[232] All the available data indicates that maritime traffic to Iraq did not decrease after the ABOT attack, in spite of those high insurance costs, although it is unclear whether that continued maritime traffic resulted from confidence in the coalition's ability to guard Iraqi infrastructure, or the handsome profits to be gained from shipping to Iraq, regardless of the security environment. While militia dominance of the region's security services seem to make such an attack on maritime infrastructure currently unlikely (there is no incentive to destroy something that they are profiting from), continued conflict between those groups means that such an attack could be a possibility if the militia balance of power shifts.

The reconstruction of Iraq's ports is not a straightforward narrative of increased state or coalition control of maritime infrastructure, resulting in increased productivity and throughput. Previous efforts to regulate trade have impacted the flow of goods into Iraq. Prior to mid-2004, a Coalition Provisional Authority (CPA)-mandated "reconstruction levy" was collected at sea by the coalition for ships bound to Umm Qasr and KAZ. This tax gave many ships an incentive to offload their cargoes at then-unregulated Abu Flus, thus saving money (by avoiding the levy) and time (by avoiding coalition boarding of their vessels). That phenomenon ceased only after authorities began to enforce the levy against ships bound for Abu Flus as well, and then secured the jetties outside the actual Abu Flus facility that shippers had been using to illegally offload to avoid the fees.[233] Much of the current illicit behavior, particularly fuel smuggling, is driven by similar financial calculations. Fuel is stolen or diverted and then resold because of an artificially imposed price differential maintained by the state. As long as profits can be made trafficking fuel, groups such as the militias or criminal syndicates will fight over access to the lucrative maritime infrastructure.

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[232] Moran.

[233] *UNJLC Iraq Bulletin no. 6 of 2004* (United Nations Joint Logistics Centre, 2004), 2.

Clearly the productivity of Iraq's ports has soared since the 2003 invasion, but this has largely been driven by demand for consumer goods after Iraq's long economic isolation, and the large investment of reconstruction dollars by the coalition. The coalition has borne the costs of reconstruction, and traffic through the ports has been brisk enough that productivity has been high despite the healthy cut taken by the militias in the form of smuggled oil and corruption. While the coalition and Iraqis seem to have addressed the security vulnerabilities associated with an attack such as that on ABOT, the continued prevalence of smuggling, corruption, and militia infiltration may threaten that security in the long run. They may present opportunities for future attacks, and also degrade the operating environment in Iraq's ports, scaring away less risk-averse shippers.

G.   CONCLUSION

Port Security improvements in Iraq differ primarily from the states previously examined because they have occurred in the context of reconstruction (by the invaders) of national infrastructure. Unlike Saudi Arabia and UAE, Iraq's ports are not ISPS-compliant. Although the American Embassy has declared ISPS-certification an important goal, the coalition's first task has been to get the ports running, not to conform to international norms of maritime security. While the Saudis and Emiratis have been able to devote significant sums of money to the project of port security, much of the financial burden that would have been associated with implementing security measures in Iraq has instead been borne by the occupiers. The current security situation, in which armed Shia militias and security forces dominate the Basra region, and Al-Qaeda in Iraq forces have been significantly weakened throughout Iraq, does not seem to favor attacks by Sunni jihadists against maritime infrastructure. However, militia dominance of the security forces, and instability resulting from the associated corruption, crime, and intra-Shia conflict, may make maritime infrastructure an attractive target for one of those groups if their conflict intensifies.

Iraq's ports are thriving, with throughput and productivity increasing since they were reopened after the invasion. It is unlikely that this is the sole result of better port security. Iraq was effectively cut off from the global economy by over twenty years of war and sanctions, and currently robust consumer demand may have proved incentive

enough to induce shippers to ferry goods to post-war Iraq. Thriving ports seem to indicate that coalition and Iraqi attempts to implement stricter port security measures have not deterred a significant number of shippers from making that journey.

Because reconstruction efforts in Iraq's ports are still relatively new, there has been little effort to implement more stringent standards and practices to improve the verification of identities and credentials, or increase the security of cargo or the supply chain. The coalition has invested heavily in improving physical security, essentially fortifying Umm Qasr and KAZ, and attempting to establish and train effective maritime security forces. The small Iraqi Navy seems to be on a path towards operational effectiveness, and its interoperability with the coalition and Iraq's neighbors is an indicator of increasing capability. The ability of the other security forces remains a concern. They will continue to present the most significant maritime vulnerability in Iraq if they continue to function primarily as a fundraising arm for their affiliated political parties, or as partners of criminal organizations. While they may not present the classic terrorist vulnerability, as Iraq's ports seem quite productive even in light of their depredations, they present significant risks to Iraq's maritime infrastructure, economy, and security.

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V. CONCLUSION

A. IDENTITY AND CREDENTIAL VERIFICATION

Neither Saudi Arabia, UAE, or Iraq has devoted significant resources after 2001 to developing a comprehensive solution to the problem of providing a secure uniform credential to individuals with legitimate access to a port facility. A program such as UAE's new national identification card system, or the numerous checkpoints that stand between a potential terrorist and a maritime target in Saudi Arabia, may enhance security but do not provide a comprehensive system preventing illicit access to critical port infrastructure from both land and sea. These states have not signed the Revised Seafarer's Identity Documents Convention. Preventing terrorists or other illicit actors from accessing ports will require these states to rigorously enforce their relevant immigration rules regarding the entry of merchant seamen and passengers into the state via maritime ports of entry, as well as the operators of ports to properly vet all individuals working or accessing ports via land.

B. SUPPLY CHAIN AND CARGO SECURITY

Much of the global efforts toward enhancing port security globally have involved efforts to inspect container cargo. Containers have long proved their worth to smugglers as a method to move all sorts of illicit cargo. Rigorous inspection of container cargo is an important element of effective port security, and Dubai's involvement in CSI signals a desire to implement stringent, globally recognized security practices. The current program of targeted scanning of suspect containers is flawed, however. Enforcement agencies do not have the equipment or time to inspect all containers. Even the most robust algorithm designed to identify containers most likely to hold illicit cargo will not be foolproof. The tools used by customs officials to scan containers are also imperfect, and incapable of identifying a variety of illicit cargo, including "shielded" radioactive materials. It is somewhat ironic that it may be easy to hide radioactive material in a container, because the perceived threat from such a scenario has focused much of the emphasis within the realm of port security on the inspection of containers. It may be

worthwhile to devote a disproportionate amount of limited port security resources to the container problem if one is truly concerned with the threat posed by illicit shipment of radiological materials, thereby ignoring potential threats associated with non-container shipping, illicit access to ports, and flawed physical security. However, when the measures used to inspect containers do not accomplish their tasks, then a container-centric approach to providing effective port security has failed.

C.   PHYSICAL SECURITY

Saudi Arabia, UAE, and Iraq have invested heavily in improving the physical security measures of their ports. These states and the firms operating ports within them have found it relatively easy to justify and spend potentially billions of dollars to build stronger fences, install sensors, and employ large security forces devoted to protecting port facilities. It is clear that these efforts fail to provide comprehensive protection for ports, however. Saudi Arabia's massive expenditures on physical security may be undermined by the potential that AQ militants or sympathizers have or will infiltrate either security forces designed to protect coastal infrastructure, or the industries associated with maintaining that coastal infrastructure. The extent to which stories of AQ infiltration of the oil industry or security forces are true will be key in determining whether enhanced physical security measures in Saudi Arabia prove effective. UAE has made similar efforts to build stronger security for its ports, and the practices employed by industry leaders such as DP World may be the finest in the world. However, the extent to which similar protection is provided in the smaller dhow ports may create vulnerable ports which are close to and provide access to the larger ports involved in global trade. The coalition and the Iraqi government have made physical security in the ports an important cornerstone of their reconstruction program. The development of large and competent security forces are another important element in that effort. Currently, however, there are many concerns regarding the allegiance and professionalism of many of the Iraqi security forces charged with protecting Iraqi ports, concerns that may be exacerbated following any potential pull-out or drawdown of coalition forces.

D.   ILLICIT USE OF PORTS

If illicit actors have easy access to ports, then programs designed to protect a port may prove worthless. UAE has long been a smuggler's haven, with widespread involvement in the sale of black or gray market oil and fuel from Iraq one manifestation of that activity. Its residents and citizens have made it a significant source of funds for AQ, while its relatively lax financial regulations have made it a favored location for the laundering of money. However, it is also increasingly a surveillance state, and has demonstrated its willingness to cooperate with the U.S. in the case of Nashiri. Building a laissez-faire business and tourist paradise may conflict with some of the freewheeling practices of the past, but in many ways, it is precisely those practices that have made the Emirates such a desirable destination for business, legitimate or illicit. The extent to which UAE can clamp down on smuggling will involve a re-articulation of many of those principles. It remains to be seen whether the international jet-set can harmoniously exist side by side with dhow-borne smuggling networks, but the extent to which they do will demonstrate UAE's response to this problem. Iraq's dilemma is simpler. The ports are dominated by security forces that have been infiltrated by militias and political parties. While they have proven relatively effective in protecting Iraq's ports to date, this has probably been more because securing the ports is in the financial interests of their party or militia to do so, not because they have been charged with those tasks by the Iraqi state. If and when the interests of the parties do not coincide with the mission of port security, Iraq's ports may prove quite vulnerable.

E.   ASSESSMENT OF SECURITY MEASURES

ISPS compliance has not proved a difficult burden for Saudi Arabia and UAE. Although Iraq's ports have yet to comply with the code, the Iraqi government and occupying coalition have declared that compliance is desirable and an important element in the state's overall reconstruction program. Dubai's involvement in CSI reflects a similar view that involvement in international port security programs are not necessarily a burden imposed by the international community, but a desirable, potentially lucrative, symbol of inclusion in the international system. In fact, none of the data measuring trade

through the ports of these three case studies indicates any discernable negative impacts associated with the implementation of stricter security measures. While there may have been onerous costs associated with implementation, it has been impossible to identify those burdens in light of widespread increases in port throughput. Iraq, the only state yet to implement ISPS, has also experienced increased port throughput. The Iraqi case seems to demonstrate the potential for profits is incentive enough for shippers to trade in countries regardless of the security situation, at least up to a point.

Compliance may also represent the widespread acknowledgement of the potential impacts associated with maritime terrorism, particularly acts targeted against energy infrastructure. While this thesis has identified numerous vulnerabilities unaddressed by these states' response to ISPS and a worldwide drive to improve port security, there has only been one maritime or seaborne terrorist attack in the Persian Gulf since 2001, the 2004 attack on ABOT, which failed to actually strike the intended target. While there have been suspected plots in Saudi Arabia, and Nashiri was arrested after planning a potential seaborne attack in UAE, the reason for this lack of terrorist activity is unclear. Investment in port security may have resulted in regional ports possessing the capability to prevent and protect against attacks, terrorists may not be interested in striking at maritime targets at all (despite Usama bin-Laden's endorsement of attacks on maritime oil infrastructure), or terrorists just may not currently possess the necessary maritime expertise and are simply biding their time until they do. The actual answer to this question remains unknown, but the current system, dating from the 2004 implementation of ISPS, provides multiple vulnerabilities that terrorists can possibly exploit.

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