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FUNDING APPROPRIATION FOR U.S. SEAPORTS: A BRIEF ANALYSIS OF THE METHODS, FACTORS AND CONSEQUENCES OF THE ALLOCATIONS OF RESOURCES FOR PORT SECURITY

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EXECUTIVE SUMMARY

It was exactly 11:18 a.m. in the port of Aden, Yemen when a small craft ventured to the port side of a refueling U.S. destroyer. Under the supervision of Osama bin Laden, the craft exploded and created a 40 by 40 foot gash in the side of the *Cole*, killing seventeen sailors and injuring 39 others. On this October day in year 2000, the American people were propelled into discussions centered on U.S. security outside its large land mass. Although terrorism was not a new phenomenon five years ago, it had certainly not been on the radar screen of most American citizens. The attack on USS *Cole*, however, prompted a serious debate about maritime security.

Just as former President Clinton qualified the terrorist attacks as "despicable and cowardly", so too did Prime Minister Tony Blair refer to the July 7, 2005 London terrorist bombings as "barbaric" attacks on all civilized societies. Terrorism has become an integral focus of America's government programs due to its capability of creating massive destruction throughout innumerable facets of society.

Among many tactics to combat terrorism is to identify high-risk targets and prioritize investments accordingly. U.S. counter terrorism measures rely on reducing threats and consequences. The former is focused on reducing the probability of an attack and an attack's success; the latter concentrates on avoiding, mitigating, and compensating for an attack's consequences. Here lies the distinction between risk and consequence: risk embodies both threat *and* consequence.

It is quite common for economists and terrorism experts to develop models in order to assess risks. This tactic, however, leaves policy and lawmakers in the lurch because numbers and equations are less practical for their work. There is a need to provide a juncture for both sides of the community seeking to alleviate terrorism risks and consequences of a terrorist attack; numbers, models, theories, and political opinions provide a balance of systematic and theoretical perspectives. In this report, the political side of the issue is discussed within the context of port security funding; insight is provided on how funds are allocated on various technologies to reduce economic risks and casualties.

Port security falls under the umbrella of maritime security, which is itself a critical aspect of border security. U.S. seaports are exceptionally vulnerable targets for terrorist attacks and thus merit risk and consequence reduction tactics. The first section of this report focuses on the issue of port security in America: how much focus it receives, why the demand to fund ports, as well as the characteristics, vulnerabilities and stakeholders of seaports. In the next section, alternative funding opportunities available for imposing port security are discussed. The majority of federal funding for seaports comes from two major programs: the Port Security Grant Program and the Urban Area Security Initiative. Each grant funds a wide range of programs and technologies to improve security in domestic and foreign ports, embracing the global nature of the supply chain.

The Ports of Los Angeles/Long Beach and New York/New Jersey are used as case studies in this report as a means to illustrate how port security funds were appropriated. As two of the largest ports in America, each struggles to increase its funding and fully secure respective properties.

A number of themes and criticisms surface from these detailed accounts; politicians, professors, and public policymakers suggest methods of how to allocate limited resources. As we approach the year 2006, we note the similarity of issues evident in the 2000 attacks in Aden as there were nearly three weeks ago in London, England. Both suggest that terrorism poses an asymmetric risk with minimal tolerance for human lives; the question is how to prevent attacks and mitigate their consequences, how to create a system of personnel and technologies to prevent attacks and respond appropriately. Maritime security continues to be a large focus of the Secretary of the Department of Homeland Security: former Secretary Tom Ridge and current Secretary Michael Chertoff's mission are to distribute funds to high-risk ports first, and then to medium and low. Funding helps to train personnel, advance technological developments, implement security systems, and optimally, involve all sectors in the community in order to stabilize the U.S. seaport. The U.S. seaports, after all, stand as the backbone to the global supply chain and must continue to play a large role in the international political economy.

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I. INTRODUCTION

With 7,500 miles of border, 95,000 miles of shoreline and an incalculable quantity of airspace, border security is unarguably of great concern to the United States. The Department of Homeland Security (DHS) administers federal grant funding to land, maritime, and aviation security agencies each year; together these three funding components fall under the Border and Transportation Security Agency, accounting for $17.5 billion of the $48 billion 2005 Homeland Security budget.

Table 3–2. HOMELAND SECURITY FUNDING BY NATIONAL STRATEGY MISSION AREA

(Budget authority, in millions of dollars)

Agency	2004 Enacted	2004 Supplemental	2005 Enacted	2006 Request
Intelligence and Warning	242.2	.....	349.8	431.9
Border and Transportation Security	15,840.8	90.7	17,550.2	19,285.8
Domestic Counterterrorism	3,379.3	12.3	3,944.5	4,468.7
Protecting Critical Infrastructure and Key Assets	12,279.1	2.5	14,939.4	15,632.2
Defending Against Catastrophic Threats	2,974.2	0.7	3,399.2	3,898.3
Emergency Preparedness and Response	6,002.6	.....	5,765.2	6,121.6
Other	9.6	.....	49.8	104.5
Total, Homeland Security Budget Authority	**40,727.7**	**106.2**	**45,998.2**	**49,942.9**
Plus BioShield	885.0	.....	2,508.0	.....
Total, Homeland Security Budget Authority, Including BioShield	**41,612.7**	**106.2**	**48,506.2**	**49,942.9**

Figure 1[1]

Each of these three elements of border security present sources of potential terrorist attacks. In order to fairly distribute funds, the DHS calculates the risk factors and vulnerabilities of land, port, and aviation security. Between September 2001 and June 2004, the federal government gave $11 billion to aviation security and $500 million in port security grants.[2] In anticipation of the $18 billion 2006 fiscal year budget, the DHS has proposed nearly $2 billion to finance port security, rendering $16 billion for land and aviation together. Although perhaps the DHS intends to fund security in ports relative to potential risk, there is much concern that maritime security ought to be more heavily funded.

This paper seeks to place port security within the broader context of global trade. There are a number of programs and technologies being implemented to address the threats and vulnerabilities to U.S. seaports. Two such ports which exemplify this process are the Ports of Los Angeles/Long Beach and New York/New Jersey: together they highlight the macro and micro level issues in funding allocation for ports. Hopefully this paper provides insight into the methods, problems and plausible solutions for funding allocation procedures.

[1] Source: www.whitehouse.gov.

[2] Strohm, Chris, "Federal, industrial officials at odds over maritime security", www.govexec.com, 29 June 2004.

Table 3–4. BORDER AND TRANSPORTATION SECURITY FUNDING

(Budget authority, in millions of dollars)

Agency	2004 Enacted	2004 Supplemental	2005 Enacted	2006 Request
Department of Agriculture	147.9	.....	163.1	164.2
Department of Homeland Security	14,941.7	90.7	16,560.6	18,207.3
Department of Justice	20.1	.....	34.5	20.8
Department of State	663.9	.....	778.2	878.4
Department of Transportation	67.2	.....	13.9	15.1
Total, Border and Transportation Security	**15,840.8**	**90.7**	**17,550.2**	**19,285.8**

Figure 2[3]

A. Characteristics

Each year, 9.6 million containers enter the 361 commercial seaports in the United States, amounting to an estimated worth of $2 trillion.[4] Ninety five percent of international commerce comes through these ports; from that, 80% enter through one of ten major U.S. ports.[5] Nationally, there are 3,700 cargo and passenger facilities which, when combined with other seaport facilities, employ four million jobs.[6] Thus, given the sheer number of seaports, personnel, and imported containerized cargo, maritime security is a relatively dynamic issue.

In addition to these numbers, maritime security is uniquely different from its land and aviation counterparts. Logistically, ports are bordered by both land and by sea, facing possible terrorist attacks from two distinct tactical methods. Whereas airports are hugely expansive and somewhat distant from densely populated areas, ports are typically situated nearby to – or in the midst of – metropolitan areas. Critical infrastructure, nuclear power plants and petrochemical facilities are means by which a terrorist attack on a U.S. seaport could have gross consequences in a relatively simple domino affect.

The potential destruction of critical infrastructure and other intermodal transportation networks is facilitated by the open accessibility of U.S. seaports. Many large ports are subdivided into dozens of individual jurisdictions and lack a general, coherent authoritative body. Numerous access points are unguarded in port complexes, communication lines are fragmented, and pressure amounts to move cargo quickly in order to maintain a free flow of trade.[7] Each of these factors mitigates the ports' ability to readily prevent and/or appropriately react in the event of a terrorist event.

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[3] Source: www.whitehouse.gov.
[4] Source: www.portgrants.info.
[5] Lipton, Eric, "Audit Faults U.S. for Its Spending on Port Defense", The New York Times, 20 February 2005.
[6] Source: www.portgrants.info.
7 GAO Testimony GAO-02-993T, "Nation Faces Formidable Challenges in Making New Initiatives Successful", 5 August 2002.

B. Vulnerabilities of Ports

Given the characteristics of seaports, the federal government policy focuses on striking a balance between port security and the maintenance of the free flow of trade.

Ships play an integral role for the United States in the international system of trade: 95% of all non-North American imports come through via ship. Certain commodities, namely oil, are only imported to the U.S. by sea. As the amount and worth of cargo increase – "industry officials" cited in the Port Security Grant office estimate that the current two billion tons of cargo will double in fifteen years, equaling one-third of America's Gross Domestic Product[8] - so too will it be necessary for seaport capabilities, infrastructure, technology and personnel to expand. In order for U.S. seaports to adequately compensate for changes in growth, federal funding will need to play vital role.

The goals of protection, prevention, response, and resiliency must not hinder the international trade and tourism industry feeding into and out of U.S. seaports. Jay Grant, Director of The Port Security Council of America, estimates that if the Port of Los Angeles were to [be] shut down today as it was during a labor disruption in 2002, economic losses would exceed $2 billion per day.[9] In May 2005, a GAO report noted that the Brookings Institution anticipates a loss of up to $1 trillion if there is an attack on a U.S. seaport using weapons of mass destruction.[10]

The very nature of ports characterize their vulnerability: open structures, critical physical locations, ease of accessibility, massive importation and exportation of containerized cargo, and large numbers of personnel on the scene. Ports are also vulnerable due to gaps in their security. As of May 2005, it is reported that 1% of overseas containers are inspected; approximately one out of every six 'high-risk' containers are inspected.[11] Of the 27,000 cargo containers imported each day – ranging from liquid bulk (oil), dry bulk (grain), iron ore, and steel - 1,350 containers are x-rayed before further transfer to trains or trucks.[12,13]

C. Main Stakeholders

The funding allocation process for U.S. seaports involves a wide range of shipping industry and public sector stakeholders. In the public sector, the DHS is the primary source of federal funding for U.S. seaports. Within the DHS, directorates such as the Border and Transportation Security (BTS), U.S. Citizenship and Immigration Services (USCIS) and U.S. Coast Guard are involved in funding port security. The BTS is further subdivided into the Transportation Security Administration (TSA), Customs and Border Protection (CBP), Immigration and Customs Enforcement (ICE), and Federal Law Enforcement Training

[8] Source: www.portgrants.info.
[9] "Port Security Council Formed to Address Security Funding Issues", www.aapa-ports.org, 18 May 2004.
[10] GAO Testimony GAO-02-993T, "Nation Faces Formidable Challenges in Making New Initiatives Successful", 5 August 2002.
[11] Wodele, Greta, "GAO, Panel Find Inadequate Inspection of Foreign Cargo", Congress Daily, 26 May 2005.
[12] GAO Testimony GAO-05-466T, "Key Cargo Security Programs Can Be Improved", 26 May 2005.
[13] GAO Testimony GAO-02-993T, "Nation Faces Formidable Challenges in Making New Initiatives Successful", 5 August 2002.

Center (FLETC). The TSA frequently works with Maritime Administrations and the Coast Guard to enact port security measures.[14]

Also on the federal level, are the Administration and Congress which includes the Homeland Security Appropriations Committee, Senate Commerce Committee and House Transportation Committee. The DHS, the President, and Congress each work with national maritime organizations lobbying for greater funding for local and state ports. Of recent, the Bush Administration has proposed the consolidation of federal authorities working on border security measures to create one cooperative unit. A GAO report on port security, however, highlights three sizable obstacles to such a plan: (1) the ability to create and abide by standards, (2) resources to fund the operation, and (3) agreement among different parties to collaborate.[15]

Among the maritime organizations, the American Association of Port Authorities (AAPA) is the largest. Founded in 1912, the AAPA represents 150 public port authorities in the U.S., Canada, Latin America, and the Caribbean.[16] Such a sizeable organization reflects the interests of 300 firms and individuals who have a stake in the security and growth of Western seaports.[17] Other major maritime organizations include the Port Security Council of America (formed in May 2004), The Chamber of Shipping of America, the International Council on Cruise Lines, and The Waterfront Coalition.[18] Each of these authorities voice concerns of public clients, private businesses and non-profit organizations[19] by lobbying the federal government to allocate funds and establish security in American ports. President and CEO of the AAPA, Kurt Nagle, expresses his dissatisfaction with federal funding in February 2005[20]:

"We're disappointed that neither the directive nor the proposed budget addresses the need for adequate federal funding assistance to enable state, county and city-run public ports to implement timely facility security enhancements without their having to delay or forego other important projects critically needed to handle ever-increasing volumes of international commerce."

II. FUNDING FOR PORT SECURITY

Funding allocation for ports is a controversial issue because as ports compete among each other to receive funds, the implicit understanding is that the entire maritime security community does not receive enough funding. The Coast Guard estimates that for adequate port security – including funds for personnel, training, equipment and procedures – the federal government would need to pay $5.4 billion over the next ten years. According to the

[14] GAO Report, GAO-03-15, "Actions Needed to Improve Force Protection for DOD Deployments through Domestic Seaports", October 2002.
[15] GAO Testimony GAO-02-993T, "Nation Faces Formidable Challenges in Making New Initiatives Successful", 5 August 2002.
[16] "Port Security Council Formed to Address Security Funding Issues", www.aapa-ports.org, 18 May 2004.
[17] Source: www.portgrants.info.
[18] "Port Security Council Formed to Address Security Funding Issues", www.aapa-ports.org, 18 May 2004.
[19] Ibid.
[20] Source: www.portgrants.info.

DHS Office of Inspector General in January 2005, the Port Security Grant Program has allocated $560 million since September 2001.[21]

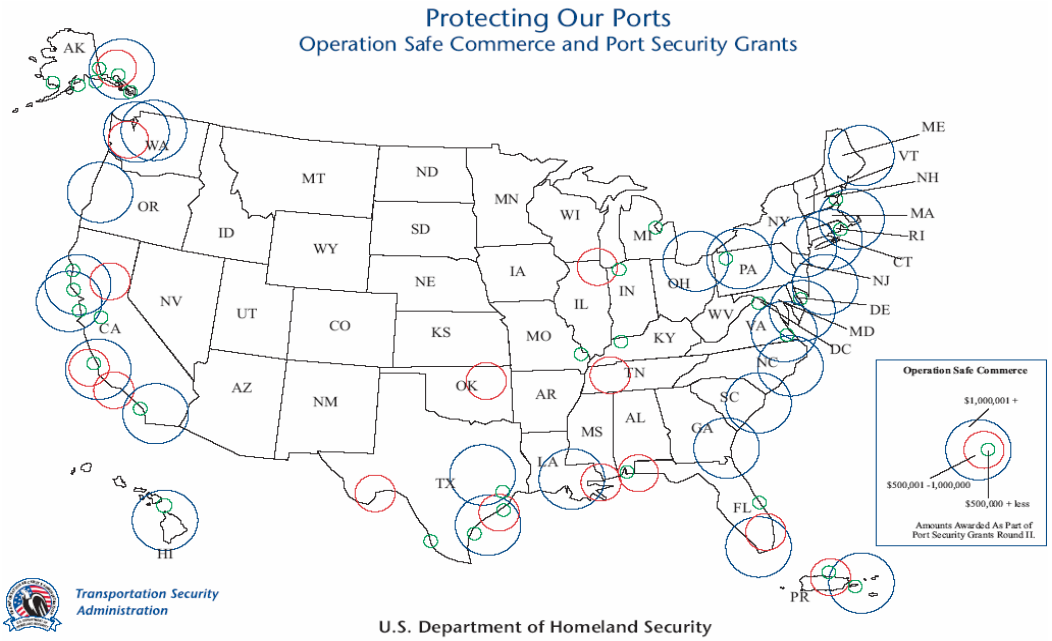

Figure 3[22]

A. Port Security Grant Program

Funded by the TSA, the U.S. Coast Guard, and the Department of Transportation's Maritime Administration, this grant is the largest source of funding for maritime security. Since its enactment in 2002, the Port Security Grant Program has funded over 1,200 projects. Eligibility for the grant is determined by three factors as part of a risk-based formula: threat, vulnerability and consequence. In the fiscal year 2005, 66 ports out of 129 applicants were deemed eligible. The Port Security Grant Program aims to "increase protection against potential threats from small craft, underwater attacks and vehicle borne improvised explosives, and to enhance explosive detection capabilities aboard vehicle ferries and associated facilities."[23]

In order to receive funding, applicants must be in a "port wide area" within one of the 66 delineated ports. As specifically defined in the FY 2005 Port Security Grant Program Application Kit II, a port wide area is defined as "the land area adjacent to, and within one mile of, the waterway that contains the federal navigation channel for a particular port."[24] Also delineated in the FY 2005 Application Kit II are the three types of eligible applicants for the Port Grant Security Program: (1) owners/operators of federally regulated ports, (2) port

[21] Source: http://www.dhs.gov.
[22] Source: http://www.dhs.gov.
[23] Kouri, Jim, "Major Seaports to Have Radiation Detection by End of 2005", www.MichNews.com, 27 June 2005.
[24] Source: www.passengervessel.com.

authorities and state and local agencies which protect federal facilities, and (3) a consortia of stakeholders who represent federally regulated ports.[25]

There have been four rounds of the Port Grant Security Program thus far. In 2002, the first round gave a total of $92.3 million to 77 eligible seaports: $77 million for facility and operational security, $5 million for security assessments, and $9.3 million for "proof of concept" projects and technology advancements. [26] In the second round, a year later, a total of $168 million was given, which included 199 state and local governments and private companies. The money was allocated to patrol boats, surveillance equipment, as well as to command and control facilities.

The third round of the Port Security Grant Program was administered in fiscal year 2003, with a total of $179 million to 235 applicants. A year later, however, the program's largest allocation plummeted to its lowest, as the budget was just over $49 million for 120 recipients and 154 projects.[27]

FY 2005 Port Security Grant Program

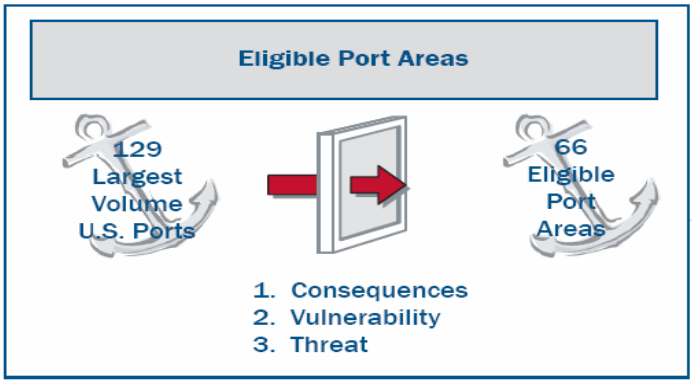

Figure 4[28]

B. Urban Areas Security Initiative (UASI)

The Office of Domestic Preparedness (ODP), now the Office of State and Local Government Coordination and Preparedness (SLGCP)[29], funds urban areas, transit systems, and port authorities. Authorized by Public Law 108–11, the Emergency Wartime Supplemental Appropriations Act, the goal of UASI is to help high-threat, high-density urban areas adequately prepare, prevent, and strategize in the event of a terrorist attack. The ODP focuses on the critical infrastructure and operational needs of each urban setting.[30]

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[25] Ibid.
[26] Source: www.dot.gov.
[27] Source: www.dhs.gov.
[28] Source: American Association of Port Authorities: www.aapa-ports.org.
[29] The Office of Domestic Preparedness changed its name to the Office of State and Local Government Coordination and Preparedness in 2005.
[30] Source: www.sled.state.sc.us.

Once accepted by the UASI Port Security Grant Program, ports have a number of regulations with which they must comply as well as submission of Financial Status Reports, Categorical Assistance Progress Reports, and a description of expenditures and operational costs during code ORANGE security alerts.[31] Recipients of the UASI grant are obligated to spend the awarded money in agreement with their Urban Area Homeland Security Strategy, State Homeland Security Strategy, and Transit Security and Emergency Preparedness Plan.

The State Administrative Agency, created by each state's Governor, is the authoritative body which applies for the UASI grant and appropriately distributes the funds. The eligibility of State Administrative Agencies is determined by three characteristics: threat estimates, critical assets, and population density.[32]

The first two rounds of the UASI Grant Program were authorized in 2003; administered by the ODP but coordinated by the TSA, the grant was first awarded to seven urban areas ($96 million) and then to 30 more areas ($506 million) in the second round; $75 million was administered specifically for ports.[33] In fiscal year 2004, the UASI Program administered a total of $671 million for urban areas (excluding transit systems) of discretionary funds, obtained from the Department of Homeland Security Appropriations Act of 2004.[34]

Summary of Port Security Grant Programs[35]

Program	**Lead Agency**	**Amount Awarded**
Port Security Grant Program	TSA	FY 2002: $92 million
		FY 2003: $169 million
		FY 2004: $179 million
		FY 2005: $49.4 million
Urban Area Security Initiative	ODP	FY 2003: $75 million
MTSA Grant Program (unfunded)	MARAD	$0

III. TECHNOLOGIES AND PROGRAMS FUNDED BY FEDERAL GRANTS

In order to fully address the issue of funding allocation for U.S. seaports, it is critical to understand how the federal grant funding is being utilized at the ports. There are a number of programs and technologies recently developed to provide greater security to seaports: some are only implemented in designated critical locations, while others are less expensive and complex and are nationally distributed on a wide scale. Nevertheless, each is part of the multi-layered approach which the DHS is seeking to implement, whereby the focus is on prevention and detection techniques for complete port security.

[31] Source: www.dhs.gov.
[32] Ibid.
[33] Source: www.ojp.usdoj.gov.
[34] Source: www.dhs.gov.
[35] Ibid.

A. Technologies

i. Transportation Worker Identification Credential Program

One critical part of the Maritime Security Transportation Act was to focus on training the port facility employees. There is a great need for a standards and certification process so that employees have adequate security training. The "Transportation Worker Identification Credential" (TWIC) program was originally piloted in the Ports of Los Angeles/Long Beach, Delaware River and State of Florida during its 'planning phase' but has since moved on to include 200,000 participants located at 34 sites in six states. A tamper-resistant card which stores biometric information is given to workers as a means to permit only authorized people into secure areas. Information stored on the card includes "fingerprints, iris scans, hand geometry, digital photos, names, TWIC card numbers, citizen status, residential addresses, and sponsoring facility."[36] Optimally, TWIC will eliminate the redundant measures currently in place when entering various facilities. There are, however, concerns about the security of an identification card that holds so much private information; some people are weary of "mission" or "technology creep."[37]

ii. Radiation Portal Monitors (RPM's)

Radiation Portal Monitors are playing an increasingly important role in the DHS multi-layered strategy, providing CBP officers with a non-intrusive means to screen cargo containers for nuclear and radiological materials. RPM systems detect radiation emanating from containers. Oakland was the first U.S. seaport to have complete RPM coverage, but as of June 2005, Secretary Chertoff announced that the Port of Los Angeles/Long Beach will have complete coverage by the end of year 2005. 90 RPM's will be installed at the port to complement the X-ray scanners, gamma ray scanners, personal radiation detectors and isotope identification devices already in place.[38]

iii. Vehicle and Cargo Inspection System (VACIS)

The Vehicle and Cargo Inspection System is a newly implemented, non-intrusive, low radiation, gamma ray scanning technology which complements radiation portal monitors. Although the original idea was for port workers and truck drivers to drive their vehicles under the device, there have been complaints as to the health and safety of the workers. As a result, VACIS conducts its inspections by moving the technology over the stationary vehicle, which slows down the process dramatically. It is clear, therefore, that the workers' health concerns must be resolved to increase the efficacy of the VACIS technology.[39]

iv. Radio Frequency Identification Devices (RFID)

Radio frequency identification devices are a new type of electronic seal which serve as tracking devices in the supply chain. Fastened to the cargo shipping container's latch, the RFID collects serialized data without human intervention or line of sight. Although there is

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[36] Sternstein, Aliya, "TSA Advances TWIC Program", www.fcw.com, 22 November 2004.
[37] Ibid.
[38] Kouri, Jim, "Major Seaports to Have Radiation Detection by End of 2005", www.MichNews.com, 27 June 2005.
[39] Source: http://waysandmeans.house.gov.

debate whether RFID is beneficial to a simple, serialized bar code, it is currently being utilized as part of the C-TPAT program. The RFID operates at a variety of frequencies in order to create an inventory of cargo being stored and transported; in essence, the technology augments the ability to control and maintain security in the supply chain process.

v. Anti-Tamper Seals

The anti-tamper seal serves as a highly reliable intrusion detection technology. Tag readings on containers provide information on the location, time, and interruptions during the cargo's transit progress. Such metal, one-use-only seals will replace the aluminum and plastic devices currently in use; they will provide information to the U.S. customs agents before arriving at America's seaports.[40] Seal technologies are backed by technology providers and systems integrators; relatively easy and inexpensive, they increase transparency, detect unauthorized activities, and expedite administrative activities.[41]

A. Programs

i. Maritime Security Transportation Act of 2002 (MTSA)

Enacted just after the attacks of September 11, 2001, the MTSA was designed to deter or respond to a national threat at a U.S. seaport. The United States Coast Guard was given large enforcement responsibilities as it coordinates efforts with the TSA, BCBP, and Maritime Administration in order to create programs and delineate responsibility where appropriate. A risk-based methodology focused on security assessments, procedures and regulations in all aspects of maritime security, ranging from the vessels and barges to gas platforms and port facilities to employed personnel. Assessments of port threat and vulnerability, vessel and facility vulnerability, and foreign ports were examined by the National Maritime Security Plan and Advisory Committee; initiatives, programs, grants and systems were designed and piloted as a result.[42] As a security blueprint for America's seaports, the MTSA authorized the TWIC, Targeted Infrastructure Program, and the Port Security Grant Program.[43]

In addition to these specific measures, the MTSA also encouraged the private sector to cooperate and contribute to security measures and technologies.

ii. Operation Safe Commerce

OSC is one of several programs designed to improve supply chain security, specifically freight cargo. Coordinated by the U.S. Customs and Border Protection agency, led by the TSA, and endorsed by the American Association of Port Authorities, this program initially began as a pilot program for the Ports of New York/New Jersey, Los Angeles/Long Beach, and Seattle/Tacoma. The aim is to improve technology at the foreign port of origin where

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[40] Shenon, Philip, "U.S. Plans to Toughen Rules for Cargo Shipping Industry", www.gabrieltechnologies.com, 19 November 2003.
[41] Smith, Scott, "Report on Seal Technologies", COAC Border Security Technical Advisory Group, 14 June 2002.
[42] U.S. Department of Homeland Security, Office of the Press Secretary, "Protecting America's Ports: Maritime Transportation Security Act of 2002", 1 July 2003.
[43] Godwin, Jean C., Testimony Before the Senate Commerce, Science and Transportation Committee, www.aapa-ports.org, 17 May 2005.

the supply chain commences; thus, OSC tests already implemented security systems whose job it is to detect tampered containers while in transit. OSC helps determine whether such integrated systems as seals, sensors, tracking devices and cargo information systems are together achieving their objectives.[44] It was created on the assumption that the three piloted load centers involved in the program share similar vulnerabilities and as a result, could benefit from a set of standardized technologies and guidance.[45] Again, the goal is to promote productivity and efficiency while at the same time, maintaining the integrity of a secure system.

A total of $58 million was directed to the OSC program out of the 2002 and 2003 TSA budget. In July 2003, the second round grants awarded Seattle/Tacoma with $14.2 million but budget shortfalls in the TSA terminated the program. Advocates of the pilot program like Senator Patty Murray of Washington discussed the importance of OSC. In general, Ms. Murray found that securing an international supply chain requires the cooperation of foreign ports, that supply chains are complex and different from one another, and that a globally integrated solution is necessary to effectively communicate critical security information.[46]

iii. Customs-Trade Partnership Against Terrorism (C-TPAT)

U.S. Customs and Border Protection Commissioner Robert C. Bonner announced the creation of C-TPAT in November 2001. In the past four years, membership has grown to 9,000 "shippers, carriers and intermediaries" as a means to secure and expedite the supply chain process.[47] In the C-TPAT process, private companies are incentivized to document their secure supply-chain through personal shipping guidelines in return for a quicker processing of their cargo. The U.S. government, in essence, is exercising its authority overseas by means of private companies who have stakes in quickening the process of exportation. This enables the U.S. to ensure that the 'loading phase' of the supply chain is not tampered as well as to promote the evaluation of scanning and tracking technologies.

There are a number of criticisms with this program, namely that it could be detrimental to reduce inspections for C-TPAT members in a "trust but don't verify" system; that is, the Customs and Border Protection agency is trusting the word of suppliers, a technique that may blindly permit a tampered – and free of close inspection – supply chain.[48] Others like Stephen Flynn suggest that a third party may be useful for verification and standardization purposes, as the C-TPAT system has extended far beyond Customs control.

iv. Container Security Initiative (CSI)

The Container Security Initiative is the counterpart to C-TPAT because both programs focus on supply chain security and the expeditious flow of trade. Announced in January 2002 by Commissioner Bonner, the CSI program facilitates the partnership between CBP officers deployed overseas and foreign governments in order to detect potentially hazardous containers. Initially, the program was implemented at the 19 ports which ship the greatest

[44] Ibid.
[45] Source: www.worldshipping.org.
[46] "Senator Patty Murray Announces Completion of Test Phase of Operation Safe Commerce, Discusses Project Findings" www.portseattle.org, 2 September 2004.
[47] Edmonson, R.G., "The Evolution of CTPAT", Journal of Commerce, 6 June 2005.
[48] Ibid.

volume of cargo to the U.S. At present, there are 37 participating ports.[49] The VACIS and RPM technologies are utilized in such participating foreign ports under this program. In June 2003, the second round of CSI funding enabled the U.S. to cover roughly 80% of imported containers. The World Trade Organization and G8 are supportive of CSI's procedures.

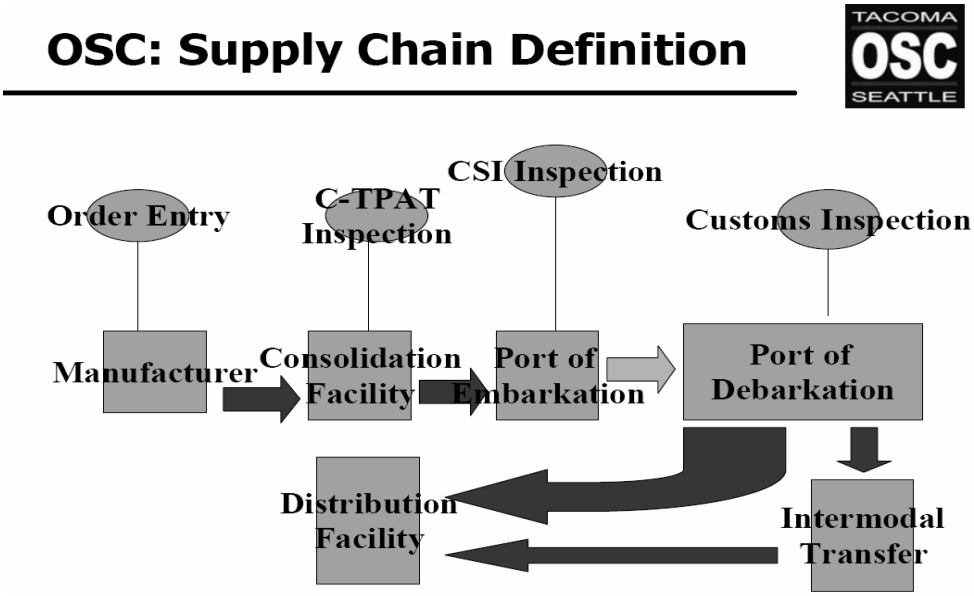

Figure 5[50]

IV. CASE STUDIES

The Ports of Los Angeles/Long Beach and New York/New Jersey are critical case studies to understand the funding allocation issues for U.S. seaports. As the two busiest ports in the U.S., they are frequently chosen to employ pilot programs and test maritime security technologies. They are among the largest ports in the country and actively lobby the government for federal grant money in order to cover a wide range of vulnerabilities. Interestingly, however, although the Ports of Los Angeles/Long Beach and New York/New Jersey are located on opposite coasts, their interests are more similar than different, rendering the conclusion that U.S. seaports share the common priority of receiving greater amounts of federal grant funding in order to cover expenses arisen since September 2001. In this specific case, both ports are solid targets for terrorist activities because of their ease of accessibility, as well as their economic and symbolic value to the nation.

A. The Port of Los Angeles/Long Beach

The Port of Los Angeles/Long Beach is the third busiest port in the world after Hong Kong and Singapore[51], handling an average of 15-16 ships per day.[52] The port receives 42% of

[49] Source: www.cbp.gov.
[50] Source: http://gulliver.trb.org.
[51] Source: www.polb.com.
[52] "New Intermodal Gateway Office in Long Beach, California", www.marad.dot.gov, February 2005.

all containerized cargo imported in the U.S. and expects that the large national maritime trade volumes will continue to steadily increase; currently, it is the largest container port in the U.S. and ranked seventh in the world. In 2004, 4.3 million foreign cargo containers came through Los Angeles/Long Beach which is "one container every seven seconds".[53]

Located 20 miles from downtown Los Angeles, the port extends for 43 miles of coastline and approximately 7,500 total acres (4,200 is land, 3,300 is water).[54] The port has 27 major cargo terminals: one for automobiles, four for break bulks, eight for containers, three for dry bulk, nine for liquid bulk, and one for omni. In total, there are 80 shipping lines for these terminals.[55]

Containerized cargo is one facet of the port's large traffic volume; a second is tourism. The Port of Los Angeles/Long Beach is the fourth busiest cruise port in the country where one million passengers depart annually.[56]

i. Authority Structure

In a port that performs $1 billion of trade a day[57], a hierarchal organization is necessary for operations to run smoothly. Often referred to as the LA Harbor Department, the Port of Los Angeles is operated by local municipalities who have been granted jurisdiction by the State Tidelands Trust. These tenants lease property and control their own facilities as a landlord port. A five-member Board of Commissioners, founded in 1907, meets twice a month and creates policies for the Port of Los Angeles. Members are appointed by the Mayor and confirmed by the LA City Council. The Port of Los Angeles is considered to be a department of the City of Los Angeles.

Similarly, the Port of Long Beach is governed by the Long Beach Board of Harbor Commissioners, a board comprised of five members appointed by the mayor and confirmed by the City Council. A Harbor Department is run by the executive director who was appointed by the Commissioners and given authority to run the 350-person department of the City of Long Beach. Comparable to the Port of Los Angeles, the Port of Long Beach is operated as a landlord port, leasing terminals and facilities to private firms who assume jurisdiction over their respective properties.

The Ports of Los Angeles and Long Beach form a large complex: it is self-supporting and financed by revenue from shipping services such as dockage, wharfage and pilotage, rather then by taxes.

ii. Terrorism Risk

In the event of a terrorist attack, it is imperative that the Port of Los Angeles/Long Beach is resilient, resuming activities as soon as possible. In the 2002 labor lockout, the port was shut down for ten days, costing the U.S. economy $1 billion dollars per day. Goods and

[53] Kouri, Jim, "Major Seaports to Have Radiation Detection by End of 2005", www.MichNews.com, 27 June 2005.
[54] Source: www.portoflosangeles.org.
[55] Ibid.
[56] Ibid.
[57] Source: www.dhs.gov.

commodities were scarce or unavailable throughout the country.[58] Three years later, the Port of Los Angeles/Long Beach has since taken dramatic measures to react more efficiently and lessen the likelihood that a logjam of more then 100 ships would be stuck in the Los Angeles/Long Beach harbor.

In order for the Port of Los Angeles/Long Beach to improve security measures, there must be sufficient funding. In May 2004, The Port Security Council of America was formed to address terrorist threats among terminal operators, suppliers, and port users. The Council is designed to work with Congress and Administration to "focus on obtaining significantly more federal funding for immediate port security requirements" and to "address terrorist threats."[59] As a national organization, the Council reflects general sentiment of ports, like that of Los Angeles/Long Beach. Senator Dianne Feinstein, Democrat for California, is concerned that there is a "one-in-two chance" that a dirty bomb sent to the U.S. will pass through California, given the state's large role in the flow of seaport trade. In a letter to the Department of Homeland Security, Ms. Feinstein asks that more attention be paid to California ports: "Clearly, we need to allocate considerable portions of seaport security resources to California ports to prevent or respond to such an attack."[60]

B. The Port of New York/New Jersey

As the largest port on the East Coast, the Port of New York/New Jersey is critical to the international trade community. The port complex accounts for 60% of North American Trade and handles roughly 12% of U.S. cargo traffic. The New York/New Jersey port complex has a waterfront of roughly 900 miles between both states.[61] There are nine port facilities within the port, six of whom primarily ship automobiles, break bulk, bulk, containers, and warehousing. The remaining facilities are either owned by the City of New York or are private companies that primarily ship containers.

i. Authority Structure

The Port Authority of New York and New Jersey controls the majority of the terminals: Port Newark (NJ), Elizabeth Port Authority Marine Terminal (NJ), PA Auto Marine Terminal (NJ), Brooklyn Piers Container Terminal (NY), Red Hook Container Terminal (NY), and Howland Hook Marine Terminal (NY). This bi-state, public agency was established in 1921 as a means to settle port and harbor development issues. A Board of Commissioners is comprised of six individuals appointed by the Governor and is subject to state senate approval. These unsalaried commissioners work under the Governor's discretion and conduct their meetings in public so that community members may participate. An Executive Director is appointed by the Board of Commissioners to lead the day-to-day operations.[62]

Private Operators in the Port of New York/New Jersey complex are Global Marine Terminal, City of NY South Brooklyn Terminal, and private oil companies along the New Jersey coastline which handle liquid bulk crude oil.

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[58] "Port Security Council Formed to Address Security Funding Issues", www.aapa-ports.org, 18 May 2004.
[59] Ibid.
[60] Lipton, Eric, "Audit Faults U.S. for its Spending on Port Defense", The New York Times, 20 February 2005.
[61] Source: www.encylopedia.com.
[62] Source: http://www.panynj.gov.

The Port Authority of New York/New Jersey is financially self-supporting and receives no local or state tax revenues. Revenues it acquires come from tolls, fees, rents, and facility users.[63]

New York Port Facilities

Figure 6[64]

ii. Terrorism Risk

The Port of New York/New Jersey is unique to other large U.S. seaports because of its complex infrastructure. The port itself straddles two states on the East coast; once accounting for sea access through the Atlantic Ocean and Long Island Sound, however, the port's security affects Connecticut, Rhode Island and Massachusetts.

A terrorist attack on the Port of New York/New Jersey would have a uniquely dramatic death toll because a 50-mile radius of the port encloses approximately 40 million people.[65] The Brooklyn-Battery Tunnel, Manhattan Bridge, Holland Tunnel, Lincoln Tunnel, George Washington Bridge, Brooklyn Bridge and Statue of Liberty are all infrastructures that are close to at least one of the port's terminals.

Independent jurisdictions competing with each other highlight the economic and logistical complexity of the port. In addition to these concerns, however, an attack on the Port of New

[63] Source: http://www.panynj.gov.
[64] Source: Port Authority of New York/New Jersey website: www.portnynj.com
[65] "Stevens experts issue report on gaps in NY/NJ Port security", www.stevensnewsservice.com, 8 September 2004.

York/New Jersey most likely have substantial psychological damage, given the earlier attacks on the World Trade Center buildings on September 11, 2001. Similar to Senator Feinstein's comments to the DHS, Senator Frank R. Lautenberg, Democrat of New Jersey, asked President Bush to reconsider federal funding allocation procedures, stating, "Your administration awarded port security grants in the states of Oklahoma, Kentucky, New Hampshire and Tennessee. While there may be some form of maritime facilities in these locations, I question whether, of the nation's 361 maritime ports, these locations are truly the front lines on the war on terror."[66]

C. Comparison between Los Angeles/Long Beach and New York/New Jersey

The Port of Los Angeles/Long Beach and New York/New Jersey are the largest ports on their respective coasts. Yet, their trading partners are distinctly different from one another: the Port of Los Angeles/Long Beach's top trading partners are (in descending order), China, Japan, Taiwan, Thailand and South Korea; the Port of New York/New Jersey's partners are China, Italy, Germany, Brazil, and India. Both ports conduct the most business with China but then differentiate between Asia and Europe.

Comparison of Ports of Los Angeles/Long Beach and New York/New Jersey[67,68]

	Los Angeles/Long Beach	**New York/New Jersey**
Top Trading Partners	China	China
	Japan	Italy
	Taiwan	Germany
	Thailand	Brazil
	South Korea	India
Top 3 Import Cargo Commodities	Furniture	Beverages
	Apparel	Vehicles
	Electronic Products	Furniture
Top 3 Export Cargo Commodities	Wastepaper	Wood pulp
	Synthetic Resins	Plastic
	Fabric (incl. raw cotton)	Machinery
Annual Cargo Tonnage 2003	162,100,000	78,465,541
Annual Cargo Tonnage 2004	147,500,000	80,643,991

[66] Lipton, Eric, "Audit Faults U.S. for Its Spending on Port Defense", The New York Times, 20 February 2005.
[67] Source: http://portoflosangeles.org.
[68] Source: http://www.panynj.gov.

D. Funding Conclusions

For each of the port grants awarded in the U.S., the Port of New York/New Jersey regularly receives more funding then does its counterpart, the Port of Los Angeles/Long Beach. The Port Security Grant Program and UASI grant funding are distributed in somewhat comparable amounts to both ports but slightly favor the Port of New York/New Jersey.

The reasons for this disparity are debatable; certainly it can be inferred that the 2001 attacks on the World Trade Center have highlighted New York as an ideal terrorist target that must be adequately funded. Just as aviation funding is emphasized over that of maritime security, so too is New York heavily noted due to the disastrous evidence of September 11.

New York/New Jersey's receipt of more funds may also be attributed to size differences. While the West coast waterfront spans approximately 43 miles, its East coast counterpart is nearly 20 times larger, with a waterfront of 900 miles. Much of the grant money is used for implementing technologies and training personnel; clearly, the Port of New York needs more to maintain adequate security measures. In addition to the size discrepancy, areas surrounding each port are considerably denser in New York then Los Angeles which would render significantly larger collateral damage in the New York area. Interestingly, however, although the Port of New York/New Jersey is drastically larger and denser, its annual cargo tonnage is half that of the Port of Los Angeles/Long Beach; in 2003, Los Angeles/Long Beach had 162,100,000 tons[69] while New York/New Jersey had 78,465,541 tons.[70]

Portions of both ports qualify as 'landlord ports' because of the variety of authorities which assume control over their independent properties. Thus, although it is convenient to refer to each port as a consolidated unit, there are in fact a number of authorities submitting proposals to receive funding. This may affect funding allocation procedures because each application is considered separately.

One technology that will be installed in the Port of Los Angeles/Long Beach – and not in that of New York/New Jersey – is the joint-agency container inspection facility. Three rounds of Transportation Security Administration (TSA) grants will fund the facility, designed for the co-use of the Federal Bureau of Investigations, U.S. Customs Service, U.S. Coast Guard, Alcohol, Tobacco and Firearms, and Immigration and Naturalization Services, among others.[71] Round One was $1.5 million granted in 2003 to be used for a "feasibility study, analysis and conceptual design" of the facility; Round Two included $2.5 million for the design and $800,000 for two patrol boats; Round Three, in November 2004, was given by the TSA in the amount of $10.37 million for a surveillance system, perimeter security, vehicle screening and security barriers.[72]

The container inspection facility serves as a secure area in which high-risk cargo containers are inspected. The purpose is to identify containers loaded with explosive devices before being further distributed. It is estimated that the JCIF project will require $54 million but as of June 2004, the exact numbers as well as the source of funding has yet to be specified.[73]

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[69] Source: http://portoflosangeles.org.
[70] Source: http://www.panynj.gov.
[71] Peck, William, "Port Study Raises Issues", Traffic World, 27 January 2003.
[72] Source: www.portoflosangeles.org.
[73] Congressional hearing held by Subcommittee on Coast Guard and Maritime Transportation by Noel K. Cunningham on 9 June 2004.

Many problems arise from the JCIF proposals. The main concern is that terrorists attempting to ship a container of explosives will have a tracking device to both locate the container and cause it to explode once entering an inspection facility. Another concern is that the community and Port of Los Angeles and Long Beach will not be pleased at the construction of this facility in the port, where presumably hazardous cargo will be directed, held, and ultimately pose a substantial security risk.

The JCIF facility is an unusually concrete example of how the Port of Los Angeles/Long Beach uses its federal grant money; it is difficult, however, to break down the usage of each federal fund due to the classified nature of this information. Once the money is distributed, each port is responsible to report its expenditures to its respective funder; such information is not publicly available. Nevertheless, it is clear that ports are receiving substantially less money then what they hope for; as can be seen in Figure 7, ports receive as low as 7.6% and as high as 25% of the grant money for which they apply.

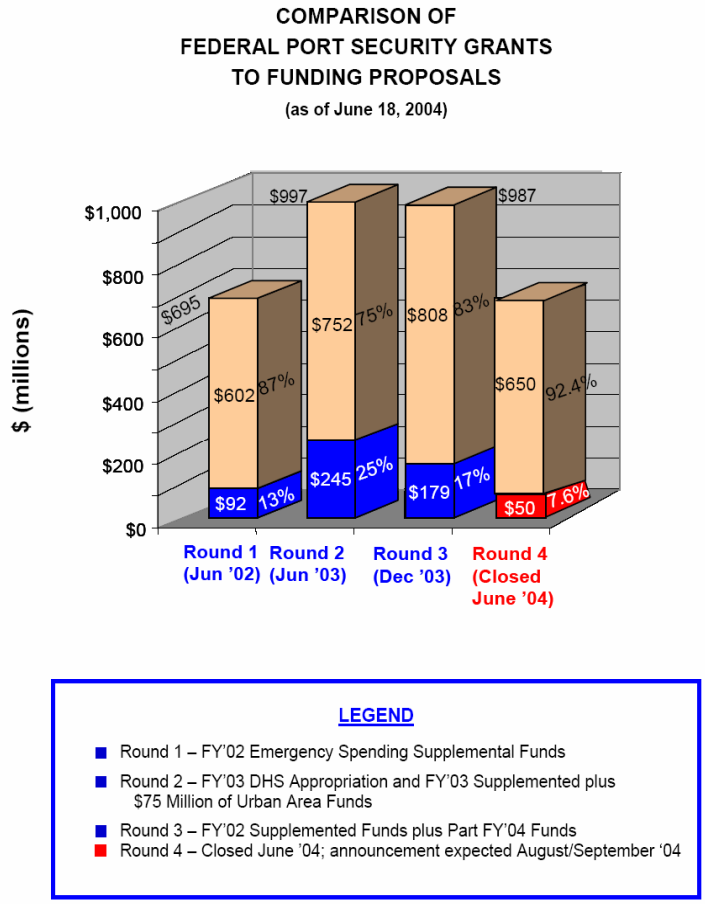

Figure 7[74]

It is somewhat paradoxical that despite the lack of federal grants for too few ports, funds which *are* administered are not spent in a timely manner. This is a critical problem in the maritime community which ought to be addressed. Of the $515 million awarded in the first three rounds of the Port Security Grant Program, 21% or $106.9 million has been spent.

[74] Source: www.aapa-ports.org.

Funding Status as of September 2004

Round	Date Announced	Total Available (Authorized)	Date Funds Awarded	Total Awarded	Total Obligated	Expended	Balance
1	02/28/02	$92,022,239	06/17/02	$92,033,239	$92,022,239	$56,012,075	$36,010,164
2	01/14/03	169,142,815	06/03/03	169,142,815	167,163,470	29,824,262	137,339,208
ODP	05/14/03	75,000,000	9/18-12/10/03	75,000,000	16,646,150	13,843,476	2,802,674
3	06/21/03	178,925,255	12/10/03	178,860,070	178,489,664	7,239,342	171,250,322
4	05/05/04	49,500,000	09/13/04	49,429,867			
Totals		$564,645,212		564,465,991	$454,321,523	$106,919,155	$347,402,368

Figure 8[75]

Typically the DHS permits grantees one to two years to use the funds. As evident in Figure 8, however, the Port Security Grant money has not been fully expended and, as a result, security programs and improvements have yet to be completed.[76]

Given the recent terrorist events in London, there has been considerable discussion about increasing funding for transit systems. As of July 2005, the Bush Administration announced its plan to award the states of New York and New Jersey $899 million for transit systems in Lower Manhattan. The idea is to construct security centers to screen vehicles as well as to support the Port Authority Trans-Hudson (PATH) terminal, South Ferry terminal station, and Fulton Street Transit Center.[77]

The maritime community hopes that the transit and port authorities will continue to receive more attention in the federal allocation process. Although President Bush favors the consolidation of funding for all transit authorities, the Senate has recently passed a 2006 Homeland Security Appropriations Bill to include $200 million for the Port Security Grant program.[78]

V. THEMES/CRITICISMS

Dissatisfaction with funding allocation is rampant throughout the maritime security community. Certainly, one issue is to decipher the purpose of federal funding. It is heavily noted in port security literature that security and efficiency must be balanced. However, two RAND scholars note that there are additional performance capabilities which must be considered in such a debate. Willis and Ortiz list five critical issues within the supply chain system: efficiency, shipment reliability, shipment transparency, fault tolerance and resilience.[79]

[75] Source: www.dhs.gov.
[76] Source: www.dhs.gov.
[77] "U.S. Department of Transportation Announces $899 Million for Lower Manhattan Recovery Projects", www.govtech.net, 19 July 2005.
[78] "Senate Passes 2006 Homeland Security Appropriations Bill", http://somd.com, 15 July 2005.
[79] Willis, Henry H., Ortiz, David S., "Evaluating the Security of the Global Containerized Supply Chain", RAND Technical Report, 2004.

In addition to deciphering practical objectives, two fundamental questions arise in port security: (1) what U.S. seaports ought to receive federal funding and (2) how much money, in total, ought to be allocated to securing ports? The Ports of Los Angeles/Long Beach and New York/New Jersey receive relatively large funds but still find it difficult to cover expenses. Yet, beyond these two fundamental questions lie other concerns. For instance, what should other smaller ports receive, like Baltimore, for example, which poses as a significant terrorist target? How do the federal government, AAPA and individual port authorities reconcile the smaller and larger question? Certain themes and criticisms shed light on these macro and micro level issues.

A. Partnership or Competition

Given such a large number of stakeholders, the maritime security community can easily be perceived as being decentralized. In order for lobbying efforts to be effective, therefore, mutually interested parties must build a strong rapport among one another; East and West coasts and public and private companies ought to cut across political lines to address that which they work to improve: the security of U.S. seaports. Local communities deserve to be involved in discussions of new facilities (as exemplified with the Los Angeles marina) and security procedures to ensure that their tax dollars are spent efficiently.

B. Investments in Technology and Personnel

Homeland security issues occasionally mirror those which are discussed in America's Revolution of Military Affairs; one such example is that the U.S. must invest in *both* technology and personnel training in order to run operations smoothly. There is a great tendency to focus solely on the instruments and mechanics of a security system, but such a concentration ignores the people who control, coordinate, and operate the machinery. Again, the question: how does the U.S. maximize limited resources? How can the U.S. appropriately allocate funds?

Among the avid supporters of technological developments is David Z. Bodenheimer, a partner in the Crowell & Moring LLP law firm. Bodenheimer argues that "for border security, technology is the future, and the future is now." He quotes Representative Zach Wamp in a 2003 congressional hearing to further his point: "The old security paradigm in this country of guns, gates and guards is changing fast. And technology is going to replace it all."[80] While such an assertion is undoubtedly true, a GAO report recognizes the lack of trained security personnel at seaports; certainly such a vulnerability could be exploited to create a dramatically hazardous situation.[81]

C. Method of Allocation

Bodenheimer touches upon another great concern within maritime security: the need to reconfigure the grant allocation process. The DHS inspector general's audit of allocation procedures conclude that the DHS has misplaced priorities (six locations in Arkansas receive funding), redundancies in funding, compensations of private companies which do

[80] Bodenheimer, David Z., "Technology for Border Protection: Homeland Security Funding and Priorities", www.homelandsecurity.org, August 2003.
[81] GAO Report, GAO-03-15, "Actions Needed to Improve Force Protection for DOD Deployments through Domestic Seaports", October 2002.

not use the money for security purposes, and exploitation of pork barrel politics.[82] In addition, the audit notes that funds are not administered timely as can be seen that 20% of the $515 million Fiscal Year 2002 federal funds were spent by September 2004.[83,84]

The Port Security Grant Program uses a 12-person National Review Board (NRB) to review applications and decipher which proposals are of most priority.

Sample Scoring Matrix

Selection Criteria	Unsatisfactory (1pt.)	Marginal (2pts.)	Satisfactory (3pts.)	Good (4 pts.)	Excellent (5 pts.)	Score
1. Highest risk category			X			3
2. Addresses a critical security need			X			3
3. Provides high risk reduction			X			3
4. Extent of actions taken thus far			X			3
5. Approach is comprehensive and detailed			X			3
6. Cost effectiveness			X			3
Total Score						18

Figure 9[85]

Figure 9 is an example of the NRB's method of scoring and ranking each project.[86] Such risk-based assessment methods have been criticized because a number of ports are excluded from funding based on its formula. Developed by the ODP, USCG and IAIP, risk is calculated by the consequence, vulnerability and threat of a terrorist attack on a given U.S. seaport. In May 2004, 1/6 of the nation's seaports were eligible for federal funding; only 66 of 361 seaports were deemed "high-risk."[87]

D. Who Pays?

Due to the constant demand for more funds, there must be a means to compensate for the increasing number of port security concerns. Former DHS Secretary Tom Ridge suggested that non-aviation measures ought to be shouldered by private companies.[88] Senate Commerce, Science and Transportation Committee Chairman Ted Stevens, R-Alaska supports a trust fund for port security improvements, financed through fees on importers

[82] Lipton, Eric, "Audit Faults U.S. for Its Spending on Port Defense", The New York Times, 20 February 2005.
[83] Ibid.
[84] "Follow the Port Security Money", The New York Times, 28 February 2005.
[85] Source: www.dhs.gov.
[86] Source: www.dhs.gov.
[87] Lipowicz, Alice, "Many Ports Lose Out in Risk-Based Grant Program", www.washingtontechnology.com, 16 May 2005.
[88] Bodenheimer, David Z., "Technology for Border Protection: Homeland Security Funding and Priorities", www.homelandsecurity.org, August 2003.

similar to the air cargo fees of 4.3% which make up the aviation trust fund. Stevens estimates that $1.7 billion could be brought in to be used for security measures.[89]

The AAPA is opposed to new taxes or fees on commerce but does support Juanita Millender-McDonald's bill, H.R. 3712, which proposes that a cap on the percentage of funds for multiyear awards would guarantee grant money for smaller ports or single-year projects.[90]

Mentioned earlier in Section 1.C., President George W. Bush has proposed the elimination of a port security grant for the fiscal year 2006 and instead, the creation a $600 million critical infrastructure grant program to lump rail, truck and bus transit systems together, called the Targeted Infrastructure Protection Plan. Given the current lack of federal funds for maritime security, however, the maritime community (and House Appropriations Committee) is unhappy with Bush's plan which would ignore present concerns.[91] Kurt Nagle represents the opinion of the AAPA: "Unfortunately, the proposed federal budget the Administration released yesterday literally removes port security as a separate line item and leaves gaping holes in funding for the dredging needs of U.S. ports."[92] Nagle voices the concern that port security grants will substantially decrease if Bush succeeds with his consolidation plan.

E. Layered Approach

The DHS has developed a 'layered approach' to facilitate coordination between the U.S. Coast Guard and Border Protection and other public and private entities; in essence, the DHS hopes to extend America's borders such that problems are identified before reaching U.S. soil. The 24-hour Advanced Manifest Rule (proper notification necessary before cargo is loaded at foreign port) and 96-hour rule (proper notification necessary before cargo arrives at U.S.) are both measures to ensure anticipation and preparation for containerized cargo.[93] Risk tools to gauge prevention and response capabilities, risk assessment models, and communication techniques are all components of this 'layered approach' in order to improve early detection methods and mitigate the system's fragility.

Dean Jerry MacArthur Hultin and Dr. Michael Pennotti of Stevens' Howe School of Technology Management work with faculty and community members to investigate network-based management concepts in the Port of New York/New Jersey. Having received a $150,000 grant, the group focuses on coordination among different agencies, preparedness, dissemination and synthesis of information, communication, overcoming bureaucratic hurdles and assessing port security progress. Similar to the Department of Defense's C5ISR approach, the Stevens' study suggests a layered approach as the best approach to combat the complexities of port security issues; response, adaptability and efficiency are key principles in both approaches.[94]

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[89] Werner, Erica, "Stevens Proposes Port-Security Trust Fund", www.sfgate.com, 17 May 2005.
[90] Source: http://www.calinst.org/bulletins/b1119.htm.
[91] Lipowicz, Alice, "Many Ports Lose Out in Risk-Based Grant Program", www.washingtontechnology.com, 16 May 2005.
[92] Source: www.portgrants.info.
[93] DeGaspari, John, "Layered Security", Mechanical Engineering, May 2005.
[94] "Stevens experts issue report on gaps in NY/NJ Port security", www.stevensnewsservice.com, 8 September 2004.

VI. CONCLUSION

Since the attacks of September 11, 2001, there has been a much greater focus on aviation, land, and maritime security. Each concern is multifaceted and merits considerable analysis in order to develop adequate threat and consequence reduction procedures. The security of U.S. seaports is a considerable aspect of maritime security, mainly because ports are physical junctures where goods are detained, handled, imported and exported.

The Ports of Los Angeles/Long Beach and New York/New Jersey are explicit examples of high-risk areas which command substantial federal attention. The scale of business conducted and infrastructure built on the premises validate the prioritized nature of these ports; still, however, it is well understood that as soon as the U.S. mitigates risk in one area, the terrorists will shift targets almost immediately. As we strive to harden targets, terrorists will find other targets that are vulnerable.

This paper sought to contextualize the issue of port security within the larger framework of global trade and global industry. There are a countless number of steps in the supply chain, beginning with the packaging and loading stage in a port like Piraeus, Greece to the final point of arrival at a store in, for example, Ketchum, Idaho. In a June 2004 speech to the Port of Los Angeles, Former Secretary Tom Ridge emphasized the need for a global partnership given the number of transactions in the supply chain. Ridge explained how he had recently boarded a registered ship of Singapore in New Orleans, destined for Japan, with an Indian crew and American grain as cargo. "Behind each ship is a long journey", he said "– and a long story – one that can rarely be understood by just observing from the dock."[95] Nine million containers arrive at America's shores each year and each is dispersed throughout the nation via trucks and trains; thus the possible channels to attack are pervasive and potentially perilous.[96]

In June 2004, former DHS Secretary Ridge announced a new international code of standards which vessels, port facilities and shippers must follow. Led by the U.S. Coast Guard, this international code reflected Ridge's recognition of the complexities of the supply chain; Ridge explained, "Shipping is a global industry; terrorism is a global problem; and our collective security requires a global solution."[97]

Results of this report implicate the need to examine the larger picture of port security: each of America's 361 ports is vulnerable to a different degree and thus piloted programs at larger port complexes must be applied to smaller ports. It would be interesting to compare the initial intention of each grant to its actual application. If funding is not being used in given time frames, what can the federal government do to maximize utilization: allot more time for implementation, allow the recipient ports more leeway, or provide more guidance? The trends found in this study highlight the need for a more thorough comparison among port grants. Two ports provide a small picture in the context of a larger framework; perhaps a nationwide study ought to be conducted. Certainly we must further scrutinize the funding of programs which work towards improving technologies.

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[95] Source: www.dhs.gov.
[96] Ibid.
[97] Ibid.

In light of uncertainty, the U.S. federal, state and local governments, maritime organizations, as well as public and private entities must continue to make decisions. It is critical to build partnerships in a layered system, to methodically allocate resources and to prioritize investments such that policy makers, mathematicians and theorists may all sensibly reach conclusions together.

APPENDIX

Summary of Port Security Grant Projects by Number Of Projects and Proportion of Funding[98]

Project Type	Round 1			
	Projects		Funding*	
	No.	%	$	%
Assessment	25	17.36%	$6,515,000	6.94%
Proof of Concept	17	11.81%	$10,024,757	10.68%
Access Controls	21	14.58%	$21,867,672	23.29%
Communications	2	1.39%	$390,000	0.42%
Physical Enhancements	43	29.86%	$21,602,983	23.01%
Surveillance	29	20.14%	$29,129,389	31.03%
Vessel/Vehicle	7	4.86%	$4,343,947	4.63%
Totals:	144	100.00%	$93,873,748	100.00%

Project Type	Round 2			
	Projects		Funding	
	No.	%	$	%
Assessment	21	5.36%	$1,243,483	0.74%
Proof of Concept	2	0.51%	$1,469,294	0.87%
Access Controls	103	26.28%	$36,234,437	21.45%
Communications	8	2.04%	$10,711,330	6.34%
Physical Enhancements	127	32.40%	$80,144,671	47.44%
Surveillance	113	28.83%	$34,832,149	20.62%
Vessel/Vehicle	18	4.59%	$4,288,772	2.54%
Totals:	392	100.00%	$168,924,136	100.00%

Project Type	Round 3			
	Projects		Funding	
	No.	%	Funding	%
Assessment	0	0.00%	$0	0.00%
Proof of Concept	0	0.00%	$0	0.00%
Access Controls	84	19.00%	$46,229,529	25.82%
Communications	20	4.52%	$11,166,836	6.24%
Physical Enhancements	170	38.46%	$70,493,696	39.38%
Surveillance	151	34.16%	$47,238,899	26.39%
Vessel/Vehicle	17	3.85%	$3,896,940	2.18%
Totals:	442	100.00%	$179,025,900	100.00%

[98] Source: www.dhs.gov.

Port Grant Security Program Round I[99]

Grantee	City	State	Award
Eagle Marine Services Ltd.	Los Angeles	CA	$1,900,000
Pasha Stevedoring & Terminals L.P.	Los Angeles	CA	$80,000
Port of Los Angeles	Los Angeles/Long Beach	CA	$1,500,000
APL Limited	Los Angeles, Oakland, Seattle	CA, WA	$1,300,000
Port Authority of NY/NJ	NY, NJ	NY, NJ	$4,068,800
NYC Dept of Transportation	NY	NY	$2,768,166
NYC Economic Development Corp	NY	NY	$2,500,000

Port Grant Security Program Round II[100]

Grantee Name	City	State	Total Value
Harbor Dept. of the City of Long Beach	Long Beach	CA	$9,820,000
City of Long Beach	Long Beach	CA	$200,163
Total Terminals International Pier T Long Beach	Long Beach	CA	$665,000
City of Los Angeles, Los Angeles Harbor Department	Los Angeles	CA	$800,000
Trans Pacific Container Service Corp.	Los Angeles	CA	$1,189,961
Pacific Harbor Line, Inc.	Los Angeles	CA	$95,000
Alameda Corridor Transportation Authority	Los Angeles	CA	$1,440,000
Vopak Terminal Los Angeles Inc.	Los Angeles	CA	$1,070,000
West Basin Container Terminal, Inc.	Los Angeles	CA	$1,246,000
Seaside Transportation Services, Port of L.A.	Los Angeles	CA	$1,754,650

[99] Source: http://www.aapa-ports.org
[100] http://www.dhs.gov/interweb/assetlibrary/Port_Security_Press_Kit_DHS.pdf

Eagle Marine Services, Ltd.	LA/Oakland/Seattle	CA/WA	$1,034,000
Waterfront Commission of New York Harbor	New York	NJ	$619,294
Motiva Enterprises LLC	Newark	NJ	$220,000
New Jersey Department of Transportation	Newark/Bayshore/Cape May/Pt. Pleasant	NJ	$2,291,000
Global Terminal & Container Services, Inc.	Jersey City	NJ	$75,000
K-Sea Transportation Corp	New York	NY	$169,563
New York City Department of Transportation	New York	NY	$7,047,500
Maritime Association of the Port of NY/NJ	New York	NY	$850,000
Circle Line - Statue of Liberty Ferry Inc.	New York	NY	$15,600
The Port Authority of New York & New Jersey	New York	NY	$885,000

Port Grant Security Program Round III[101]

Grantee	**City**	**State**	**Award**
Long Beach Container Terminal, Inc.	Long Beach	CA	$627,354
Total Terminals International	Long Beach	CA	$2,578,392
Vopak Terminal Long Beach Inc	Long Beach	CA	$533,667
City of Los Angeles Harbor Dept	Los Angeles	CA	9391691
Eagle Marine Services, Ltd.	Los Angeles	CA	$96,000
Hornblower Cruises and Events	Los Angeles	CA	$215,000
Long Beach Container Terminal, Inc.	Long Beach	CA	$75,348
Shell Oil Products US	Los Angeles	CA	$294,854
Alameda Corridor Transportation Authority	Los Angeles, Long Beach, Carson, Vernon, Compton	CA	$601,080
APM Terminals North America, Inc.	Elizabeth	NJ	$649,000
Gloucester Terminals, LLC	Gloucester	NJ	$13,906
Sunoco Logistics Partners L.P.	Newark	NJ	$335,000

[101] Source: http://www.tsa.gov

The Port Authority of New York & New Jersey	Newark	NJ	$427,000
Chevron Products Company	Perth Amboy	NJ	$250,000
Kinder Morgan Energy Partners, L.P.	Perth Amboy	NJ	$400,000
Castle Oil Corporation	New York	NY	$385,368
Getty Terminals Corp.	New York	NY	$91,145
Circle Line-Statue of Liberty Ferry, Inc.	New York City	NY	$231,265
Motiva Enterprises LLC	New York City	NY	$80,520
New York City Economic Development Corp.	New York City	NY	$4,110,250

*Grants were given for access controls, surveillance, physical enhancements, or vessels.

Port Grant Security Program Round IV[102]

Grantee	City	State	Award
Harbor Dept. of the City of Long Beach	Long Beach	CA	$ 584,140
Harbor Dept. of the City of Long Beach	Long Beach	CA	$ 900,000
City of Los Angeles, Harbor Department	Los Angeles	CA	$ 281,325
Federal Petroleum LLC	Elizabeth	NJ	$ 46,700
The Port Authority of New York and New Jersey	Newark & Elizabeth	NJ	$ 1,392,000
New York City Department of Transportation	New York	NY	$ 3,278,000
New York City Department of Transportation	New York	NY	$ 729,500
New York City Economic Development Corporation	New York	NY	$ 800,000

OSC Funding[103]

The Port of NY/NJ	NY	$6,747,227
The Port of LA/LB	CA	$8,250,356
The Port of Seattle/Tacoma	WA	$13,302,791

[102] Source: https://www.portsecuritygrants.dottsa.net
[103] http://www.dhs.gov/interweb/assetlibrary/Port_Security_Press_Kit_DHS.pdf

*TSA funding for the OSC program goes towards patrol boats, surveillance, and command and control facilities

UASI FY 2003 Grant Program[104]

Grantee Name	City	State	Total Federal NTE
Harbor Dept of LB	Long Beach	CA	$3,011,250
Harbor Dept of LA	Los Angeles	CA	$2,500,000
Seaside Transportation Services	Los Angeles	CA	$2,419,450
Harbor Dept of LB	Long Beach	CA	$1,146,000
FAPS Inc	Newark	NJ	$1,062,450
APM Terminals	Elizabeth	NJ	$1,004,000
Port Authority of NY/NJ	New York	NY	$1,184,000
Port Authority of NY/NJ	New York	NY	$1,164,000
Port Authority of NY/NJ	New York	NY	$936,000
New York City Fire Dept	New York	NY	$715,000
Port Authority of NY/NJ	New York	NY	$320,000
Port Authority of NY/NJ	New York	NY	$158,768

[104] http://www.dhs.gov/interweb/assetlibrary/Port_Security_Press_Kit_DHS.pdf

UASI FY 2004 Grant Program[105]

Urban Area	State	Grant Award Amount (in millions)	Defined Urban Area
New York	NY	$47,007,064	City of New York; Counties of Nassau, Suffolk, and Westchester; Port Authority of New York and New Jersey
Los Angeles	CA	$28,268,504	City and County of Los Angeles; Los Angeles County Unincorp.; Cities of Beverly Hills, Burbank, Carson, Commerce, Culver City, El Segundo, Glendale, Hawthorne, Inglewood, Pasadena, San Fernando, Santa Monica, Torrance, Vernon and West Hollywood
Long Beach	CA	$12,136,091	City of Long Beach; Los Angeles County; Los Angeles County Unincorp.; Cities of Bellflower, Carson, Compton, Hawaiian Gardens, Lakewood, Paramount, and Signal Hill

[105] Source: www.dhs.org