



# CENTER FOR TERRORISM RISK MANAGEMENT POLICY

THE ARTS

CHILD POLICY

CIVIL JUSTICE

EDUCATION

ENERGY AND ENVIRONMENT

HEALTH AND HEALTH CARE

INTERNATIONAL AFFAIRS

NATIONAL SECURITY

POPULATION AND AGING

PUBLIC SAFETY

SCIENCE AND TECHNOLOGY

SUBSTANCE ABUSE

TERRORISM AND  
HOMELAND SECURITY

TRANSPORTATION AND  
INFRASTRUCTURE

WORKFORCE AND WORKPLACE

This PDF document was made available from [www.rand.org](http://www.rand.org) as a public service of the RAND Corporation.

[Jump down to document](#) ▼

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world.

## Support RAND

[Browse Books & Publications](#)

[Make a charitable contribution](#)

## For More Information

Visit RAND at [www.rand.org](http://www.rand.org)

Explore [RAND Center for Terrorism Risk Management Policy](#)

View [document details](#)

## Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents.

This product is part of the RAND Corporation monograph series. RAND monographs present major research findings that address the challenges facing the public and private sectors. All RAND monographs undergo rigorous peer review to ensure high standards for research quality and objectivity.

# Maritime Terrorism

Risk and Liability

---

Michael D. Greenberg, Peter Chalk, Henry H. Willis,  
Ivan Khilko, David S. Ortiz



RAND

CENTER FOR TERRORISM RISK MANAGEMENT POLICY

The research described in this report was conducted by the RAND Center for Terrorism Risk Management Policy.

**Library of Congress Cataloging-in-Publication Data**

Greenberg, Michael D., 1969–

Maritime terrorism : risk and liability / Michael Greenberg, Peter Chalk, Henry H. Willis, [et al.].

p. cm.

Includes bibliographical references.

ISBN-13: 978-0-8330-4030-5 (pbk. : alk. paper)

1. Merchant marine—Security measures. 2 Shipping—Security measures. 3. Passenger ships. 4. Container ships. 5. Terrorism—Prevention. 6. Pirates. 7. Hijacking of ships—Prevention. I. Chalk, Peter. II. Willis, Henry H. III. Title.

VK203.G74 2006

363.325'9387—dc22

2006031873

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

**RAND**® is a registered trademark.

*Cover photo: Getty Images*

© Copyright 2006 RAND Corporation

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from RAND.

Published 2006 by the RAND Corporation

1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138

1200 South Hayes Street, Arlington, VA 22202-5050

4570 Fifth Avenue, Suite 600, Pittsburgh, PA 15213-2665

RAND URL: <http://www.rand.org/>

To order RAND documents or to obtain additional information, contact

Distribution Services: Telephone: (310) 451-7002;

Fax: (310) 451-6915; Email: [order@rand.org](mailto:order@rand.org)

## Summary

---

Policymakers have become increasingly concerned in recent years about the possibility of future maritime terrorist attacks. Although the historical occurrence of such attacks has been limited, concerns have nevertheless been galvanized by recognition that maritime vessels and facilities may (in some respects) be particularly vulnerable to terrorism. In addition, some plausible maritime attacks could have very significant consequences, in the form of mass casualties, severe property damage, and attendant disruption of commerce. Understanding the nature of maritime terrorism risk requires an investigation of threats, vulnerabilities, and consequences associated with potential attacks, as grounded both by relevant historical data and by intelligence on the capabilities and intentions of known terrorist groups. Assessment of the risks associated with maritime terrorism can help policymakers and private firms to calibrate and prioritize security measures, prevention efforts, and mitigation plans.

The risks associated with maritime terrorism also provide the context for understanding government institutions that will respond to future attacks, and particularly so with regard to the U.S. civil justice system. In principle, civil liability operates to redistribute the harms associated with legally redressable claims, so that related costs are borne by the parties responsible for having caused them. In connection with maritime terrorism, civil liability creates the prospect that independent commercial defendants will be held responsible for damages caused by terrorist attacks. Liability is thus a key aspect of the government's institutional response to terrorism, because (1) it creates strong incen-

tives for private-sector prevention and mitigation efforts, (2) it serves as a foundation for insurance to spread related risks, and (3) it defines the scope and likelihood of compensatory transfer payments from firms to victims.

This book explores the nature of maritime terrorism risks associated with a limited set of attack scenarios involving passenger and container shipping. The book also examines U.S. civil liability rules as they may apply in the context of these types of attacks.

### **Risk Assessment: Threat, Vulnerability, and Consequences**

Our analytic strategy for addressing the risks associated with attacks on passenger and container shipping began from a broad assessment of related threats and vulnerabilities, based on a combination of historical data regarding previous attacks, and on a series of interviews with counterterrorism experts. We then investigated the likely consequences that would follow from different modes of attack, drawing on historical data and publicly available analyses, and by framing those consequences in terms of human effects (e.g., casualties), economic effects (e.g., property damage and business disruption), and intangible effects (e.g., political and governmental responses). Finally, we combined the information on threat, vulnerability, and consequences to generate estimates of relative risk, in connection with attack scenarios involving ferries, cruise ships, and container shipping. Our qualitative method for generating these risk estimates involved the use of defined ordinal scales to assess terrorists' intents and capabilities, target vulnerabilities, and attack consequences. This method is described in detail in the appendix.

With regard to attacks on ferries, our findings suggest that on-board bombings present the greatest combination of threat and vulnerability among the specific types of assaults that we considered. In terms of consequences, all of the attack modes targeting ferries involve roughly comparable estimates of potential economic harm, but on-board bombings are projected to be somewhat less invidious in inflicting human casualties than two other modes of assault (para-

sitic bombing, and ramming attacks involving improvised explosive devices [IEDs]). With regard to attacks on cruise ships, we considered a broader range of likely attacks, and found that on-board bombings, followed by standoff artillery assaults and food or water contamination scenarios, present the greatest combination of threat and vulnerability. Once again, all of the attack modes targeting cruise ships involve roughly comparable estimates of potential economic harm, but parasitic bombings, ramming attacks with IEDs, and biological attacks (i.e., those involving contamination of a ship's food or water supply) are projected as presenting somewhat greater potential for harm in the form of human casualties.

With regard to attacks on containerized shipping, we note that cargo vessels themselves are attractive primarily as a means to transport weapons or to sabotage commercial operations more broadly, rather than as a direct target for terrorist assaults per se. This being said, most scenarios we considered had comparable combinations of threat and vulnerability. The economic consequences associated with any maritime assault that shuts down operations at a major U.S. port could be severe. A dirty-bomb attack perpetrated using an illicit cargo container presents the greatest combination of likelihood and expected economic harm. In terms of human consequences (i.e., casualties), most container shipping scenarios present a low likelihood of inflicting such harms, and the prospect of relatively modest human consequences even where that likelihood is realized. Perhaps most notably, container shipping scenarios involving nuclear detonations are less likely than the other scenarios we considered, but could entail far greater potential consequences in both human and economic terms.

## **Civil Liability and Maritime Terrorism**

Our analysis of civil liability connected with maritime terrorist attacks draws primarily on a review of legal authorities, related materials, and scholarly commentaries addressing the topic. Our aim in conducting this review was to accomplish three things: first, to identify major issues that arise in analyzing maritime terrorism liability problems; second,

to describe some of the key legal rules (and ambiguities) that will likely apply in future cases; and third, to analyze some of the implications for potential victims, commercial defendants, and insurers. As a threshold matter, civil liability is important both because it operates to transfer some of the costs associated with attacks from victims to other parties and because it creates private-sector incentives for prevention and mitigation efforts. By corollary, civil liability contributes directly to the magnitude of financial risks that firms confront in participating in maritime commerce. Civil liability also comprises the primary, well-established government mechanism for compensating victims.<sup>1</sup>

Analyzing civil liability in the context of future acts of maritime terrorism is complex, and it depends significantly on the facts involved in particular attacks. Nevertheless, several of the major steps involved in any such analysis are clear. The first question that arises involves the location of an attack and the circumstances leading up to it. Most attacks occurring in U.S. waters or territory and on the high seas are likely to be subject to U.S. jurisdiction and, in many instances, may be subject to federal admiralty rules that will determine liability standards. The second analytic question that arises simply involves identifying who is likely to be hurt in a hypothetical attack, and how: The nature of the harm defines the pool of potential plaintiffs and the types of the claims that they may bring. Subsequent steps in analyzing terrorism liability involve looking in detail at U.S. admiralty rules, at the substantive legal standards that they establish, and at the limits of their scope of application.

The central tort issue that will likely arise in connection with future maritime terrorist attacks involves the extent to which commercial defendants can be held liable for the independent criminal acts of terrorists. Traditional legal doctrines have tended to define the scope of negligence liability in terms of preventing “foreseeable” risks, with the result of substantially limiting liability for criminal acts committed by third parties (these mostly being viewed as unforeseeable). But in the

---

<sup>1</sup> Notably however, this mechanism was partially bypassed in the wake of September 11, through special federal legislation that created a compensation fund for victims (49 USCS 40101).

wake of September 11, the standard of foreseeability as applied to terrorist attacks is far from clear, and conceivably could be expansive. As a result, current tort liability risks associated with maritime terrorism are fundamentally ill-defined, but potentially quite large.

### **Key Observations and Recommendations**

Based on the findings of our investigations into maritime terrorism risk and liability, we offer the following set of conclusions and recommendations for policymakers:

- The greatest risks involving container shipping stem from scenarios involving radiological or nuclear detonation, or the extended disruption of operations at a port. *For radiological or nuclear detonation, effective risk management approaches must include securing nuclear materials at their points of origin.* Checking cargo containers moving through the container shipping system is impractical and imperfect because of the large number of containers and the inherent errors (both false positives and false negatives) of inspection technologies. The risks from extended disruption of ports are largely economic. *These risks are most effectively reduced through planning to facilitate the restart of ports and container shipping systems in the wake of a terrorist attack or natural disaster.*
- The greatest risks involving cruise ships and passenger ferries stem from cruise ship scenarios involving on-board bombs or food or water supply contamination and passenger ferry scenarios involving on-board bombs and USS *Cole*-style improvised explosive device attacks. Because it is essential that people be allowed to move freely on these types of vessels, it would be difficult to eliminate the risks completely. *The most effective approach for minimizing the risks, however, involves reducing the vulnerabilities of ferries and cruise ships, by auditing the soundness of vessel and facility security practices, by improving security measures at ports for passengers and luggage, and by implementing rigorous procedures for documenting crew and staff.*
- Many perceptions of maritime terrorism risks do not align with the reality of threats and vulnerabilities. First, there is little evi-

dence that terrorists and piracy syndicates are collaborating. The economic motivations for piracy (which depend for fulfillment on the stability of maritime trade) may be in direct conflict with the motivations of terrorists (i.e., in achieving maximum disruptive effects in connection with attacks). Second, some plausible forms of maritime terrorism (e.g., sinking a cargo ship in order to block a strategic lane of commerce) actually present relatively low risk, in large part because the targeting of such attacks is inconsistent with the primary motivation for most terrorist groups (i.e., achieving maximum public attention through inflicted loss of life). Third, any effort to sink a freight or cruise ship would need to overcome engineering designs intended to prevent catastrophic failure of a ship's hull. Experts believe that improvised explosive devices would have limited capability to cause such failure. *Maritime terrorism policy should not be motivated by these perceived threats.*

- Civil liability is a key aspect of the government's institutional response to maritime terrorism. Liability operates to redistribute some of the harms associated with an attack from victims to other parties who bear legal responsibility for those harms. Because terrorist perpetrators are often a poor prospect for recovery in civil suits seeking compensation for victims, third-party firms and property owners are likely to be targeted in postattack tort litigation. *As a result, firms engaged in maritime commerce need to recognize that they operate at risk and should investigate the extent of their own tort liability.*
- Civil liability standards in maritime terrorist attacks against the United States will likely draw on specialized rules in admiralty, particularly with regard to attacks on ferries and cruise ships. Related rules include liability standards for personal injury and death, regulatory requirements pertaining to vessel security, and statutory limits on liability for vessel owners. *Admiralty jurisdiction over these sorts of claims may preempt competing legal rules that would otherwise apply on land and may limit the compensation that can be sought by victims in some circumstances. Policymakers should*

*review these rules to confirm their appropriateness in application to future terrorist attacks.*

- Maritime attacks that leverage cargo containers could target port facilities or inland locations, and subsequent supply chain disruptions could implicate a host of contractual and tort disputes. *To the extent not already standard practice, parties to commercial contracts should specifically consider and address terrorism risks in connection with those contracts.*
- A key issue in tort liability for future maritime attacks will involve the extent to which third-party defendants (i.e., firms and property owners) can be held liable for the independent actions of terrorists. The same fundamental issue could arise in connection with a host of statutory and common law rules. The traditional criterion of foreseeability in negligence provides little guidance, in the wake of the September 11 attacks, regarding the scope of related responsibilities for potential defendants. *Policymakers should carefully review the scope and rationale of third-party liability for terrorist attacks, both in regard to providing reasonable compensation to victims and in setting appropriate incentives for prevention and mitigation efforts by private firms. More broadly, policymakers should consider the pros and cons of liability as a method for dealing with terrorism risks and injuries.*