

Making the Case for Environmental Stewardship within the Marine Transportation System

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Presentation Outline

Introductory Remarks

Making the Case for Environmental Stewardship within the MTS

- Central challenges facing the MTS

- The USACE Perspective

Identifying MTS Sustainability-Related R&D Needs

- Some fundamental questions

- Analysis of sustainable systems and technologies

- A closer look at the MTS National Strategy

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- Global risks and sustainability in the post-9/11 era

- Need for movement towards a risk-based MTS culture

- Elements of a Prescriptive Framework

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Introduction

- ▶ The Nation's **Marine Transportation System** (MTS) represents a complex, highly interdependent system that is comprised of waterways, ports, intermodal connections, and vessels
- ▶ Viewed from a macro-level perspective, the **efficient** and **effective** operation of this system is a vitally important aspect of the **economic and national security interests** of the country
- ▶ In recent years, attention within the federal government has focused on a number of **strategic issues** concerning the nature, operation, and management of the MTS
 - **National Strategy for the Marine Transportation System**
- ▶ Sitting at the nexus of these strategic issues are difficult MTS challenges pertaining to **environmental stewardship** and **environmental sustainability**

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- ▶ Fundamental challenge:
 - operating and managing the MTS in ways that promote and support the **efficient operation of the overall system**, while concomitantly **sustaining human health, safety, and the environment**
- ▶ Numerous challenges exist at the federal level to **make informed decisions**, as well as to **coordinate actions** between the numerous federal agencies whose purviews or mandates deal with specific aspects or components of environmental stewardship and sustainability
- ▶ The CMTS is charged with providing high-level leadership and improved coordination to promote **safety, security, efficiency, economic vitality, sound environmental integration**, and **reliability** of the MTS for commercial, recreational, and national defense requirements

The Environmental Stewardship Challenge

Key Elements of the MTS Decision Context

- ▶ There exists an **essential tension** between our desire for **economic security** and our desire for **environmental security**
- ▶ In the MTS context, decision-making concerning environmental stewardship and sustainability-related issues is made difficult by a number of factors, including

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 - ▶ **Valuation** of consequences arising from threats/hazards and vulnerabilities

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- ▶ The mission of USACE is to **provide vital public engineering services** in peace and war to strengthen our Nation's security, energize the economy, and reduce risks from disasters
- ▶ As a key participant in the **use** and **management** of many of the Nation's water resources, USACE strives to **protect**, **sustain**, and **improve** the natural and man-made environment.
- ▶ An important part of being a competent public engineering organization means being a **steward** of the Nation's natural resources
- ▶ Key mission activities:

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Within the MTS, the issue of **environmental sustainability** raises a number of important — and, indeed, fundamental — questions:

- ▶ Can our current patterns of **economic activity** and **consumption** be continued over long periods of time, without potentially disastrous consequences for humankind and the environment?

A plurality of suggested definitions:

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- Sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Report, 1987)

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- Sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Report, 1987)
- Sustainability as “the possibility that humans and other life will flourish on the Earth forever” (J. Ehrenfeld, 2009)

Some Fundamental Questions (cont.)

Important themes that emerge from current efforts to substantiate the notion sustainability:

- ▶ An awareness and concern for both the **present** and the **long-term** future, placing a positive value on the very long run
- ▶ An explicit recognition of the **intrinsic value** of environmental assets

Key challenges facing public decision-makers and environmental regulators/stakeholders:

- ▶ The ability to **model** and **evaluate** alternative long-term dynamic paths open to a global economy
- ▶ A willingness to acknowledge and confront the **uncertainties** that underlie many of the systems and processes that drive or otherwise influence sustainability

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Analysis of Sustainable Systems and Technologies

- ▶ Any systematic effort to analyze policies and initiatives relevant to environmental sustainability must have three key aspects:
 - An understanding of **long-run dynamics**
 - An understanding of **risk and uncertainty**
 - Prescriptive frameworks for **framing** and **guiding** the selection of strategic options
- ▶ A related set of concepts and considerations, central to any fully-realized conception of environmental sustainability:

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 - ▶ **Flexibility** in adaptation and mitigation response strategies

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A Closer Look at the MTS National Strategy

Some Desirable Characteristics

- ▶ **National strategies** are not required by either executive or legislative mandate to address a single, consistent set of characteristics
- ▶ **GAO** has identified a set of **desirable characteristics** to aid responsible parties in developing and implementing national strategies
- ▶ Six key characteristics:
 1. *Purpose, Scope, and Methodology*
 2. *Problem Definition and Risk Assessment*
 3. *Goals, Subordinate Objectives, Activities, and Performance Measures*
 4. *Resources, Investments, and Risk Management*
 5. *Organizational Roles, Responsibilities, and Coordination*
 6. *Integration and Implementation*

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- ▶ The events of 9/11 have brought about dramatic shifts in government priorities and investments to address the management of global risks and environmental sustainability
- ▶ 9/11, Katrina/Rita/Wilma, et al., have resulted in adverse consequences of an unprecedented nature
- ▶ In the area of environmental sustainability, a key issue facing the MTS is **how to best allocate scarce resources** in the face of

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 - ▶ **Large uncertainties** concerning the evolving threat/hazard environment, across all relevant mission areas
 - ▶ Uncertainty concerning the potential **costs** and **benefits** associated with possible **prevention** and **mitigation** strategies
 - ▶ Efforts to pursue a broad range of **strategic** or **operational goals** and **objectives** — e.g., program effectiveness and economic efficiency, etc.

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The Need for Movement Towards a Risk-Based Culture

- ▶ The centrality of **risk management as an organizing principle** around which problems of **regulation** and **scarce resource allocation** are approached is an idea that permeates most contemporary efforts within the federal government to assess and manage the potential adverse consequences associated with a variety of risks — both man-made and natural
- ▶ Any incrementalized steps to this end must first be informed by a **strategic roadmap** that lays out how risk management principles should inform a broad range of MTS-related decisions
- ▶ Central in this regard is the ability to provide — at every level of the organization — **clear and direct guidance** on how risk management principles should be applied in a broad range of **strategic, tactical, and operational** settings
- ▶ There has been **little in the way of systematic guidance** for how risk management principles should be applied across the federal government (though some progress has been made in certain areas in recent years)

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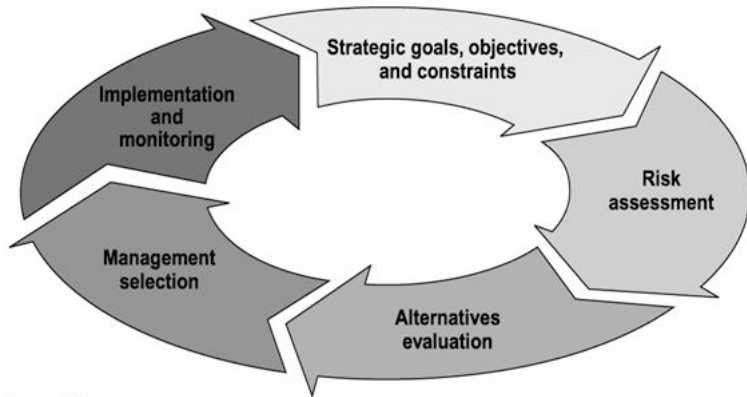
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Source: GAO.

MTS Environmental Stewardship Challenges

- ▶ **Operationalize** the notion of sustainability
- ▶ Establish real and tangible **linkages** between the conceptual realms of **risk** and **sustainability**
- ▶ Development of appropriate and congruent **decision support tools** that support this ambitious objective
- ▶ Continued **stakeholder engagement**, including **risk communication**
- ▶ Risk-informed balancing of **long-term** vs. **short-term** needs
- ▶ Awareness and understanding of **emerging risks** / **emerging technologies**

Concluding Remarks

- ▶ Perhaps the most vexing challenge in our quest for social, political, economic, and technological trajectories that hold the greatest promise for a “sustainable” future:
 - ▶ How best to regulate and allocate scarce resources among the vast panoply of risks that can beset mankind in the technological society of the 21st century?
- ▶ We have argued for a common set of analytical frameworks and conceptual schemes for utilizing risk management in the service of sustainability
- ▶ The challenge remains one of continued vigilance, flexibility, and resilience in anticipation of, and in response to, an ever-changing threat/hazard environment