Maritime Safety:
to be or not to be Proactive

Harilaos N. Psaraftis
National Technical University of Athens

IAPH Europe-Africa Regional Meeting, 20-21 Feb. 2003, Amsterdam

Reference

- EU R&D projects SAFECO I,II, CASMET
- Paper in *WMU Journal of Maritime Affairs*, Vol. 1, October 2002

(*Prestige* happened a few weeks later)

- To appear also in IAPH's *Ports and Harbors*, March 2003

“The EU now has one of the best regulatory arsenals in the world to guarantee maritime safety. It is essential that these measures should be put into effect with the utmost resolution and speed. The Commission, for its part, will continue its efforts and propose follow-up measures to complete these rules and banish the spectre of a new Erika disaster.”

EU Commissioner Loyola de Palacio, commenting on the Erika I and II packages.

What is “policy”?

- Laws
- Regulations
- Directives
- Rules
- M.O.U.s
- Resolutions
- Protocols
- Guidelines
- Specifications
- Recommendations
- Standards
- Codes
- Practices
- Other

Policies collectively cover:

- Training requirements for seafarers
- Certification of seafarers
- Fitness for work, use of alcohol and drugs, fatigue
- Working and living conditions onboard
- Common working language between crew members
- Ship equipment and human-machine interface
- Ship-to-ship and ship-to-shore communication
- Vessel traffic services and vessel traffic management information services
- Global maritime distress and safety systems
- Ship reporting systems

Also…

- Port and harbor safety regulations
- Navigation and pilotage
- Loading, stowage and discharging
- Fire-fighting
- Search and rescue
- Environmental protection
- Design of ships
- Construction of ships
- Maintenance of ships
- Survival capability of ships
- Emergency and evacuation procedures

Who develops policy?

- **Main player: IMO**
  - **SOLAS**
  - **STCW**
  - **ISM Code**
  - **HSC Code**

- **Scientific Approach to Maritime Safety:**
  Formal Safety Assessment (FSA) *methodology*

Other players...

- European Union
- Flag states
- Port states
- Shipping companies
- Ports
- IACS and classification societies
- ILO and labor organizations
- Others (shippers, shipyards, P&I clubs, environment groups, etc, etc, etc)

Potential problems:

- Over-regulation
- Patchwork regulation
- Overlaps in regulation
- Inconsistencies in regulation
- Gaps in regulation

Criticism by shipping industry:

- Reduction of competitiveness
- Non-level playing field
- Lack of comprehensive safety regime

- Develop new rules or enforce old ones?

“Proactive” policies:

- Early stage identification of main factors that affect safety
- Development of regulatory action to prevent undesirable events

OBSERVATION 1:
What has mostly driven regulatory activity to date?

- *Herald of Free Enterprise* (1987)
- *Exxon Valdez* (1989)
- *Scandinavian Star* (1990)
- *Estonia* (1994)
- *Erika* (1999)
- Bulk carrier losses (e.g, *Derbyshire*, 1980)

OBSERVATION 2:

- Even though the human factor played a critical role in most of these accidents,

- Much of maritime safety policy developed afterwards focused on "engineering," or "design" solutions

Examples:

- Tanker design (double hulls, double bottoms)
- Roro/ferry design (internal subdivisions)
- Bulk carrier design (transverse bulkheads, double hulls)

Implications:

- Entire fleets are rendered obsolete
- Expensive conversions, or purchase new ships altogether
- Operational capacity of ships seriously affected downwards
  - *(but benefits may accrue to unemployed seafarers)*

Also..

- Shipyards radically alter their designs to adapt to the new rules
  - *(but sales of new ships increase)*
- Demand for ship scrapping capacity goes at high levels

Fundamental questions:

- What are the benefits of such policies to maritime safety?
- To maritime environment?
- At what cost these benefits will come about?

Answer:

- To date, such questions remain by and large unanswered

Tanker accidents

- *Torrey Canyon*, 1967
- *Amoco Cadiz*, 1978
- *Exxon Valdez*, 1989
- *Erika*, 1999
- *Prestige*, 2002

OPA' 90 (after *Exxon Valdez*)

- One of most important pieces of maritime legislation in history
- Mandates, among other things, double hulls-bottoms for tankers into US waters
- Has had worldwide implications on tanker design, operation and economics

Crucial questions:

- What benefits has this policy eventually produced?
- At what cost?

- *(similar questions can be asked vis-à-vis the Erika I package)*

BENEFITS:

- Reduction of risk
- Damages averted

COSTS:

- Construction costs
- Decreased revenues

Question:

-What benefits has this policy eventually produced?

-At what cost?

Answer:

Nobody really knows

In both *Exxon Valdez* and *Erika* the human element was the most prevalent factor

Exxon Valdez:

- Use of alcohol
- Fatigue
- VTMIS manning

Erika:

- Faulty inspection procedures by Class

And yet…

- OPA'90 banned *Exxon Valdez* from visiting Alaska ever again
- Use of alcohol by *Exxon Valdez* master not proven in court
- Vessel still operates under new name elsewhere
- He is rumored to still have his license!

Erika I, II packages:

- Tighter inspections by Class and port state control
- Establishment of EMSA
- Better information and monitoring
- Compensation regime

Bulk carrier losses
(*Derbyshire*, 1980, et al)

- IMO/IACS regulations (design, construction, maintenance)
- FSA to recommend double hulls, even as voluntary measure

- Q: Was design the main cause, as opposed to human error? (faulty loading, high speed in bad weather, etc)

POLICY ISSUE:
Design ships so that they can sustain damage even if operated in a questionable or even reckless fashion?

- Does not discourage such behavior
- May actually encourage it
- No serious documentation of benefits vs. costs

Roro ferry losses

- *Herald of Free Enterprise* (1987)
- *Estonia* (1994)

- Human factor prevalent in both

- Yet, “engineering” solutions
- Stockholm agreement

Conclusions

- Impressive array of regulations
- Safety record needs further improvement
- Patchwork picture
- Most serious policy activity driven by major accidents

Also..

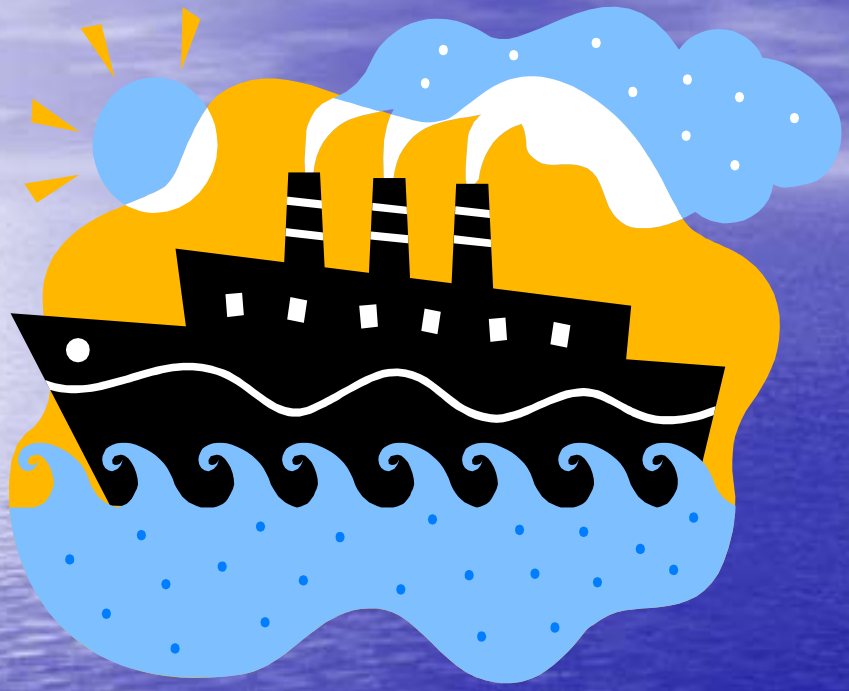
- Most policies focus on technological solutions, even though human element is most important
- Most concern after-the-fact vessel survivability, instead of accident prevention
- Costs and benefits undocumented, even though impact is monumental

Last but not least..

- Use of scientific method growing, but still very underdeveloped
- So far has had little or no impact on policy formulation
- Need tools to assess policy alternatives prior to their adoption

Epilogue: *Prestige*

- Accelerate single hull phase-out
- Ban heavy fuel oil transport by single hulls
- Ban single hulls inside 200 mile zone



Thank you very much!