

**Project 20: Border Security Case Study and Table Top Exercise (Maya and Bakir)**

This Case Study and Table Top Exercise seek to develop and apply systems-based risk management methodology for evaluating alternative policies and technology-based solutions for protecting our borders against illegal importation of weapons, terrorist infiltration and direct terrorist attacks while maintaining the free flow of trade.

**Modeling Area:** Risk Management

**Application Area:** Border Security

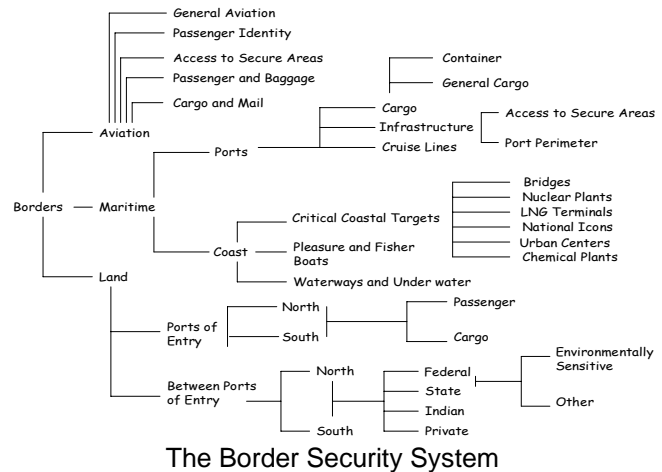
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**Institution:** University of Southern California

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**Brief Description:**

The scope of this Case Study covers maritime, land border and aviation security. We will develop and apply a systems-based risk management approach that performs comparative risk assessment between different elements of integrated border security operations to support fund allocation decisions. It will include a comprehensive overview of threats and vulnerabilities. We will examine alternative security strategies, including methodologies for screening and inspecting cargo, and operational improvements that promote participation in trusted shipper programs. Alternative methods for shipping goods into the United States, and a comparison of technology-based solutions to deter and detect terrorists and weapons crossing the borders will be a key focus. We will design and conduct a Table Top Exercise in collaboration with DHS to examine specific aspects of security.



**Objectives:**

- Identifying threats and vulnerabilities that constitute the terrorism risk exposure of the border security system.
- Development of a methodology to perform comparative risk assessment between elements of border security.
- Evaluation of alternative policies and technology based solutions to protect the borders from weapons smuggling, terrorist infiltration and direct attacks on infrastructure.
- Measuring sensitivity of policy decisions on probability and potential consequences of a particular component failure.
- Provide insights into funding allocation decisions for border security.

**Major Products and Customers:**

This project will develop a methodological tool for comparative risk assessment between components of the border security system. We will select “cargo security” as our initial case study and develop a software tool to evaluate alternative investments and policies to improve cargo security. The results will be documented in a comprehensive report. Major customers are the policy analysts responsible for border security, for example, the Customs and Border Protection (CBP) Department, and the Office of the Private Sector and Science & Technology

Directorate under DHS. At the regional and local levels, customers include the Office of Homeland Security in California, the LA/LB port complex officials.

**Interfaces to other CREATE Projects:**

The border security project will have close interface with the Bioterrorism and Resource Allocation Case Studies.

**Interfaces to non-CREATE Projects:**

The LA/LB Joint Container Inspection Facility (JCIF) potential project could be a good case study extension for the maritime cargo security component of the border security project. The interplay between these projects is more visible because we may apply the methodology developed in the border security project on evaluation of technology in container inspections.

**Technical Approach:**

1. *Data collection and model development:* We will locate and access data to quantify terrorism risk, potential consequences of a terrorist attack due to failure of each component, risk reduction both in terms of reduction probability of failure and potential consequences when a countermeasure is implemented as well as cost of each countermeasure. We will collect data and develop the model simultaneously.
2. *Evaluation of selected countermeasures and sensitivity analysis:* In this phase, we will use the data in our model to evaluate countermeasures. The marginal value of each countermeasure is measured in terms of terrorism risk reduction on multiple components. At this stage, we will do a sensitivity analysis to observe how policy decisions change based on a range of probability or consequence estimates.
3. *Ranking of countermeasures:* Analysis of results will provide us ranking among different countermeasures and help us determine which countermeasures should be implemented.
4. *Review of recommendations:* Based on the results in Phase 3, we will determine our recommendations. These recommendations will be reviewed with the experts on border security.
5. *Design and Conduct Table Top Exercise (TTE):* In consultation with DHS terrorism experts and border security experts, we will design and conduct a TTE of a terrorism event, expanding on last year's TTE conducted with CBP.

**Major Milestones and Dates:**

The major milestones for the border security project include

1. Initial results from the case study and preparation of the final draft of the report, complete data collection and model development -- Completed.
2. Conduct initial TTE – Completed.
3. Review of case study results and tools developed to assess cargo security risk. Complete evaluation of selected countermeasures and sensitivity analysis in selected case studies-- December 2006.
4. Design and plan new TTE – December 2006.
5. Initial ranking of countermeasures – February 2007.
6. Conduct TTE – March 2007.
7. Final review on both the case study and TTE. Review TTE results and recommendations. Finalize report and TTE recommendations – April 2007.