S&T Stakeholders Conference

Risk-Informed Requirements Process

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PARTNERING FOR A SAFER NATION
National Infrastructure Protection Plan (NIPP)

- Operational framework for protecting the **17 Critical Infrastructure/Key Resources (CI/KR) sectors**
- Provides a clear division of labor between infrastructure protection and our Federal, State, local, tribal, and private sector partners
- Forms the basis for risk-based CI/KR protection requirements and prioritization
- Informs the annual Federal budget process in infrastructure protection mission area

The NIPP risk management framework uses threat, consequence, and vulnerability information to produce comprehensive and systematic assessments that drive CI/KR risk reduction.

**Homeland Security**
NIPP Partnership Model

- Creates a forum for the requirements collection process
- Involves 2-way collaborations with private sector, Federal agencies, States, Territories, local governments, and tribal security partners
Assessed Components of Risk

- **Threat**
  - Intent
  - Capability
  - Assessed in coordination w/ Intelligence Community

- **Vulnerability**
  - Recognizability
  - Countermeasure Effectiveness
  - Robustness/Resistance
  - Assessed in coordination w/Sector-Specific Agencies (SSAs)

- **Consequence**
  - Loss of Life
  - Economic Impact
  - Psychological Impact
Risk Analysis Components

Infrastructure Analysis & Strategy Division (IASD)

- Homeland Infrastructure Threat & Risk Analysis Center (HITRAC)
  - Joint Program Office between IP and I&A conducting threat and risk analysis
  - Risk analysis for all sectors
  - Influences approximately $2-3B in DHS grants

- National Infrastructure Simulation and Analysis Center (NISAC)
  - Congressionally mandate center for critical infrastructure protection
  - Operations support with all-hazards modeling, simulation, and analysis
  - Capabilities with and between all sectors (consequence analysis, cascading effects, interdependencies)

- R&D Analysis Branch
  - Focal point for emerging technology and risk reduction
  - Leads joint CIKR Sector R&D requirements process
  - Enhanced interaction with S&T Directorate and full spectrum of potential collaborators (Centers of Excellence, university programs, etc.)
Strategic Homeland Infrastructure Risk Assessment (SHIRA)

- Provides a snapshot of the risks to the Nation’s CIKR, including physical and cyber assets from international terrorists and their affiliates:
  - Determines the highest risks to the nation from attacks targeting the CI/KR sectors
  - Addresses risk based on existing threat, vulnerability and consequence data, but does not speculate on how these variables will evolve

- Basis for the National CIKR Risk Profile within the National CIKR Protection Annual Report

- HITRAC coordinates directly with the stakeholders to obtain or generate the data used in the assessment:
  - Work with the Intelligence Community to assess threat
  - Work with the SSAs and other Federal subject matter experts to assess vulnerability and consequence by CIKR sector
Tier 1/Tier 2 Program

- Through collaborative process with Federal partners, and State and territorial government partners, DHS has identified ~3,000 Tier 1/Tier 2 assets and systems based upon objective consequence and criticality-based criteria.

- Designed to increase accuracy of prioritization efforts that inform DHS resource allocation decisions, focus planning, and support effective incident management, response and restoration activities.

- The Tier 1/Tier 2 results will be used to:
  - Provide common basis for which DHS & partners to implement CI/KR protection initiatives.
  - Support eligibility determinations for largest Homeland Security Grant Programs.
  - Ensure assets/systems capable of creating significant consequences are primary focus of DHS protective efforts.
Natural Disaster Preparedness

- The National Infrastructure Simulation and Analysis Center (NISAC) produced 10 detailed hurricane impact studies covering the East Coast from Texas to Maine
  - Broadly distributed them within DHS and to external partners to support pre-event planning
  - Studies provide comprehensive hurricane impact analysis on CIKR in affected area, highlighting critical assets (Tier 1/Tier 2 and others), as well as assets that have significant cascading effects
- DHS provides specific impact studies for all hurricanes Category 2 and above that are scheduled to make landfall
- Provide updated analysis and respond to specific analytical requests year round (e.g., prioritize facilities for restoration, protection, DHS leadership-requested preplanned analyses, etc.)
Risk-Based Requirements Process

- Collected and re-organized Sector Annual Report (SAR) capability gaps/requirements chapter
  - SAR utilizing new “capability gaps template” for tracking and management
  - R&D Tiger Teams consulted with sectors to help articulate requirements
  - IP staff has emphasized Sector-Specific Agencies for contact thus far
  - Integrated S&T Critical Infrastructure Protection (CIP) R&D Plan with SAR and CIKR Annual Report

- Created and used Requirements Steering Group (cross-functional team of IP and S&T division directors) to evaluate and prioritize requirements/capability gaps
  - Used matrix analysis to identify CIKR sector R&D requirements that were completely unaddressed in S&T IPT process

- Presented gaps and SMEs to S&T Transition for use in Dec 07 Integrated Product Team (IPT) Capstones and other S&T research centers/vendors
  - Used SHIRA & other criteria for risk-informed prioritization
Conclusion

- Risk is cornerstone in identifying and prioritizing grants, disaster preparedness activities, CIKR Sector requirements, and potential R&D projects
- Threat, vulnerability, and consequences are key components in calculating risk
- All risk-related projects and analyses for the Office of Infrastructure Protection fall within National Infrastructure Protection Plan (NIPP) framework

Bottom Line:
- DHS’ customer-driven R&D process needs deliberate, authoritative risk-informed decisions to allow prioritization of limited resources