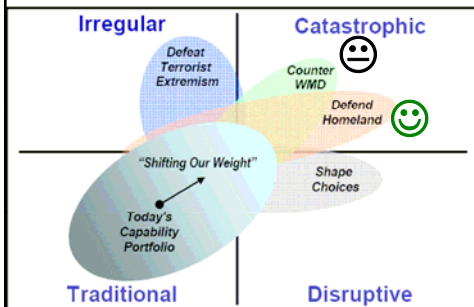


Analysis for Non-Traditional Security Challenges: Methods & Tools

**Military Operations Research Society (MORS)
Workshop**

**WG 3, “Catastrophic”
Outbrief**

Working Group 3: Catastrophic Overview



HLD: state of data, methods, tools

Workgroup 3 Coverage

- ◆ Accelerate existing programs focused on engineering → tactical model integration ... Not ready to build new operational or strategic models: focus on data collection from exercises, operations and war games
- ◆ Conduct analytically supported war games to clarify roles, concepts, CONOPS, and metrics to better refine needs
- ◆ Facilitate inter-agency analytical “Community of Interest”
- ◆ HLD imperative: “Born joint” → “Born interagency / international”

Working Group 3: Catastrophic Catastrophic Strategic Challenges



- **Catastrophic homeland events:** man-made or naturally occurring events involving significant loss of life and significant social/political/economic/psychological effects: e.g. large National Planning Scenarios (10KT nuke, chlorine tank, plague, anthrax, large natural disasters)
 - ◆ Community of interest: NORTHCOM, PACOM, Services, DTRA, National Labs, DHS (incl Coast Guard, FEMA), HSC, EPA, DOE
 - **Counter-WMD:** events involving WMD interdiction, counter-proliferation, deter/defeat the use of WMD by state and non-state actors
 - ◆ Community of interest: STRATCOM, Services, Regional COCOMS, DTRA, National Labs, DOE
 - **Significance = f** (physical, economic, social, political and psychological effects, level of effort, duration)
 - **Some key unresolved issues**
 - ◆ Roles and relationships (Lead Federal Agency, Title 10/32, authority)
 - ◆ Lack of coordination, integration, inter-operability
 - ◆ Immature data, methods, tools in some areas
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WG 3: Catastrophic Current Analytic and M&S Capabilities



- **Current capabilities**
 - ◆ Engineering level: robust individual models: DTRA Suite, CAPS
 - ◆ Tactical / operational level: EPICS, JCATS, IWMDT
 - ◆ Campaign level: legacy models (ITEM), but these are not tailored for domestic catastrophic events
 - ◆ Training models: significant lack of simulator/stimulators/facilities
 - **Applications/examples** – many stand alone tools: multiple tools often required to assess a scenario
 - ◆ Defense Collaboration Tool Suite/InfoWorkSpace (DCTS/IWS)
 - ◆ Hazard Prediction Assessment Capability (HPAC)
 - ◆ Consequence Assessment Toolset (CATS)
 - ◆ Integrated Munitions Effects Assessment (IMEA)
 - ◆ Vulnerability Assessment and Protection Option (VAPO)
 - ◆ Traditional campaign analysis/mission level tools re-purposed to assess catastrophic scenarios
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WG 3: Catastrophic

On-going Enhancements to Analytic and M&S Capabilities



- Selected engineering/system level tools

- ◆ Joint Effects Model (JEM): predict and track NBC and Toxic Industrial Chemical/Material (TIC/TIM) events and effects
- ◆ Joint Operational Effects Federation (JOEF): M&S for warfighters and planners to accurately predict CBRNE effects
- ◆ The Joint Warning and Reporting Network (JWARN): comprehensive analysis and response capability to minimize the effects of NBC attacks, accidents and incidents

DTRA will begin to spiral Integrated WMD Toolset (IWMDT) FY06

- DTRA Collaboration Center (DCC) - common architecture that supports CBRNE data fusion from disparate sources supporting Situational Awareness, Systems Engineering and capability development: initial operational capability FY06

DTRA partnering with Services, COCOMS, Allies, Labs

WG 3: Catastrophic

Analysis Gaps and Deficiencies



- Key stakeholders and decision-makers

- ◆ USG (Inter-agency)
- ◆ DOD/Services/COCOMS
- ◆ Local Govts
- ◆ Allies
- ◆ Coalitions
- ◆ Industry
- ◆ State/Territorial Govts/NG
- ◆ National/private Labs
- ◆ First Responders

- Key analysis gaps and deficiencies

- ◆ Perceived lack of objective goals, defined responsibilities, action/resources reflecting stated priorities
- ◆ Need for improved interagency cooperation/collaboration/data sharing
- ◆ Insufficient understanding of complex, primary effects and secondary effects (political, economic, social, psychological)
- ◆ Little quantification of local, state, federal, DoD, and int'l response capabilities
- ◆ Immature/non-existent operating procedures, data, tools for evolving mission and requirements
- ◆ Barriers to sharing data, plans (classification issues, terminology, ontology)

- Commonalities between stakeholders

- ◆ Desire for comprehensive, systematic, interagency analysis
- ◆ Desire for integrated, tactical/operational tools
- ◆ Need to plan for response & future investments
- ◆ Mission focus

WG 3: Catastrophic Key M&S Shortfalls and Gaps



- **Data:**
 - ◆ Lack of data on local, state, other federal, NGO, int'l agency capability
 - ◆ Biological threats, retransmission, mortality, etc.
 - ◆ CBRN effects (lack of current / empirical test data)
- **CONOPS:**
 - ◆ Desired response over time
 - ◆ Metrics
 - ◆ Translation of DoD capabilities to HLD employment
 - Pre-event (detect, deter, prevent capabilities)
 - Post-event (consequence management)
 - ◆ Apportionment of tasks across services
- **Methods/Tools**
 - ◆ Model integration/synergy (output of one model not always useable by others to provide useful/meaningful output)
 - ◆ Catastrophic models (e.g. Bio)
 - ◆ Empirical based models
 - ◆ Socio-economical, psychological, and political aspects
 - ◆ Integrated M&S “pyramid,” particularly at higher levels

WG 3: Catastrophic Potential Solutions



- **Data/CONOPS**
 - ◆ DHS development of database of state and local capabilities (Target Capabilities List)
 - ◆ Establish proponents for interagency data collection for engineering to campaign level analyses
 - ◆ Development/assessment of appropriate Analytic Agenda scenarios and baselines
 - ◆ Leverage JFCOM Experimentation, Joint Training, and Joint Center for Operational Analysis events / processes for:
 - Development of Combating WMD/“Catastrophic” analytical tools/methods
 - Relevant data (e.g., Joint Rapid Distributed Database Development – JRD3)
 - Potential M&S/analytical solutions/needs derived through experimentation
- **Methods/Tools**
 - ◆ Facilitated war games (EPICS – Emergency Preparedness Incident Command Simulation, JSRTS - Joint State Response Training Simulation, TOPOFF)
 - ◆ DTRA’s fielding of an integrated GIG-accessible suite of CBRNE tools
 - ◆ Enhancements to campaign models (ITEM to link IWMDT)
 - ◆ Commercial game adaptations/gaming engines (e.g. SimCity, Delta3D)
 - ◆ Potential partnerships for new M&S/data development: DTRA, DHS (incl Coast Guard, FEMA), National Guard Bureau, JFCOM, NORTHCOM, STRATCOM, UK, Canada, Service labs (AFRL), industry

WG 3: Catastrophic High Priority Analytic M&S Needs



Focus on data and establishing an M&S Community of Interest

- **Data**
 - ◆ Establish a list of questions for Catastrophic events requiring analysis (esp. COCOM needs)
 - ◆ Collect exercise and operational data: unit commitment, deployment timeline, activities, duration of commitment
 - ◆ Collect war game results: C2 relationships, roles, CONOPS, metrics, need for DoD forces, Title 10/32 relationships
 - ◆ Begin to re-validate applicability of basic engineering data (lab testing for CBRNE)
 - ◆ Develop Bio warfare/contagious disease data: retransmission, morbidity, etc.
 - ◆ Follow up on DHS efforts to develop systematic, comprehensive development of data on local/state response capability
 - ◆ Support common data standards (metadata)
- **Methods**
 - ◆ Increased catastrophic scenario involvement in Analytical Agenda products
 - ◆ Support the conduct of facilitated war games to develop CONOPS, concepts, metrics and clarify responsibilities
 - ◆ Support SPG tasker to assess large consequence management events
- **Tools**
 - ◆ Assess DTRA Collaboration Center ability to support analytical requirements
 - ◆ Establish an interagency “HLD M&S Community of Interest” to refine requirements and integrate effort

WG 3: Catastrophic Recommendations



- **Specific to WG area**
 - ◆ Develop databases and sources for that data
 - ◆ Conduct analytically supported exercises/war games/studies to refine CONOPS, metrics
 - ◆ Developing an active and robust interagency M&S Community of Interest
 - ◆ Consider redefining “Catastrophic” as two missions areas:
 - Pre-Event (Prevent, Deter, Defeat)
 - Post-Event (Consequence Management)
- **Overall to Non-Traditional Challenges:**
 - ◆ Improve communications between all stakeholders by increased focus on Non-traditional challenges in MORS, JCAC, and other joint and inter-agency forums
 - ◆ Develop M&S Communities of Interest for each of the sub-areas
 - ◆ Reapportion M&S funding from traditional to non-traditional models
 - ◆ Renew emphasis on analytically supported war gaming
 - ◆ Refocus the Analytic Agenda on non-traditional scenario development and analysis
 - ◆ Data-mine DTOs, goals, objectives, and funding profiles
- **Other comments**
 - ◆ Need to support inter-agency participation
 - ◆ Need to recognize that significant policy and legal issues remain unresolved
 - ◆ If the next 9-11 or OIF Stability Op happens, will we be able to say we’ve done our best to plan & prepare?

***WG 3: Catastrophic
Way Ahead***



- **DTRA develop paper on combating WMD for Phalanx to describe new missions and required supporting analysis – consider follow up meetings**
- **Provide this brief to Analytical M&S Master Plan conference (March 12-14)**
- **Participate in March MSFD conference, Newport, RI (combating WMD)**
- **Support “THOLIAN WEB”**