Challenges and New Approaches in Protecting Systems based Infrastructure

DHS University Network Summit.

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States Perspective on Ag and Food CI/KR

- 2003 HSPD 7 lists our Nations food supply as CI/KR

- DHS Lists 15 National Scenarios / what DHS considers the 15 most plausible ways that the US could be attacked. Attack on the US food supply is listed

- 37 Target Capabilities to address the 15 Scenarios. Two of which list directly AG and Food.

- Funding for developing preparedness for states is the State Homeland Security Grant Program
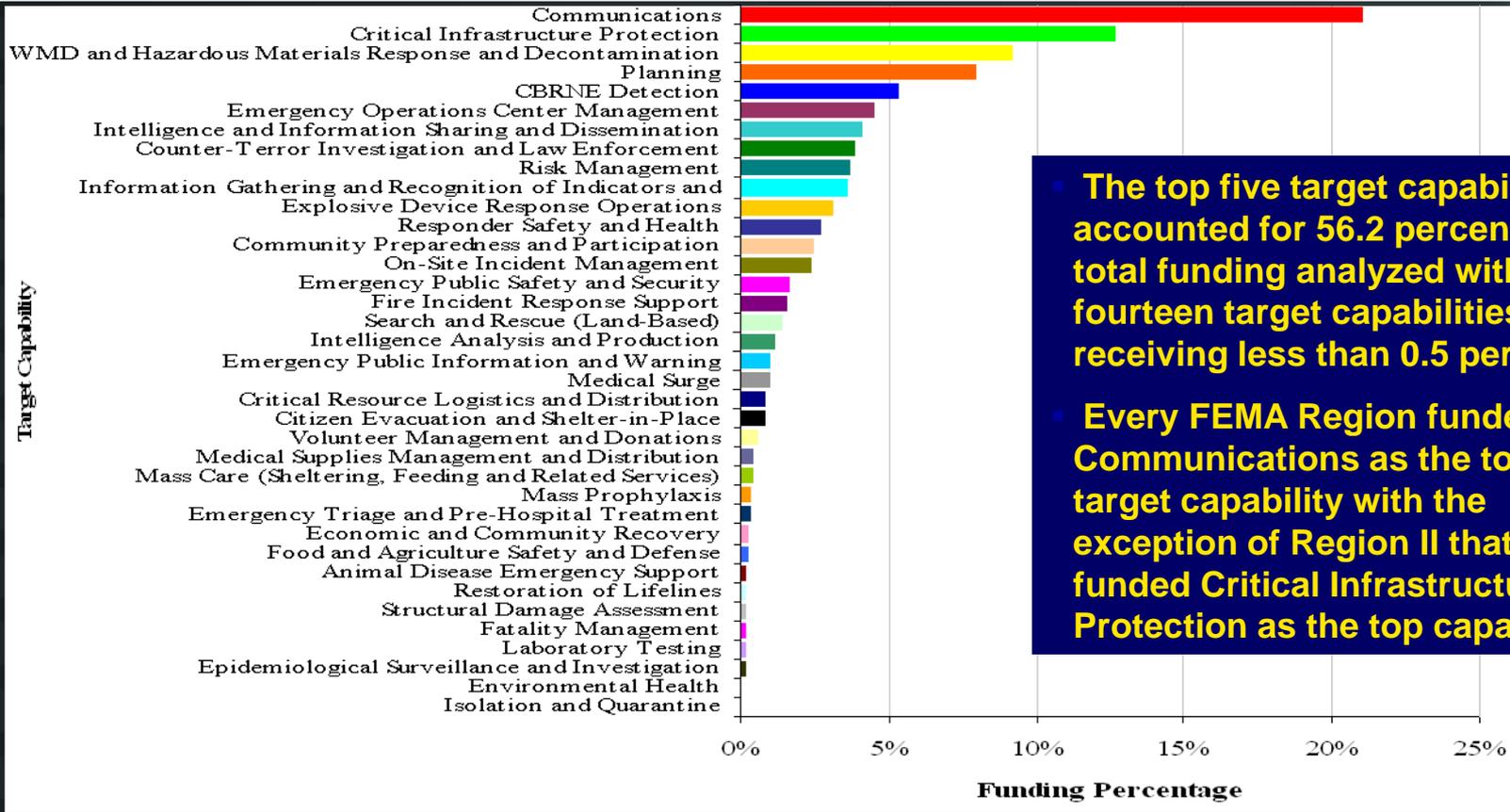
State Homeland Security Grant Program

- The 8 National Priorities
- Expand Regional Collaboration
- Implement NIMS
- Strengthen Information sharing / analysis
- Strengthen Interoperable communication
- Strengthen CBRNE detection & response
- Strengthen Med. Surge & Mass Prophy
- Strengthen Planning, Citizen Preparedness
- Implement the National Infrastructure Protection Plan
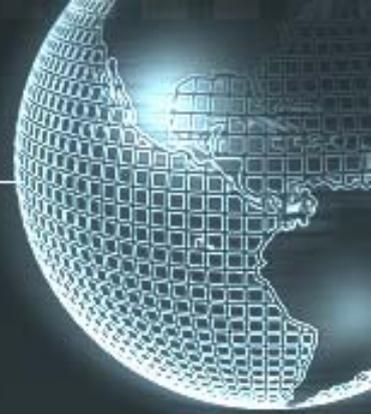
The Haves and Have-nots

For the first time, FEMA can see how grantee dollars support target capabilities across the grant portfolio – FY03-07 data is displayed

Chart — Funding Percentage by Target Capability (FY03-07):

- Communications
- Critical Infrastructure Protection
- WMD and Hazardous Materials Response and Decontamination
- Planning
- CBRNE Detection
- Emergency Operations Center Management
- Intelligence and Information Sharing and Dissemination
- Counter-Terror Investigation and Law Enforcement
- Risk Management
- Information Gathering and Recognition of Indicators and
- Explosive Device Response Operations
- Responder Safety and Health
- Community Preparedness and Participation
- On-Site Incident Management
- Emergency Public Safety and Security
- Fire Incident Response Support
- Search and Rescue (Land-Based)
- Intelligence Analysis and Production
- Emergency Public Information and Warning
- Medical Surge
- Critical Resource Logistics and Distribution
- Citizen Evacuation and Shelter-in-Place
- Volunteer Management and Donations
- Medical Supplies Management and Distribution
- Mass Care (Sheltering, Feeding and Related Services)
- Mass Prophylaxis
- Emergency Triage and Pre-Hospital Treatment
- Economic and Community Recovery
- Food and Agriculture Safety and Defense
- Animal Disease Emergency Support
- Restoration of Lifelines
- Structural Damage Assessment
- Fatality Management
- Laboratory Testing
- Epidemiological Surveillance and Investigation
- Environmental Health
- Isolation and Quarantine

Y-axis: Target Capability
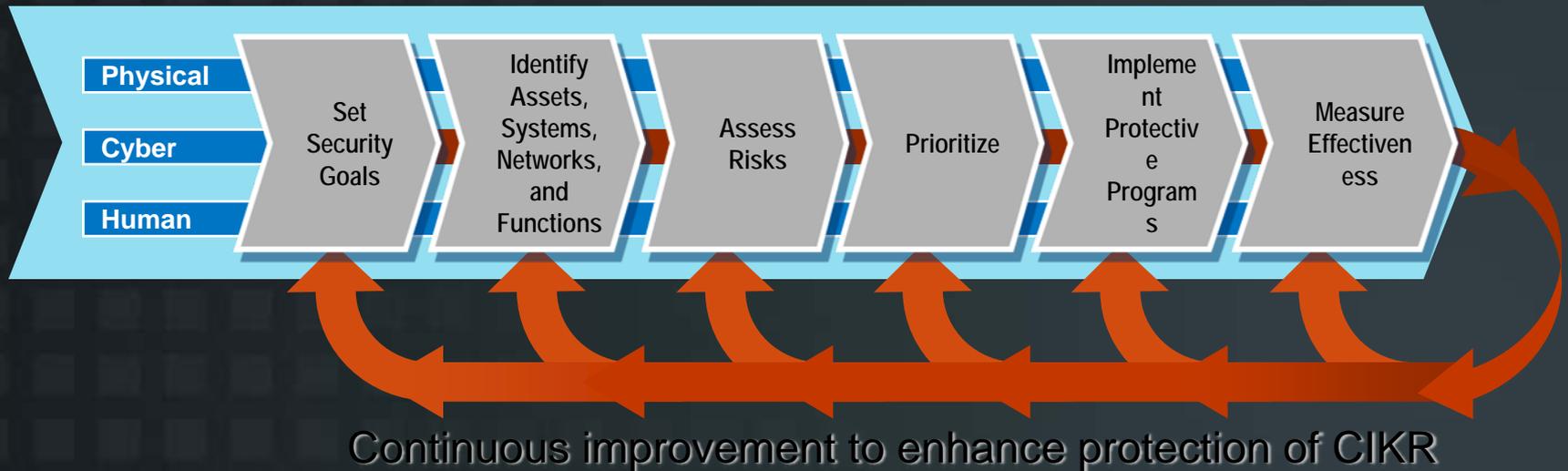X-axis: Funding Percentage (0% to 25%)

- The top five target capabilities accounted for 56.2 percent of total funding analyzed with fourteen target capabilities receiving less than 0.5 percent

- Every FEMA Region funded Communications as the top target capability with the exception of Region II that funded Critical Infrastructure Protection as the top capability

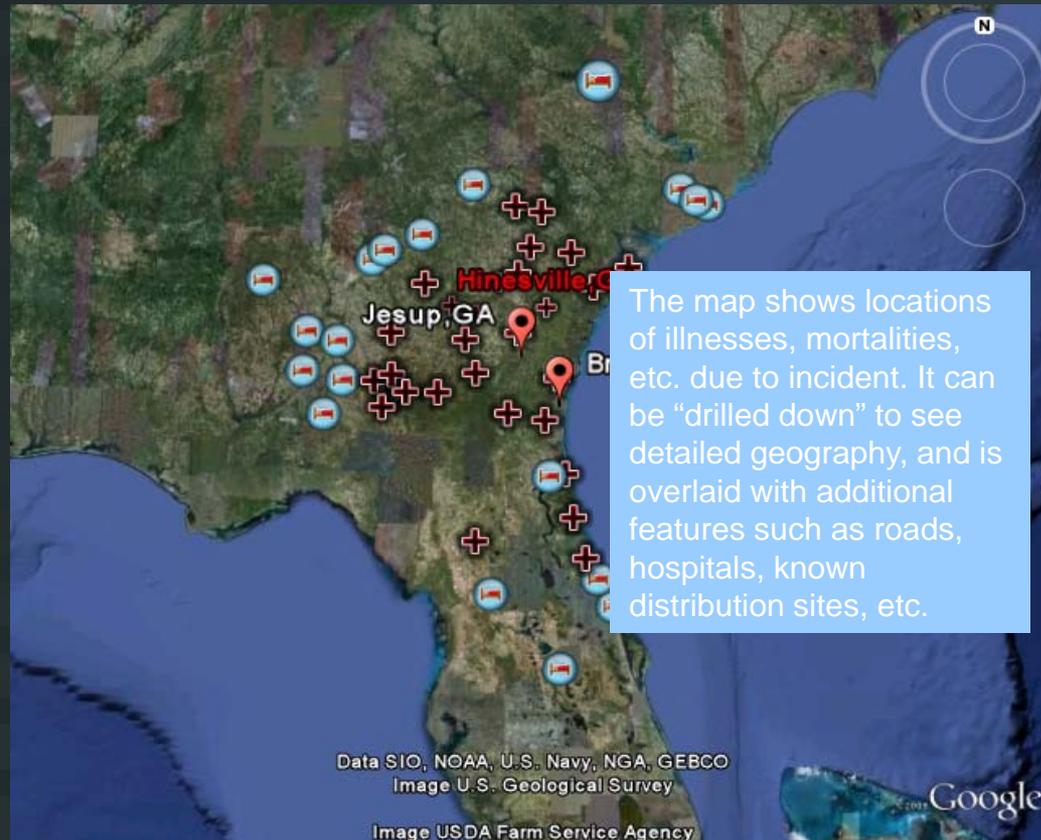# IMPLEMENTING THE NATIONAL INFRUCTURE PROTECTION PLAN

Risk Management Framework

Continuous improvement to enhance protection of CIKR

Food & Agriculture Commodity Flow System Labor Inputs Input/Process/Output Diagram

Production Inputs → Livestock & Crop Production → Food Processing → Food Distribution Wholesale → Food Service

Legend

Notes

CIP/DSS

Capabilities Modeled by RRECAP

RRECAP supports a large set of capabilities, and operates in several modes. When used to evaluate an entity many of these capabilities may be measured. However following the exercise small sets of these may be exercised individually to evaluate the sensitivity of outcomes to changes in individual capabilities.

The list shows the capabilities that can be modeled. When values are entered for a selection of capabilities and the .'Run' button pressed RRECAP shows an evolving map of the outcomes.

Run	Continue
Speed(Ms)	500
Profile	Legend

Capabilities(%) ☑

Capability	Value
CONOPS	N/A
Roles & Resp	N/A
Field Sampling	N/A
Communications	N/A
Reporting Mechanisms	N/A
Consequence Accuracy	N/A
Situational Awareness	N/A
Spatial Awareness	50%
Stop Sale Effectiveness	50%
Recall Effectiveness	50%
Recall/Stop Sale Time Span	96
Announcement Effectiveness	50%
Announcement Time Span	24
First Responder Protection	N/A
Surge Effectiveness	N/A
Surge Radius	N/A

The map shows locations of illnesses, mortalities, etc. due to incident. It can be "drilled down" to see detailed geography, and is overlaid with additional features such as roads, hospitals, known distribution sites, etc.

Hinesville, GA
Jesup, GA

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image U.S. Geological Survey
Image USDA Farm Service Agency

Google

Comparison of Capabilities
(Stop Sale only, no announcement)

No Interventions	(FAS-CAT) Spatial Awareness; Recall/Stop sale effectiveness set at 25%	(FAS-CAT) Spatial Awareness Recall/Stop sale effectiveness set at 50%	(FAS-CAT) Spatial Awareness; Recall/Stop sale effectiveness set at 75%

Observations

	No Interventions	25%	50%	75%
Consumer Reports	203	143	114	99
Medical Attentions	53962	36641	28921	22588
PHD Reports	8090	5490	4340	3386
Hospital Admissions	19424	13190	10413	8132

Interventions(time)

	No Interventions	25%	50%	75%
Recall/Stop Sale	0	84	84	84
Announcement	0	0	0	0
Medical Mitigation	0	0	0	0

Consequences

	No Interventions	25%	50%	75%
Illnesses	71995	48884	38586	30138
Mitigated Mortalities	39980	27069	21344	16639
Unmitigated Mortalities	39980	27069	21344	16639
Responder Events	0	0	0	0

Comparison of Capabilities
(including Stop Sale and Public Announcement)

No Interventions

(FAS-CAT) Spatial Awareness; Recall/Stop sale and announcement effectiveness all set at 25%c

(FAS-CAT) Spatial Awareness; Recall/Stop sale and announcement effectiveness all set at 50%c

(FAS-CAT) Spatial Awareness; Recall/Stop sale and announcement effectiveness all set at 75%c

	No Interventions	25%c	50%c	75%c
Observations				
Consumer Reports	203	121	90	43
Medical Attentions	53962	35260	24612	17286
PHD Reports	8090	5288	3690	2591
Hospital Admissions	19424	12692	8859	6222
Interventions(time)				
Recall/Stop Sale	0	84	84	84
Announcement	0	93	93	93
Medical Mitigation	0	0	0	0
Consequences				
Illnesses	71995	47040	32840	23068
Mitigated Mortalities	39980	26094	18206	12676
Unmitigated Mortalities	39980	26094	18206	12676
Responder Events	0	0	0	0

FAS/CAT

- Provided a systems based prioritization of States Commodities (sub-system)
- Provided systems based prioritization of Critical Nodes within each commodity or sub-system
- FAS/CAT provided guide to POC's at each Critical Node
- FAS/CAT + realistic scenarios help establish criticality for level 2 submission.
- Effectiveness modeling demonstrates value of spatial awareness provided by FAS/CAT