

# The Growing Threat of Nuclear Terrorism

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# History and Science

*"We are at a tipping point." Sen. Sam Nunn*

- World War II: Manhattan project unleashed the nuclear genie
- 20<sup>th</sup> century was defined by nuclear arms race between states
- 21<sup>st</sup> century will be defined by the shift to combinations of states and groups seeking nuclear weapons
- The probability of a nuclear event occurring somewhere in the world is a real and growing threat of our time.

# Dangerous Assumptions

## *Terrorist Nuclear Threat: Hype or Reality?*

- “It is too hard for men in caves to do this.” (build a nuclear weapon)
- Terrorists cannot acquire sufficient nuclear material or a nuclear device.
- Terrorists are incapable of constructing an improvised nuclear device.

# Defining the Threat

THREAT = INTENT X CAPABILITY\*

(\*Physics of Nuclear Weapons)

Risk Management Principles for  
Low Probability-High Impact Events

# Fundamentals of Nuclear Terrorism

- Supply
- Capability
  - ◆ Nuclear or RDD?
  - ◆ Expertise
- Build a bomb
  - ◆ Material
  - ◆ Design
  - ◆ Construction
  - ◆ Delivery
- Demand
- Intent
  - ◆ Impact
  - ◆ Justification
- Planning an attack
  - ◆ Target Selection
  - ◆ Surveillance
  - ◆ Logistics
  - ◆ Execution

*Proliferation*

*Terrorism*

# Pathways to a Terrorist Nuclear Attack

- Radiological Dispersal Device (RDD) or “Dirty Bomb”
- Attack on a nuclear facility
- Detonation of a “loose nuke,” nuclear device, or nuclear weapon
- Construction of an Improvised Nuclear device (IND)

## A Single Threat Spectrum

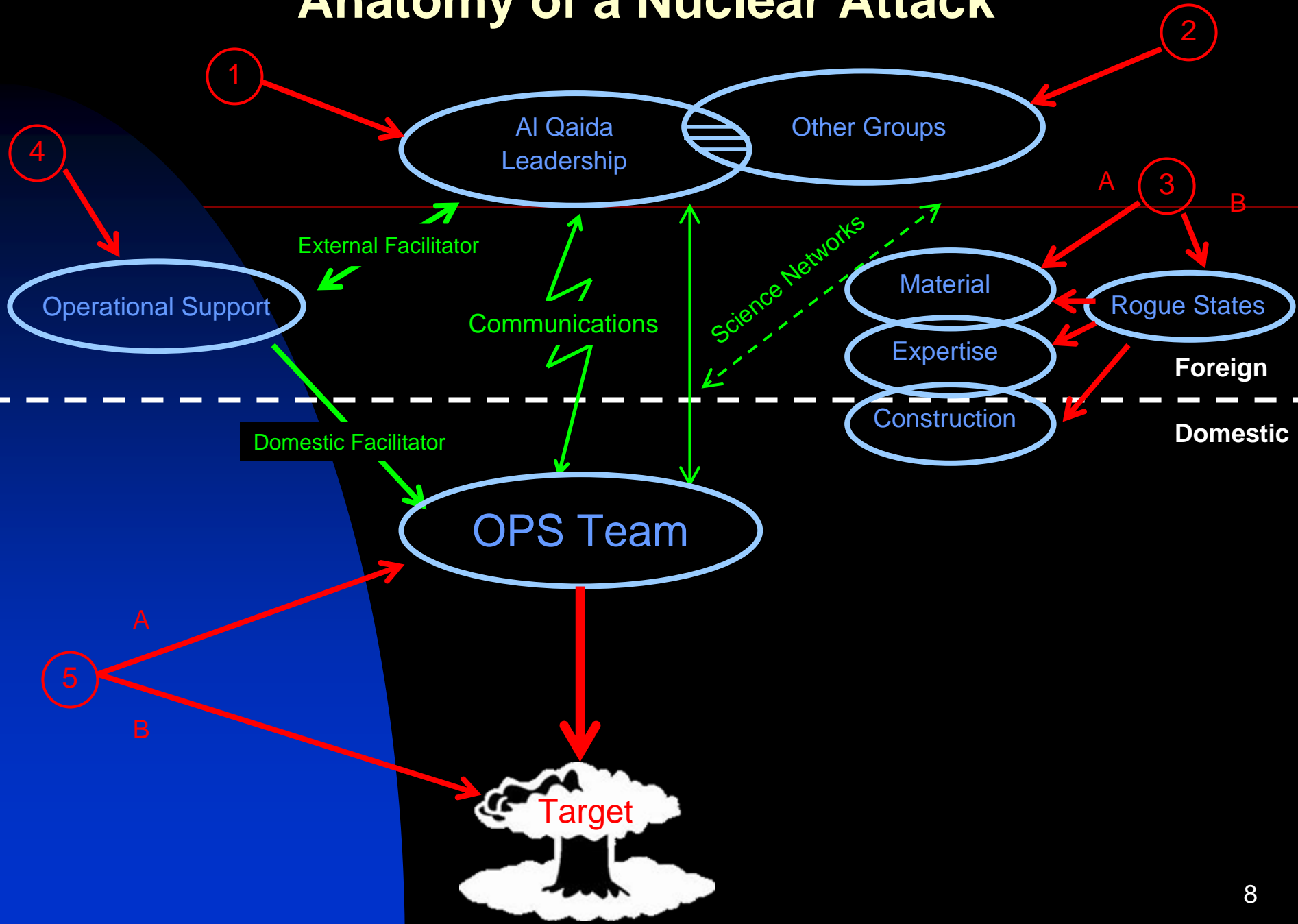
The threat of a globally transforming nuclear event flows from any actor's capability of constructing one yield producing bomb along a spectrum that ranges from the most sophisticated nuclear weapons to a crude bomb or improvised nuclear device.

Combinations of possible actors include states working alone, states working with states, groups with states, and groups with groups.

Rogue supplier networks can help enable states and groups.

These myriad combinations increase the number of pathways to a nuclear event.

# Anatomy of a Nuclear Attack

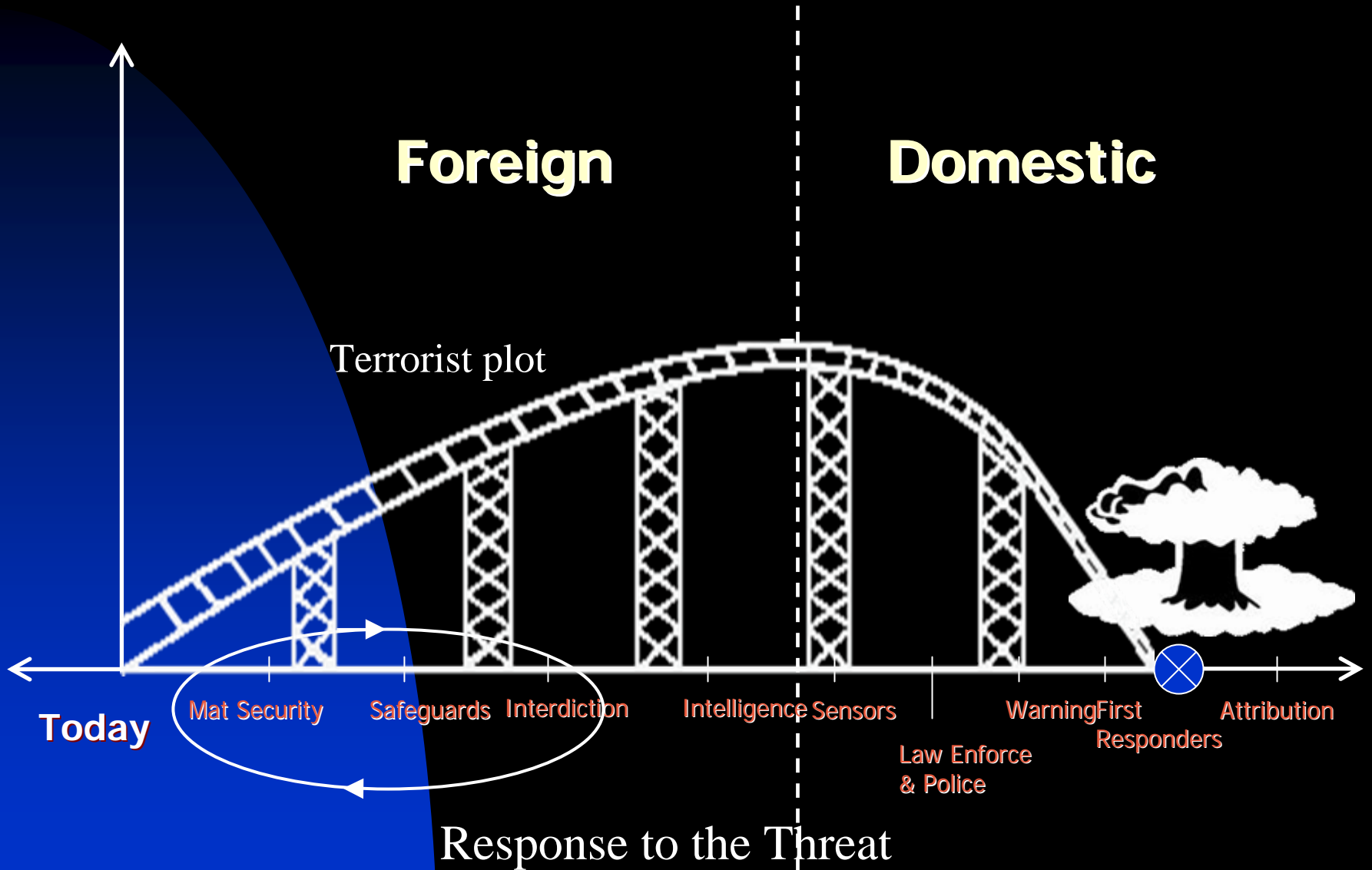




**Foreign**

**Domestic**

Terrorist plot



**Today**

Mat Security

Safeguards

Interdiction

Intelligence Sensors

Law Enforce  
& Police

WarningFirst

Responders

Attribution

Response to the Threat

# Al Qa'ida's Nuclear Intent

*“They want to change history.” George Tenet*

Before 9/11 *“We’re behind the 8 Ball”*  
Lack of information on terrorist nuclear  
and radiological plans and intentions  
Lack of global focus and cooperation  
Emerging threats of rogue state suppliers  
Unresolved questions concerning “loose  
nukes” and missing nuclear materials

*“Acquiring these weapons for the defense of Muslims is a religious  
duty.” Usama Bin Ladin (Dec 24, 1998)*

# Characteristics of al Qa'ida's Intent

- Nuclear ambitions
  - ◆ Religious and historical “justification”
  - ◆ Al Qa'ida *nuclear fatwa* May 2003
- Managed by the al Qa'ida leadership
- Long term effort to acquire material and expertise
- Opportunistic pursuit of capability
- Pursuit of parallel paths to a bomb
- Professional and compartmentalized planning
- Possible cooperation with other groups

*Time favors intent*

# Capability: The Threat is Growing

- **Material is Missing:** success requires that there be no weapons usable material available
- **Materials Seizures: lessons learned**
  - ◆ Fortuitous nature of success
  - ◆ Material not reported missing
  - ◆ Lack of feel for the “black market”
  - ◆ Several seizures of unresolved cases of significant quantities of material
  - ◆ Seizures of sample quantities of larger available amounts
  - ◆ Under-reporting due to secrecy, lack of transparency and perceived national interests
  - ◆ Difficulty of identifying customers
  - ◆ Mistrust among states due to stings and fears of “stimulating the market”

*“No material. No Bomb. It’s that simple.” US Weapons Physicist*

# Shortcuts to a Bomb

- Pathways to a bomb are facilitated by expanding capabilities and collaboration between networks
- Terrorist use of networks
  - ◆ Patrons and trusted brokers
  - ◆ Undiscovered AQ Khan-like rogue networks
  - ◆ Nuclear supplier companies
  - ◆ Non governmental organizations
  - ◆ Organized crime and narcotics
  - ◆ People smuggling networks
  - ◆ Terrorist support networks
- Impact of publicly available information
- Increase in production, transportation and storage of nuclear materials

# Responsibilities of Member States

- Leadership
  - ◆ Instilling a seriousness of purpose and sense of urgency
  - ◆ Treating the threat as real in terms of priorities and resources
- Enacting stiff penalties for possession and smuggling of nuclear material
  - ◆ The track record is poor
- Setting higher security and safeguard standards
- Ensuring close cooperation between intelligence and law enforcement organizations
- Expanding international cooperation and information sharing

# Neutralizing Nuclear Intent

- Penetrating terrorist plans and intentions
- Finding a “Muhammed Atta-like” footprint
  - ◆ Stopping something that has never happened
  - ◆ Finding something that we have never seen
- Developing new methodologies for a unique challenge
  - ◆ Mechanisms to ensure lowest possible threshold for information sharing
  - ◆ Analytical approaches to interpret small and fragmentary data sets
  - ◆ “Proving the negative” as basis for proactive intelligence and law enforcement efforts

# Denying Nuclear Capability

- Ensuring the security of all nuclear material
- Consolidating materials when possible in highest security facilities
- Launching proactive investigations and actions to find all nuclear material on the black market
- Resolving all cases of known missing material
- Ensuring timely accessibility to nuclear material information and forensics
  - ◆ U.S. Nuclear Material Information Program
- Establishing near real time cooperation to track and interdict the smuggling of nuclear material
- Improving cooperation between supplier companies and intelligence and law enforcement organizations



# A Stronger IAEA to Combat Nuclear Terrorism

- Broadening the mandate for IAEA to counter nuclear terrorism
- Encouraging international efforts to eliminate the nuclear black market
- Sponsoring model legislation
- Improving security at nuclear facilities
  - ◆ Developing risk assessment standards
  - ◆ Encouraging insider threat awareness programs
  - ◆ Making effective security related investments & resource decisions
- Helping to standardize security practices
  - ◆ Development and implementation of stricter regulatory standards
  - ◆ Sharing best practices

# Expanded IAEA Role in Monitoring Nuclear Threats

- There is a growing need to develop independent IAEA intelligence and investigative capabilities, with support of member states
  - ◆ Helping to facilitate global intelligence and law enforcement cooperation
  - ◆ Working with non governmental organizations, e.g., World Institute of Nuclear Security
  - ◆ Ability to verify what has been declared
  - ◆ Capabilities to find what has not been declared
- Characteristics of a more aggressive IAEA investigative and monitoring effort
  - ◆ Focus on networks & smuggling, identifying covert facilities
  - ◆ Development of non covert methodologies for collection and analysis of information
  - ◆ Transparent activity to member states

# Intangibles of Success

- Traditional efforts and measures of success are not sufficient to eliminate the elusive threat of nuclear terrorism
  - ◆ Resources alone are not enough
- A culture of ***truth seeking*** is required
  - ◆ Capturing imagination
  - ◆ Promoting experimentation and creativity
  - ◆ Overcoming risk aversion
  - ◆ Avoiding the dangers of group think

*“The most important failure was one of imagination.”*  
*-9/11 Commission Report*