Radiological Terrorism: Introduction

The Four Faces of Nuclear Terrorism

- Acquisition of an intact nuclear weapon
- Crude nuclear weapon or Improvised Nuclear Device (IND)
- Attack against or sabotage of a nuclear power plant or other nuclear facility
- Radiological dispersal device (RDD) or “dirty bomb”
Nuclear WMD

- Modern time weapons
- First used in WWII

Nuclear weapons testing, Bikini Atoll, 7/24/46
U.S. Department of Energy photograph.
Nuclear WMD

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• First used in WWII

Replicas of atomic bombs dropped over Hiroshima and Nagasaki, Japan in 1945.
National Atomic Museum photograph
Military-Style Backpack, similar to one carrying the 1996 Centennial Olympic Park Bomb, could deliver a “dirty bomb.”

Federal Bureau of Investigation photograph

Pros / Cons

• Advantages:
  • Highly disruptive
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  • Significant media profile
  • Nuclear bombs also have:
    • Vast destructive power
      (destroys infrastructure)
    • Effect (death and destruction)
      is immediate
Pros / Cons

• Disadvantages:
  • Expensive to obtain/maintain
  • Relatively short “shelf life” (~7 years)
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A U.S. Customs Inspector checks seaport containers coming into the United States. 
U.S. Department of Homeland Security photo by James Tourtellotte
Pros / Cons

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  • Low level of control and containment
  • Destroys infrastructure
  • High risk of detection
  • Radiation “signature” helps pinpoint source

Destructivity

• WMD far exceeds that of conventional, chemical, or biologic weapons
Destructivity

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• “Dirty bombs” lack real destructive power

• Goal of the terrorist
  • Harassment vs. death
Lethality

- Nuclear blast potential
  - Kill tens of thousands of people
Lethality

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- Nuclear blast potential
  - Kill tens of thousands of people
  - Small target area
- “Dirty bomb” potential
  - Few deaths

Lethality

<table>
<thead>
<tr>
<th>Weapon</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel-air explosives</td>
<td>320 million</td>
</tr>
<tr>
<td>Mustard gas</td>
<td>3.2 million</td>
</tr>
<tr>
<td>Sarin nerve gas</td>
<td>800,000</td>
</tr>
<tr>
<td>A “crude” nuclear weapon</td>
<td>5,000</td>
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<tr>
<td>Type A botulinal toxin</td>
<td>80</td>
</tr>
<tr>
<td>Anthrax spores</td>
<td>8</td>
</tr>
</tbody>
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CIA Reports on Former Soviet Union
Source: U.S. Central Intelligence Agency

Availability

- Nuclear proliferation is a problem
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• Rogue nations may provide terrorist groups with both weapons and technical knowledge
• Fall of the Soviet Union left many unaccounted nuclear devices
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• Rogue nations may provide terrorist groups with both weapons and technical knowledge
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  • For sale on the “black market”

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• Industry use of radiological materials provides the isotopes for “dirty bombs”
• Power plant sabotage could produce massive “dirty bombs”
## Vulnerable To Terrorist Activity

- Nuclear weapons storage facility
- Nuclear power plants
- Government facilities
- Hospital/medical facilities
- Research and educational facilities
- Industrial manufacturing facilities
- In transit.

## LOCATION OF RADIOLOGICAL MATERIAL

- Nuclear weapons storage facilities
- Nuclear power plants
- DOD and DOE facilities
- Hospital and other medical facilities
- Industrial manufacturing facilities
- In transit
ACQUIRING MATERIALS FOR RADIOLOGICAL DISSEMINATION

- Hijacking shipments
- Acquisition through black markets
- Bribing personnel in key positions
- Theft from secure facilities

Delivery

- “Suitcase” bomb easily transported by person
Delivery

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• 10 kiloton bomb readily moved by truck or boat

Delivery

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• Radiation detection equipment might miss a small device
The Terrorist Risk

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The Terrorist Risk

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  • Unsuccessful attempts to acquire NW
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  • Actual possession of NW
  • Unsuccessful attempts to use NW
  • Successful use of NW

The Terrorist Risk

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The Terrorist Risk

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- **Best defense:**
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  - Improve surveillance and detection capabilities