

Where is US National Security Headed in the Next Decade?

US National Security Policy

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Determinants & Influences

- △ National Interests?
- △ Threats?
- Ascending Domestic Politics
 - Personalities/
Bureaucratic Interests
 - Organizational
Interests
 - Partisan Politics
 - Interest groups
 - Public Opinion
- History
- Technology
- Economy
- International Politics
 - Friends & Allies
- International Law

Prominent Threats

- Are There:
 - Challenges to US Survival?
 - Challenges to US Domestic Security?
 - Challenges to US Prosperity?
 - Economic prosperity
 - Social prosperity
 - Political prosperity
 - Challenges to US Hegemony?
 - Yet, clearly US Nat'l Security is changing...how?
 - What “tool” has typically assured this security?

Weapons of Mass
Destruction
(WMDs) as Security
Envelope for US Policies

WMDs

- Nuclear & Radiological (aka, “Dirty bombs” or RDDs)
- Chemical
- Biological

- Delivery Systems
 - Missiles
 - Ballistic
 - cruise
 - Long-range aircraft
 - Sea- and space-based platforms
 - RNEPs & MOP

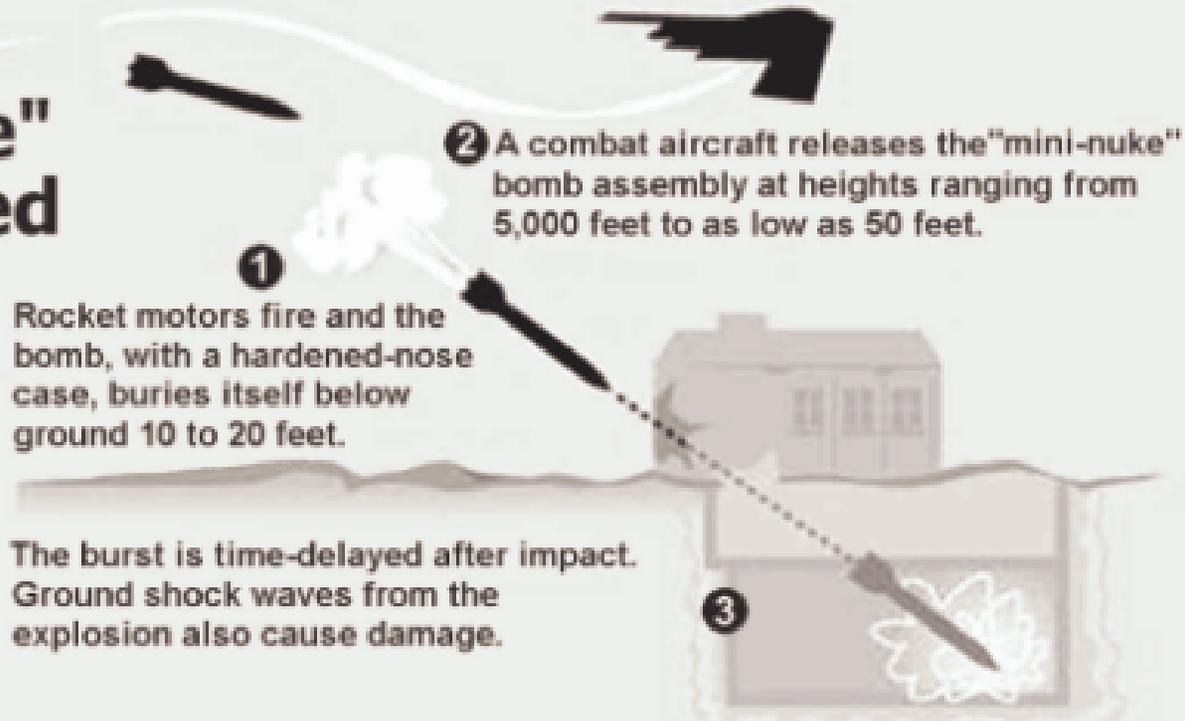
“Mini-Nukes,” NEPs/RNEPs

How a “Mini-Nuke” Could Be Used

The tactical weapon is aimed at underground targets. The weapon can destroy targets below ground or burst at high or medium altitudes. Underground detonations limit “collateral damage,” or the number of deaths.

Rocket motors fire and the bomb, with a hardened-nose case, buries itself below ground 10 to 20 feet.

The burst is time-delayed after impact. Ground shock waves from the explosion also cause damage.





Effects & Devastation



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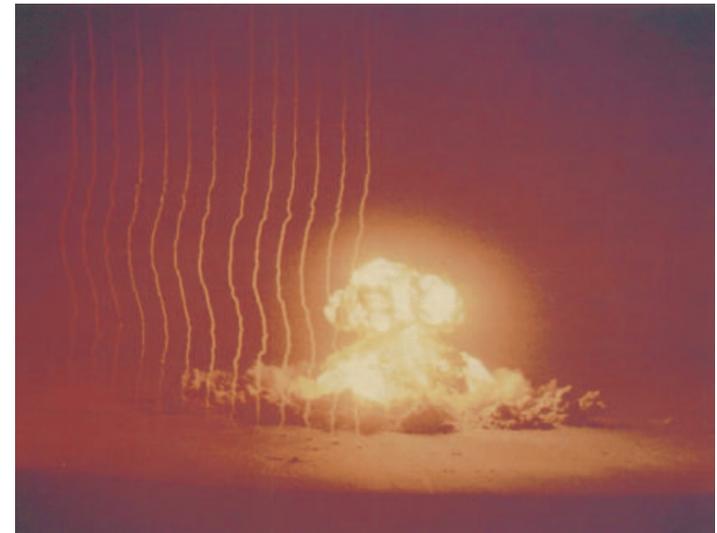
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Nuclear Proliferation

- **1945-1995**
 - US, USSR, UK
- **1956-1965**
 - France, China
 - Canada, Sweden, Germany, Belgium, Netherlands, Japan, Italy, Czechoslovakia, Poland, Australia, Hungary
- **1966-1975**
 - India, (Israel)
 - Rumania, Norway, Switzerland, Yugoslavia, Argentina, Brazil, Spain, Egypt, Taiwan, Turkey, South Korea
- **1976-1985**
 - (South Africa)
 - Bulgaria, Greece, Austria
- **1986-2005**
 - Pakistan
 - Iraq, Iran, N. Korea

“Annie” shot, 1953



Nuclear Proliferation as a Threat

- Nuclear Weapons for Regional Powers
 - Limits US intervention options
- Nuclear Weapons in conflict dyads
 - Likelihood of nuclear use
 - Vulnerability
 - C³
 - Likelihood of use against US “friends” & US territory
 - Political & economic instability affects markets
- Nuclear Weapons in weak states
 - “Loose Nukes”
- “Virtual” Nuclear Arsenals

Coping with Nuclear Proliferation

- Baruch Plan(1946)
- Atoms for Peace(1955)
- Non-Proliferation Treaty(1968)
- Bi-lateral actions
 - S. Korea & Taiwan(1970s & 1980s)
 - Pakistan(1980s)
 - N. Korea(1993-1994)
 - Former Soviet Union(1992-present)

Nuclear Terrorism

- **“the single most serious threat to US national security”**

President George W. Bush and Senator John F. Kerry – 1st Presidential Debate 2004

- **“nuclear terrorism is, in fact, preventable. It is a basic matter of physics: without fissile material, you can’t have a nuclear bomb. No nuclear bomb, no nuclear terrorism.”**

Graham Allison, *Foreign Affairs*, January 2004

4 Types of Nuclear Terrorism

- Theft & use of an intact nuclear-yield weapon
- Theft or other acquisition of fissile material which would then be used to make a nuclear-yield weapon
- The use of radiological material to make a radiological dispersal device (RDD)
- Attacks on reactors or other nuclear facilities with the goal of causing radiological contamination of surrounding areas

Acquiring an Intact Nuclear-Yield Device

- @ 30,000 nuclear-yield weapons worldwide
 - Several hundred vulnerable to theft by criminals or terrorists
- Most states retain tight control over nuclear arsenal but concerns over Russian tactical nuclear weapons
 - Size of tactical nuclear weapons might make them especially good for terrorism
- DPRK another state of concern
 - History of selling missile technology
 - February 2005 announcement of nuclear weapon possession.

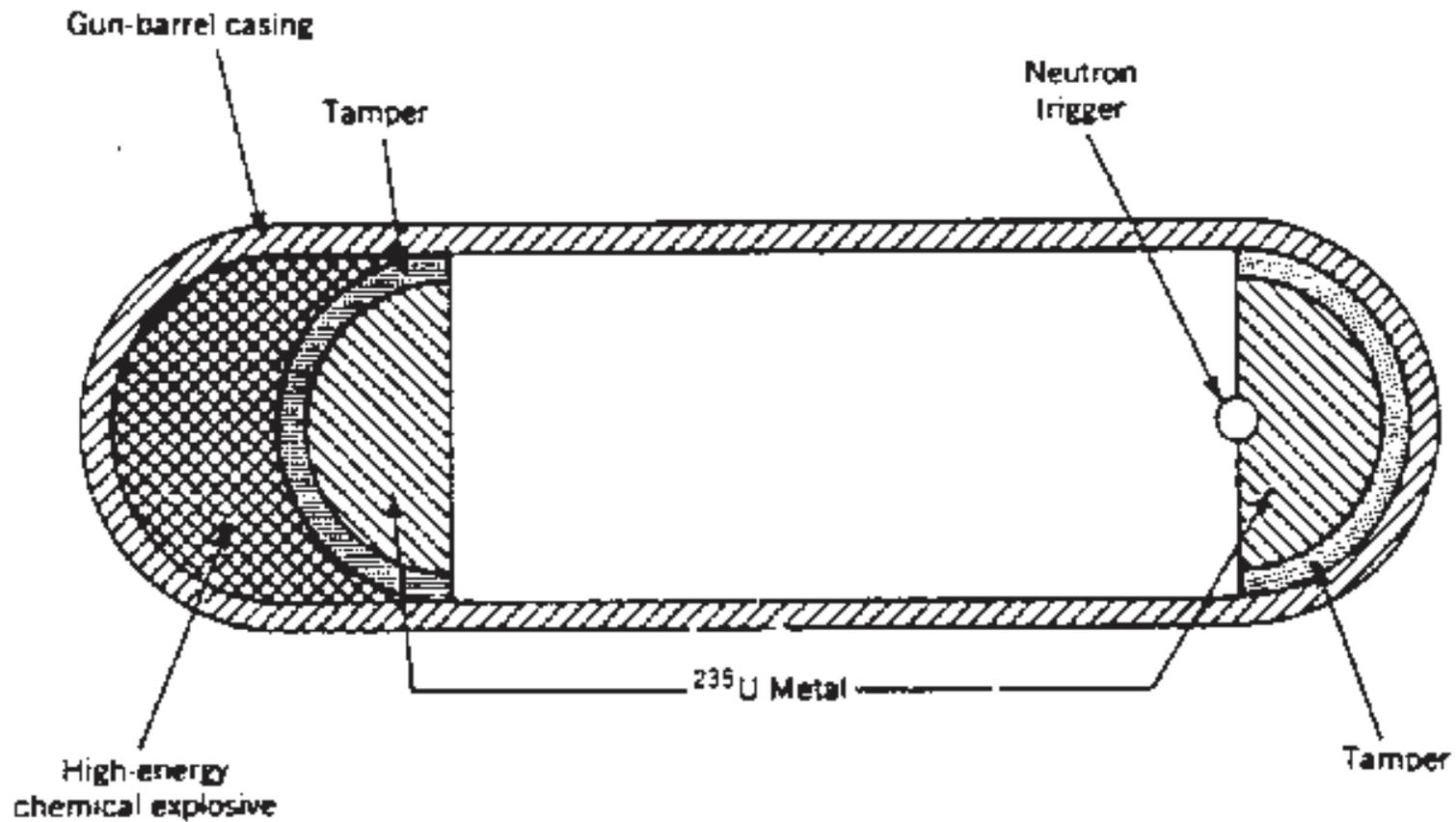
Fissile Material

- Need substantial quantity of U-235 or Pu-239
 - More plausible route to a nuclear-yield device
 - Access to material remains the key barrier to terrorist use of such a weapons
 - Global stockpile of U-235 & Pu-239 equivalent to c. 240,000 nuclear weapons
 - Military & civilian sectors
- Stockpiles in Russia and NIS of especially concern due to the quantities of material involved, uneven security practices, and uncertain accounting of material
 - Nunn-Lugar Program (Cooperative Threat Reduction Program) has helped but scope of problem remains huge

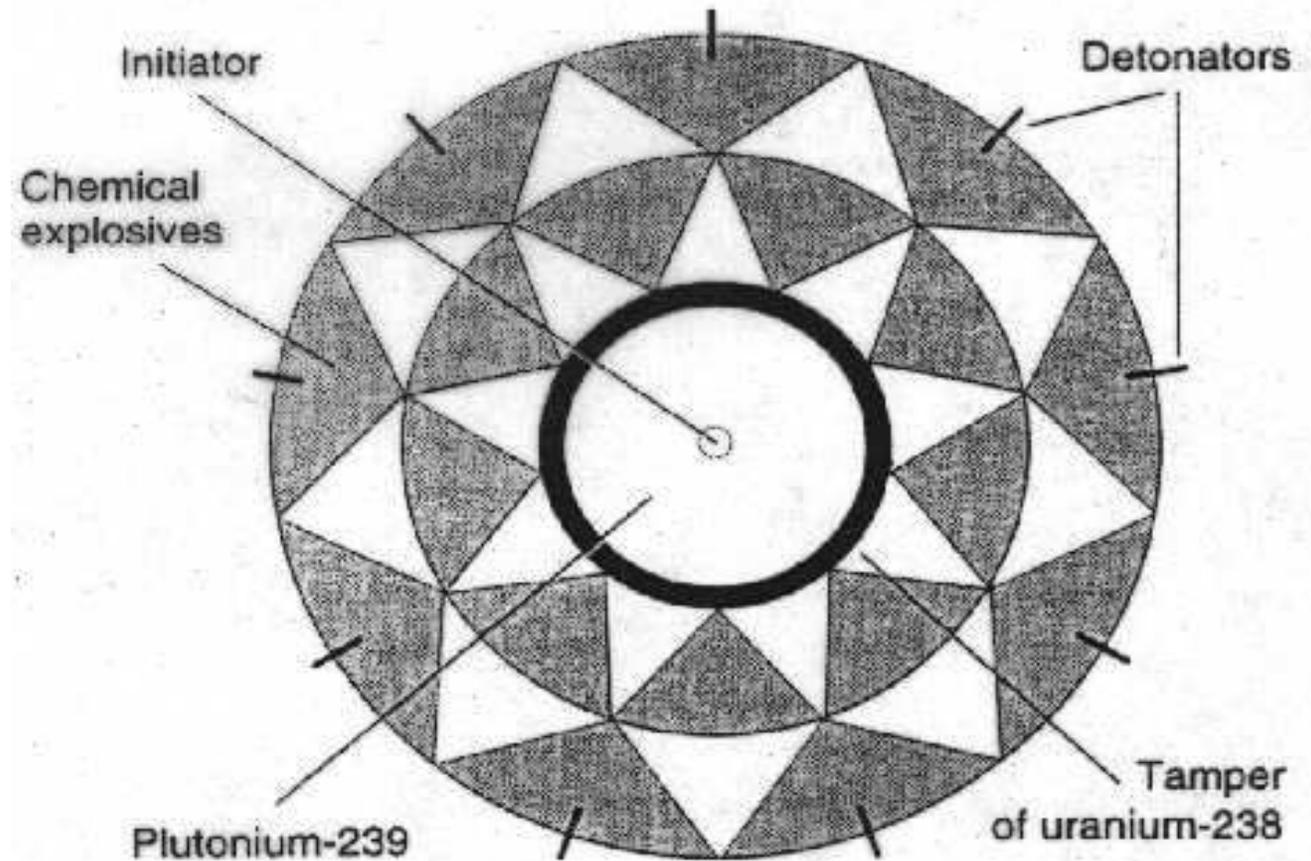
The “Flow” of “Nuclear Materials & Knowledge

- Reports of nuclear smuggling worldwide since early 1990s but so far incidents have tended to involve either small quantities of weapons-usable materials or larger quantities of non-weapons-usable materials
 - BUT would we know if large scale weapons-grade material smuggling was occurring?
- Expertise & brain drain a problem in Russia and NIS but more a factor in enhancing terrorist capabilities than a necessity for developing a nuclear-yield device
 - Improvised nuclear device (IND) vs. military capability

Gun-Type Assembly (“Little Boy”)



Implosion device (“Fat Man”)



Aum Shinrikyo

- Unfocused proliferation efforts
- Mined uranium at Banjarn Sheep Station, Western Australia
 - Shipped small quantity of uranium to Japan for enrichment
- Chose laser enrichment
 - Based more on Shoko Asahara's fascination with lasers than a realistic strategy
- Attempted to purchase dual-use equipment in the US, such as an interferometer
 - Little other evidence that Aum was planning an implosion device
- Actively recruited members of the I.V. Kurchatov Institute for help with the nuclear program

Al Qaeda (AQ)

- Acquired some fissile material but both US and UK governments concluded that organization lacked a nuclear capability from this route
- Trying to acquire fissile material from the early 1990s onwards
- Scammed into purchasing useless “red mercury” and low-grade reactor fuel
- South African uranium ore purchased \$1.5m
- August 2001 al Qaeda representatives offered financial assistance to Kabul University in exchange for locating and mining uranium in Afghanistan
- November 2001 “Superbomb” manual found in Kabul
 - Based on the open literature but discussed detailed plans for an implosion device

Radiological Dispersal Device (RDD)

- Easiest & most plausible type of nuclear terrorism
- Primarily a weapon of disruption rather than mass casualties, depending upon the radiological material used
- IAEA (2002) – “materials needed to build a ‘dirty bomb’ can be found in almost any country in the world, and more than 100 countries may have inadequate control & monitoring programs necessary to prevent or even detect the theft of these materials.”

Chechen Separatists

- November 1995 cesium-137 discovered in a Moscow park
- Attempt by Shamil Basayev to establish capability
- December 1998 RDD found near Argun, Chechnya



Chemical & Biological Weapons

- Biological Weapons Treaty(1972)
- We'll examine the WMD role of BW/BT in next week's lecture

U.S. Options for Extended &
Strategic Deterrence of
WMDs & Acquisition of These
Weapons

Nuclear Weapons

- How can nuclear weapons enhance U.S. national security in the years ahead?
 - Are there drawbacks?
- Historical Perspective
 - What roles have nuclear weapons played in American National Security Policy?
 - Who were the advocates for nuclear weapons?
 - What did they advocate?
 - Where there opponents?
 - What were their arguments?

Extended Deterrence

- How do we convince potential adversaries that they cannot attain their goals by threatening US interests?
 - Capability
 - Credibility
 - Communication
- Punishment vs. Denial
- Conventional Arms vs. Nuclear Arms
- Threat vs. Use

What is to be Done?

- Target demand side through intelligence, interdiction and pre-emption
- Preventing RDDs & Attacks on facilities
 - Support IAEA “Action Plan for the Safety & Security of Radiation Sources” helps but mainly relates to better accounting
 - Protection much harder
 - Support for target hardening of nuclear facilities a partial solution

Preventing Terrorism of Nuclear-Yield Weapons

- Focus on preventing terrorist access to nuclear materials or weapons worldwide
 - MPC&A and WPC&A essential and needs to be continued through Nunn-Lugar type programs
 - Vast undertaking and long-term commitment since storage facilities integrity must be maintained
 - Tied into wider nonproliferation efforts through NPT & the IAEA's Additional Protocol
 - Also needs commitment to disarmament and permanent destruction of weapons and materials
 - FMCT matters in limiting additional weapons-usable material being produced
 - PSI also important in limiting the transfer of nuclear materials
- UN Nuclear Terrorism Treaty, April 2005
- What about new ways of understanding “deterrence?”

New Challenges to US Security Environment

Irregular

Erode American power by employing irregular methods (e.g., terrorism and insurgency)

Catastrophic

Paralyze American power by employing WMD or WMD-like effects in unwarned attacks (e.g., 9/11 attacks, terrorist or rogue state use of WMD)

Traditional

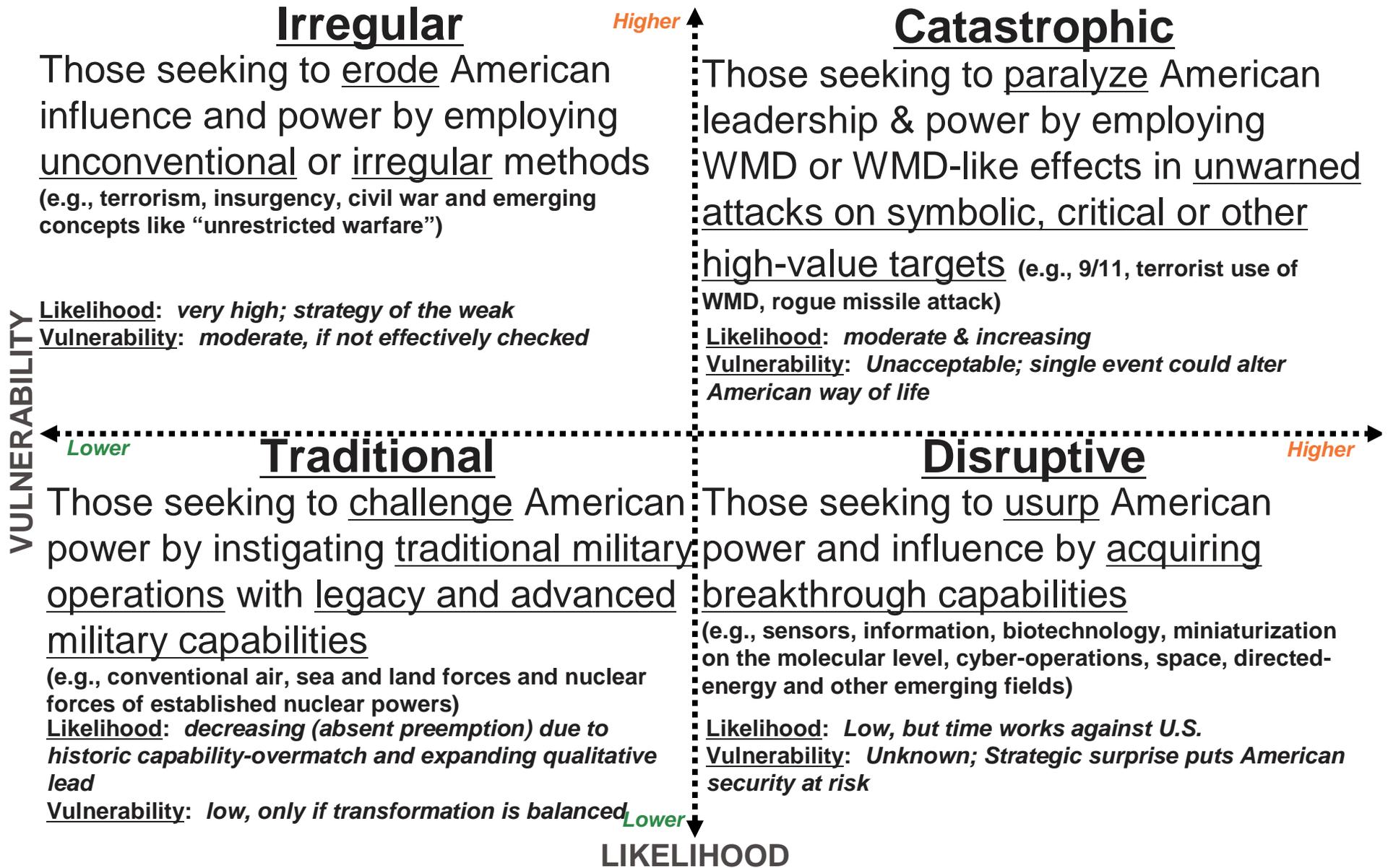
Challenge American power through traditional military operations (e.g., conventional air, sea, and land forces)

Disruptive

Usurp American power by acquiring breakthrough capabilities (e.g., biotechnology, cyber-operations)

Note: There is no hard boundaries distinguishing one category from another

Analysis of Challenges to US Security Environment Today



How US Responded in Last 5 Years: Comparing “Old” & “New” Strategic Deterrence

	Adversary Focus	Grand National Strategy	Stressing Scenario	Tools for Deterrence Abroad	Linkage to “Central” Deterrence	Deterrence Effectiveness Assessment
Cold-War Strategic Deterrence	Soviet Union & Warsaw Pact	Containment	Defense of Western Europe	“Conventional” Deterrence by in-place forces (Deterrence by Denial) Extended (nuclear) Deterrence	Nuclear Triad (Deterrence by Punishment / Mutual Assured Destruction Strategy)	Force Structure Sizing Game Theory
21 st Century Strategic Deterrence	Various State & Non-state Actors	(Various names used thus far) Strategy has elements of: Engagement / Enlargement Preemption / Rollback Assurance / Dissuasion	Indeterminate	Global Movement of Forces; Large Scope of In-Country & Independently Stationed Forces	New Triad (Deterrence by Denying Benefits, Imposing Costs, Inducing Restraint)	Holistic Approach to Analysis

The “New” Strategic Deterrence Defined

Strategic Deterrence - As the prevention of adversary aggression or coercion that threatens enduring vital interests of the United States and/or our national survival. Strategic deterrence convinces adversaries not to take grievous courses of action by means of decisive influence over their decision making.

- “Enduring vital interests” include:
 - Maintaining the integrity of U.S. territory;
 - Preventing mass casualties at home & abroad;
 - Protecting critical U.S. & international infrastructures (energy, telecommunications, water, essential services, etc.) that support our basic standard of living & economic viability;
 - Promoting democracy & free trade, while supporting the defense of U.S. allies.

“Annie” 1953



Annie