

## U.S. NATIONAL SECURITY POLICY, 1945-PRESENT

### I. HOW SHOULD THE UNITED STATES SET MILITARY REQUIREMENTS?

By answering five questions in sequence: (1) What are U.S. national interests? (2) What threats to these interests can we discern? (3) What strategies would best address these threats? (4) What missions must U.S. forces perform to support these strategies? (5) What forces are required to perform these missions?

### II. THE NUCLEAR REVOLUTION AND AMERICAN SECURITY

Three questions: (1) What have been the effects of the nuclear revolution on world politics and U.S. interests? (2) What strategy should the U.S. adopt for the use of its nuclear forces, especially toward other current and future nuclear powers? (3) What strategy should the U.S. adopt to address the danger posed by others' present or future nuclear weapons?

A. The evolution of the U.S. nuclear arsenal (see p. 4).

B. The effects of the nuclear revolution: good or bad? offensive or defensive? Nuclear weapons have five cascading effects:

1. Hydrogen bombs are more powerful by six (yes, six) orders of magnitude compared to the TNT explosives used in World War II. Atomic bombs = x 1,000 increase on TNT; hydrogen bombs = x 1,000 increase on atomic bombs.
2. Due to '1'--the destructiveness of nuclear weapons--the "cost exchange ratio" vastly favors defenders (better termed "retaliators") over attackers seeking to disarm them. Nuclear weapons pack tremendous explosive power in devices that are cheap, light, easily hidden, protected, and delivered; hence destroying them is very hard, protecting and delivering them very easy.
3. Due to '2'--the cost-exchange ratio--a relationship of MAD ("Mutual Assured Destruction") tends to develop between major powers. Both can destroy the other's society even after absorbing an all-out counterforce attack by the other.
  - > The U.S.-Soviet relationship reached deep MAD in the mid-1960s.
  - > The US-China and US-Russia relationships may not be at MAD today. This is because those states have made little effort to create secure arsenals. If they tried, they could do it.
  - > The US-North Korea relationship is not at MAD. The US could take out North Korea's nuclear force without facing NK retaliation.
4. "Flat of the curve" dynamics. One of MAD's special characteristics is the "flat of the curve": beyond a certain point, the capacity to inflict damage on the other society, or to prevent damage to one's own, is inelastic to the size and capability of one's own force or one's opponent's force. Capabilities are absolute.
5. "Defense-dominance." Some argue that MAD strengthens defender-states and weakens aggressor-states. Are they right?

C. Alternate nuclear doctrines: Countervalue vs. Counterforce strategies. Nuclear weapons present states with two basic nuclear doctrines toward other nuclear states: counterforce and countervalue.

>> Countervalue: the enemy society is targeted. Political aims are achieved by threatening to punish the adversary by destroying its population and industry.

>> Counterforce: the enemy nuclear forces are targeted. Political aims are achieved by threatening to disarm the adversary--to remove its capacity to inflict punishment on oneself.

Counterforce forces include forces that could preempt the others' nuclear force (e.g., accurate intercontinental missiles) and defenses that could destroy the other's retaliating weapons (e.g., national ballistic missile defenses).

Since forces can be used first or second, we have a crude universe of four possible nuclear capabilities:

1. First-strike countervalue capability: the capacity to launch a first strike that inflicts unacceptable damage on the adversary's society.  
This capability is very easy to build, for reasons noted above in Section II B, but is quite useless.
2. Second-strike countervalue capability: the capacity to absorb an all-out counterforce first strike and inflict unacceptable damage on the adversary's society in retaliation.  
This capability is easy to build, for reasons noted above in Section II B.
3. First-strike counterforce: the capacity to launch a first strike that removes the adversary's capacity to inflict unacceptable damage on oneself in retaliation.  
This capability is very hard or impossible to build, for reasons noted above in Section II B.
4. Second-strike counterforce capability: the capacity to absorb an all-out counterforce first strike and mount a counterforce counterattack that leaves the attacker's forces unable to inflict unacceptable further damage on one's own society.  
This capability is even harder to build than a first-strike counterforce capability.

These four capabilities can be displayed in a 2x2 table:

		Striking what?	
		Values (cities)	Forces
Striking When?	First	#1 First Strike Countervalue Capability	#3 First Strike Counterforce Capability
	Second	#2 Second Strike Countervalue Capability	#4 Second Strike Counterforce Capability

Past debates over US nuclear doctrine have focused on whether the US should be content with capability #2 (second strike countervalue capability) against its main nuclear adversaries (formerly the Soviet Union, now Russia or China or nuclear rogues like North Korea) or should also strive for #3 (first strike counterforce capability).

D. COUNTERVALUE vs. COUNTERFORCE STRATEGIC NUCLEAR WEAPONS: WHAT'S THE DIFFERENCE?

- > **Second-strike countervalue nuclear forces** can survive a surprise attack and retaliate against the attacker's cities or other "value" targets.

An example of a pure second-strike countervalue weapon in the 1960s-1980s era was the U.S. Polaris ballistic missile submarine fleet. Polaris submarines could hide from Soviet attack in the vast ocean and their missiles could strike Soviet cities, but these missiles lacked the accuracy to destroy Soviet hardened forces.

- > **First-strike counterforce nuclear forces** can be used to destroy an opponent's nuclear forces in a first strike.

An example of a pure first-strike counterforce weapon is a highly accurate intercontinental ballistic missile (ICBM) based in a vulnerable soft silo. It could be used to launch a surprise attack on another state's ICBMs or command centers, but it could not survive an attack to retaliate against the attacker's cities.

Other forces that contribute to a first-strike counterforce capability include "killer" submarines designed to locate and sink other submarines, which can be used to destroy ballistic missile submarines (if the opponent has them); and area ballistic missile defenses (often called "national missile defense," or "NMD") deployed to protect cities. The role of NMD in a first strike would be to knock

down warheads missed by the first strike that are retaliating against the attacker's cities. In this role NMD is the defensive half of a first strike system and thus is essentially offensive despite its defensive appearance.

Many weapons have both second strike counterforce and first strike counterforce characteristics--they contribute to both second-strike counterforce and first-strike counterforce capabilities.

E. QUESTIONS

1. Which of the four capabilities in the 2x2 table above would be intolerable in the hands of hostile states?

Specifically, what countries must the U.S. prevent from gaining any nuclear capability--even a mere first-strike counterforce capability? Did Saddam's Iraq fall in that category? Or could the U.S. have lived with an Iraqi first-strike counterforce capability? A second-strike counterforce capability? How about North Korea?

Should the U.S. wage preventive war to keep these capabilities from such hands? By what criteria should the U.S. make these decisions? Some analysts say the key issue is: "Is the regime deterrable?" Meaning, are they (1) Prone to misperceive others' reactions to their actions? (2) Sensitive to costs? (3) Do they value conquest as highly as their own survival? If so, big trouble!

2. Which of these four capabilities should the U.S. maintain against:
  - a. China? Russia?
  - b. "Rogue states" that seek weapons of mass destruction (WMD), e.g., North Korea, Iran, and Saddam's Iraq? Quasi-rogues like Pakistan?

III. THE BIOLOGICAL WARFARE REVOLUTION AND AMERICAN NATIONAL SECURITY

Bioweapons differ from nuclear weapons in five prime regards:

- A. Biological weapons are cheap to make and can be made or purchased by non-state actors--that is, by terrorists.
    - > Moreover, bioweapons may grow much more lethal in the future as new super-pathogens are engineered by scientists exploiting new genetic engineering techniques.
  - B. Biological weapons programs have no clear signature that distinguishes them from peaceful biological research. As a result an arms control regime that bans bioweapons is probably impossible to devise.
  - C. Biological weapons can more easily be used anonymously.
  - D. Defenses are more feasible against bio attack than against nuclear attack--but the attacker still has a large advantage.
  - E. Contagious bioweapons can spread unpredictably, harming the user's friends/family/army/society. Hence their use can be irrational.
- As a result of factors 'A' 'B' and 'C' some argue that bioweapons are weapons from hell as perhaps their use cannot be deterred and cannot be defeated, while their power will only grow. If so, we face big trouble ahead.

In Kurt Vonnegut's novel Cat's Cradle a mad scientist invents a new crystalline form of water, "ice nine," that solidifies at 90 degrees fahrenheit. Its release ends life on earth by freezing the oceans. Is the biotechnology revolution handing us a biotechnical ice nine--a vastly destructive technology that we cannot handle? Will it doom us?

Martin Rees, in Our Final Hour (assigned), likewise argues that vast destructive powers are being democratized down to the individual terrorist or psychopath. The answer must be the end of human privacy, to ensure that no lunatic can secretly make a superkiller bug in his or her basement.

What should humanity do to avert this threat? Can we somehow slow or channel the process of scientific discovery away from inventing these horrors? For example, should biologists agree to regulations that limit their research, to avoid inventing superkilling agents? Or must curiosity inexorably kill the cat (us)?

IV. SOVIET MILITARY DOCTRINE: OFFENSE AND PREEMPTION. (PRETTY CRAZY! WHY ADOPTED?)

V. THE U.S. DEFENSE DEBATE, 1947-1991

- A. America's prime problem: defending Western Europe from Soviet conquest.
- B. The "how to defend Europe" debate, 1953-1991: 7 contending strategies:
  - 1. Strategic nuclear counterforce: threaten to punish Soviets by blasting their cities if they invade Western Europe.
  - 2. Strategic nuclear counterforce: threaten to disarm & conquer Soviets if they invade.
  - 3. Theater nuclear denial: threaten to incinerate invading Soviet armies.
  - 4. Conventional denial: thwart invading Soviet armies with conventional forces.
  - 5. Conventional offense: seize Soviet territory if they invade.
  - 6. German nuclear deterrent: let Germans threaten to blast Soviet cities.
  - 7. Tripwire strategy: spring-load a European war to make it uncontrollable. US goal: Conventional war ---> theater nuclear war ---> general thermonuclear war.
- C. The Third World intervention debate (The "how to contain" debate recast).

VI. KEY ISSUES TODAY

What changes in the U.S. national security apparatus are needed to defeat al-Qaeda? For example: shift resources from the Army, Navy and Air Force to intelligence (CIA and FBI)? To homeland defense? To nation building? To "public diplomacy" (shaping foreign opinion) by the state department? To locking down loose nukes in Russia?

How to address nuclear proliferation? Preventive war? Security guarantees to potential proliferators? Pursue world disarmament?

> When to wage preventive war against rogues? Against which rogues? What forces does this require? The 2002 U.S. National Security Strategy frames a doctrine of preventive war (see Lieber and Lieber, assigned earlier). Is this a good strategy?

How much counterforce toward China and Russia? The NMD debate.

How to address the danger posed by new technology that democratizes the power to destroy? See readings assigned for this week by Martin Rees and Henry Kelly.

-----

ADDENDUM #1: US Nuclear Weapons Inventory:

1945: 2  
1946: 9  
1947: 13  
1948: 50  
1950: At least 292  
1953: 1500  
1959: 6000  
1991: 18000

Sources for 1945-1950: David Alan Rosenberg, "U.S. Nuclear Stockpile, 1945 to 1950," Bulletin of the Atomic Scientists, May 1982, pp. 25-30. Sources for 1953-1959: Stephen Ambrose, Eisenhower, Vol. 2, p. 494. Source for 1991: Kurt Campbell, Ashton Carter, Steven Miller & Charles Zraket, Soviet Nuclear Fission, p. 22.

ADDENDUM #2: Soviet Nuclear Weapons Inventory:

First a-bomb: 1949; first fusion device (proto-H-bomb): 1953; first H-bomb: 1955; 27,000 nuclear weapons in the Soviet inventory in 1991. Source for 1953 and 1955: John Holdren, "The Dynamics of the Nuclear Arms Race," in Avner Cohen and Steven Lee, Nuclear Weapons and the Future of Humanity: 45. Source for 1991 inventory: Campbell, Carter, Miller & Zraket, Soviet Nuclear Fission: 15.

MIT OpenCourseWare  
<http://ocw.mit.edu>

17.40 American Foreign Policy: Past, Present, Future  
Fall 2010

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.