

Proliferation and Weapons of Mass Destruction

What are weapons of mass destruction and why do we care so much about them?

What are they?

- Weapons designed to kill large numbers of people indiscriminately

Why do we care?

- They give those who possess them the power to do enormous damage at a low cost.
- Their effects are often long lasting
- The technology to produce them is at best pre-1950

Weapons of Mass Destruction come in three basic types: nuclear, biological, and chemical (NBC)

Chemical Weapons

Definition:

"Extremely lethal man-made poisons that can be disseminated as gasses, liquids, or aerosols"

How they kill - 4 types

- Choking - damage lung tissue: chlorine gas
- Blood Agents - cut off flow of oxygen: hydrogen cyanide
- Vesicants - burn and blister soft tissue: mustard gas
- Nerve Agents - disable nervous system: sarin, VX

2 broad categories:

- Persistent - doesn't break down easily in the environment, can last for years or decades
- Non-Persistent - break down quickly into non-lethal components

Biological Weapons:

Definition:

"pathogenic microorganisms or biologically produced toxins that can cause illness and death in human, animal, or plant populations"

How they kill:

- Varies by disease

2 broad categories

- Pathogens - diseases which directly kill: bubonic plague, anthrax
- Biological Toxins - poisons produced by natural agent: ricin (from castor beans)

Nuclear Weapons:

Definition:

"weapons which release enormous amounts of energy through one of two processes: nuclear fission or nuclear fusion"

How they kill:

- Immediate blast radius: vaporize all living matter and pulverize buildings
- Secondary blast radius: shock wave crushes people and buildings
- Tertiary blast radius: radiation, blindness, and burn effects

2 categories:

- Fission: Nuclear weapons that split the nuclei of heavy elements - "first-generation" weapons
- Fusion: Nuclear weapons that combine hydrogen nuclei into helium - "second-generation" weapons

Radiological Weapons

- Conventional bombs encased in radioactive substances
- Do not generate a nuclear explosion, but do disburse radioactive material

Who has these weapons?

See chart

Why are WMD so significant?

- They violate the traditional notion of warfare - civilian soldier distinction
- They are most effective against "soft" - meaning unprotected targets
- WMD are considered to be "taboo" by international norms
- Bio Weapons also raise fears of a failure of controls
- Chemical and nuclear weapons can render areas unlivable for decades
- All are controlled by international treaty
- Bio Weapons - Outlawed by Biological Weapons Convention
- Chemical Weapons - Outlawed by Chemical Weapons Convention
- Nuclear Weapons - Proliferation limited by Nuclear Non-Proliferation Treaty

The additive nature of WMD threats:

You can add a WMD to other technologies such as ballistic missiles and you are left with very serious security issues

WMD proliferation means control over use deteriorates - more chance of leakage to rogues

WMD usage:

WWI saw widespread use of chemical weapons

WWII saw use of nuclear weapons and extensive bio-weapon research

US and Soviet doctrine advocated the use of chemical and nuclear weapons as part of any NATO - Warsaw Pact conflict

The plans were for relatively large-scale use of WMD against theater targets (supply depots, military bases, shipping, etc.)

Iraq has used chemical weapons against Iran and against domestic insurgents

Libya used chemical weapons against Chad during a border war

Why do states want WMD?

WMD problems for states

- Chemical Weapons
- Biological Weapons
- Nuclear Weapons

Problems of acquisition:

Chemical and Biological

- Any state with a moderate industrial base can produce chemical weapons
- Any state with even rudimentary biological research capacity can produce biological weapons
- The problem for underdeveloped states isn't production, it is control

Advantages of chemical weapons for states

- Chemical weapons offer mass destructive power at a low cost and a very low risk of detection
- Both weapons act as a deterrent to potential opponents

Nuclear Weapons

- Any state with a large-scale industrial base and access to the knowledge base of 1950's era physics can build nuclear weapons.
- The problems are in the details

Advantages of nuclear weapons

- Small and easy to deliver
- Have a very large "fear factor"
- Deterrent effects

Major problems:

- All weapons are banned by international treaty
- These weapons are all “taboo”
- Possession of these weapons encourages other to seek them
- Attempting to get them raises risks of international action against you

WMD problems for non-state actors; problems of improvised weapons

- Chemical weapons
- Biological weapons
- Nuclear weapons

Problems of delivery for improvised weapons:

Chemical and Biological Weapons

- Require complex and difficult to construct delivery systems to have large effect
- Aerosolized delivery is optimal, but extremely hard to build
- Improvised agents are hard to transport - break down quickly
- Even ideal delivery systems can be hampered by weather conditions
- Person releasing weapon is likely to die unless some form of delayed delivery is used

Nuclear weapons:

- Improvised weapons are large
- Improvised weapons don't travel all that well

Psychological and Normative factors deterring use:

- Use of NBC weapons has major international problems
- NBC weapons are seen as "taboo" by almost all states
- The US has declared that any NBC attack will be met in kind - and we only have nuclear weapons

Covert Attack with WMD

Anyone who has access to the weapon may engage in covert attack

States:

- Covert attack as prelude to other action
- Retaliation for previous actions

Non-state actors:

- Varies by group, but generally to sow terror or in revenge

Our problems today:

- States seeking these weapons are doing so deliberately to gain freedom of action in violating rules of the international system: they provide protection from retaliation
- The technology of these weapons is very basic and freely available to anyone
- As development spreads, the number of states capable of producing these weapons grows larger
- Technologies for delivering these weapons are easy to produce and deploy
- It is nearly impossible to accurately evaluate programs for developing these weapons
- Even if you know these weapons are under development, how do you stop development?
- Non-state actors are not subject to the usual constraints preventing the use of these weapons