**Mutual assured destruction**

**Mutually assured destruction** (**MAD**) is the doctrine of military strategy in which a full scale use of nuclear weapons by one of two opposing sides would result in the destruction of both the attacker and the defender. It is based on the theory of deterrence according to which the deployment of strong weapons is essential to threaten the enemy in order to prevent the use of the very same weapons.

**Theory**

The doctrine assumes that each side has enough weaponry to destroy the other side and that either side, if attacked for any reason by the other, would retaliate with equal or greater force. The expected result is an immediate escalation resulting in both combatants' total and assured destruction. It is now generally assumed that the nuclear fallout or nuclear winter would bring about worldwide devastation, though this was not a critical assumption to the theory of MAD.

The doctrine further assumes that neither side will dare to launch a first strike because the other side will launch on warning (also called fail-deadly) or with secondary forces (second strike) resulting in the destruction of both parties. The payoff of this doctrine is expected to be a tense but stable peace.

The primary application of this doctrine occurred during the Cold War (1950s to 1990s) in which MAD was seen as helping to prevent any direct full-scale conflicts between the two power blocks while they engaged in smaller proxy wars around the world. It was also responsible for the arms race, as both nations struggled to keep nuclear parity, or at least retain second-strike capability.

Proponents of MAD as part of U.S. and USSR strategic doctrine that believed nuclear war could best be prevented if neither side could expect to survive (as a functioning state) a full scale nuclear exchange. The credibility of the threat being critical to such assurance, each side had to invest substantial capital even if they were not intended for use. In addition, neither side could be expected or allowed to adequately defend itself against the other's nuclear missiles. This led both to the hardening and diversification of nuclear delivery systems (such as nuclear missile bunkers, ballistic missile submarines and nuclear bombers kept at fail-safe points) and to the Anti-Ballistic Missile Treaty.

This MAD scenario was often known by the euphemism "**nuclear deterrence**" (The term 'deterrence' was first used in this context after World War II. Prior to that time, its use was limited to juridical terminology). In France, "deterrence" was translated as "dissuasion", and in Russia, it was translated as "terrorization"—a linguistic difference which highlights two particular interpretations of deterrence: one which is basically an extrapolation of rational politics, another which is based on pure emotional fear. These two notions of deterrence, and MAD, were often used interchangeably by both fans and foes of the doctrine, despite their apparent paradoxical intent.

**History**

**Early Cold War**

Many historians argue that the United States began the Cold War by ending World War II with the nuclear attacks on Hiroshima and Nagasaki in Japan. Four years later, on August 9, 1949, the Soviet Union developed its own nuclear weapons. At the time, both sides lacked the means to effectively use nuclear devices against each other. However, with the development of aircraft like the B-36 Peacemaker, both sides were gaining more ability to deliver nuclear weapons into the interior of the opposing country. The official nuclear policy of the United States was one of "massive retaliation", as coined by President Eisenhower, which called for massive nuclear attack against the Soviet Union if they were to invade Europe.

It was only with the advent of ballistic missile submarines, starting with the George Washington class submarine in 1959, that a survivable nuclear force became possible and second strike capability credible. This was not fully understood until the 1960s when the strategy of mutually assured destruction was first fully described, largely by United States Secretary of Defense Robert McNamara.

In McNamara's formulation, MAD meant that nuclear nations either had *first strike* or *second strike* capability. A nation with first strike capability would be able to destroy the entire nuclear arsenal of another nation and thus prevent any nuclear retaliation. Second strike capability indicated that a nation could promise to respond to a nuclear attack with enough force to make such a first attack highly undesirable. According to McNamara, the arms race was in part an attempt to make sure that no nation gained first strike capability.

An early form of second strike capability had already been provided by the use of continual patrols of nuclear-equipped bombers, with a fixed number of planes always in the air (and therefore untouchable by a first strike) at any given time. The use of this tactic was reduced however, by the high logistic difficulty of keeping enough planes active at all times, and the rapidly growing role of ICBMs vs. bombers (which might be shot down by air defenses before reaching their targets).

Ballistic missile submarines established a second strike capability through their stealth and by the number fielded by each Cold War adversary - it was highly unlikely that all of them could be targeted and preemptively destroyed (in contrast to, for example, a missile bunker with a fixed location that could be targeted during a first strike). Given their long range, high survivability and ability to carry many medium- and long-range nuclear missiles, submarines were a credible means for retaliation even after a massive first strike.

During the Cuban Missile Crisis, the Soviet Union truly developed an understanding of the effectiveness of the U.S. ballistic missile submarine forces and work on Soviet ballistic missile submarines began in earnest. For the remainder of the Cold War, although official positions on MAD changed in the United States, the consequences of the second strike from ballistic missile submarines was never in doubt.

The multiple independently targetable re-entry vehicle (MIRV) was another weapons system designed specifically to aid with the MAD nuclear deterrence doctrine. With a MIRV payload, one ICBM could hold many separate warheads. MIRVs were first created by the United States in order to counterbalance Soviet anti-ballistic missile systems around Moscow. Since each defensive missile could only be counted on to destroy one offensive missile, making each offensive missile have, for example, three warheads (as with early MIRV systems) meant that three times as many defensive missiles were needed for each offensive missile. This made defending against missile attacks more costly and difficult. One of the largest U.S. MIRVed missiles, the LG-118A Peacekeeper, could hold up to 10 warheads, each with a yield of around 300 kilotons. The multiple warheads made defense untenable with the technology available, leaving only the threat of retaliatory attack as a viable defensive option.

In the event of a Soviet conventional attack on Western Europe, NATO planned to use tactical nuclear weapons. The Soviet Union countered this threat by issuing a statement that any use of nuclear weapons against Soviet forces, tactical or otherwise, was grounds for a full-scale Soviet retaliatory strike. In effect, if the Soviet Union invaded Europe, the United States would stop the offensive with tactical nuclear weapons. Then, the Soviet Union would respond with a full-scale nuclear strike on the United States. The United States would respond with a full scale nuclear strike on the Soviet Union. As such, it was generally assumed that any combat in Europe would end with apocalyptic conclusions.

**Late Cold War**

The original doctrine of U.S. MAD was modified on July 25, 1980 with U.S. President Jimmy Carter's adoption of *countervailing strategy* with Presidential Directive 59. According to its architect, Secretary of Defense Harold Brown, "countervailing strategy" stressed that the planned response to a Soviet attack was no longer to bomb Russian population centers and cities primarily, but first to kill the Soviet leadership, then attack military targets, in the hope of a Russian surrender before total destruction of the USSR (and the USA). This modified version of MAD was seen as a winnable nuclear war, while still maintaining the possibility of assured destruction for at least one party. This policy was further developed by the Reagan Administration with the announcement of the Strategic Defense Initiative (known derisively as "Star Wars"), the goal of which was to develop space-based technology to destroy Russian missiles before they reached the USA.

SDI was criticized by both the Soviets and many of America's allies (including Margaret Thatcher) because, were it ever operational and effective, it would have undermined the "assured destruction" required for MAD. If America had a guarantee against Soviet nuclear attacks, its critics argued, it would have first strike capability which would have been a politically and militarily destabilizing position. Critics further argued that it could trigger a new arms race, this time to develop countermeasures for SDI. Despite its promise of nuclear safety, SDI was described by many of its critics (including Soviet nuclear physicist and later peace activist Andrei Sakharov) as being even more dangerous than MAD because of these political implications.

**Post Cold War**

The fall of the Soviet Union has reduced tensions between Russia and the United States and between the United States and China. Although the administration of George W. Bush withdrew from the Anti-Ballistic Missile Treaty in June 2002, the limited national missile defense system proposed by the Bush administration was designed to prevent nuclear blackmail by a state with limited nuclear capability and is not planned to alter the nuclear posture between Russia and the United States. Russia and the United States still tacitly hold to the principles of MAD.

**MAD as official policy**

Whether or not MAD was ever the accepted doctrine of the United States military during the Cold War is largely a matter of interpretation. The term MAD was not coined by the military but was, however, based on the policy of "Assured Destruction" advocated by U.S. Secretary of Defense Robert McNamara during the 1960s. The U.S. Air Force, for example, has retrospectively contended that it never advocated MAD and that this form of deterrence was seen as one of a *number* of options in U.S. nuclear policy. Former officers have emphasized that they never felt as limited by the logic of MAD (and were prepared to use nuclear weapons in smaller scale situations than "Assured Destruction" allowed), and didn't deliberately target civilian cities (though they acknowledge that the result of a "purely military" attack would certainly devastate the cities as well).

MAD was certainly implied in a number of U.S. policies, though, and certainly used in the political rhetoric of leaders in both the USA and the USSR during many periods of the Cold War. The differences between MAD and a general theory of deterrence, the latter of which was certainly embodied in both rhetoric and technological decisions made by the U.S. and USSR, varies more along the lines of strictness of interpretation than they do categorical definitions.

**See also**

* [Bulletin of the Atomic Scientists](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Bulletin+of+the+Atomic+Scientists&gwp=8&curtab=2222_1&sbid=lc03b)
* [Doomsday Clock](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Doomsday+clock&gwp=8&curtab=2222_1&sbid=lc03b)
* [NUTS](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Nuclear+utilization+target+selection&gwp=8&curtab=2222_1&sbid=lc03b) (Nuclear Utilization Target Selection)
* [Cold War](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Cold+War&gwp=8&curtab=2222_1&sbid=lc03b)
* [moral equivalence](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Moral+equivalence&gwp=8&curtab=2222_1&sbid=lc03b)
* [Essence of Decision](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Essence+of+Decision&gwp=8&curtab=2222_1&sbid=lc03b), a book which disputes the MAD doctrine
* [Game theory](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Game+theory&gwp=8&curtab=2222_1&sbid=lc03b)
  + [Herman Kahn](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Herman+Kahn&gwp=8&curtab=2222_1&sbid=lc03b)
* [Nuclear disarmament](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Nuclear+disarmament&gwp=8&curtab=2222_1&sbid=lc03b)
* [Nuclear strategy](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Nuclear+strategy&gwp=8&curtab=2222_1&sbid=lc03b)
* [Single Integrated Operational Plan (SIOP)](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Single+Integrated+Operational+Plan&gwp=8&curtab=2222_1&sbid=lc03b)
* [RAND Corporation](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=RAND&gwp=8&curtab=2222_1&sbid=lc03b)
* [Weapons of mass destruction](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Weapons+of+mass+destruction&gwp=8&curtab=2222_1&sbid=lc03b)
* [Balance of terror](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Balance+of+terror&gwp=8&curtab=2222_1&sbid=lc03b)
* [Suicide weapon](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Suicide+weapon&gwp=8&curtab=2222_1&sbid=lc03b)
* [Nuclear missile defense](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Nuclear+missile+defense&gwp=8&curtab=2222_1&sbid=lc03b)
* [*Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb*](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Dr.+Strangelove+or%3A+How+I+Learned+to+Stop+Worrying+and+Love+the+Bomb&gwp=8&curtab=2222_1&sbid=lc03b), a famous [1964](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=1964&gwp=8&curtab=2222_1&sbid=lc03b) [Stanley Kubrick](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Stanley+Kubrick&gwp=8&curtab=2222_1&sbid=lc03b) film that satirizes the **MAD** situation.
* [*Red Alert*](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Red+Alert+%28book%29&gwp=8&curtab=2222_1&sbid=lc03b), the [Peter George](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Peter+George&gwp=8&curtab=2222_1&sbid=lc03b) book upon which *Dr. Strangelove* is based.
* [*Fail-Safe*](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Fail-Safe&gwp=8&curtab=2222_1&sbid=lc03b), a second film that takes a more-serious view of the **MAD** situation.
* [Stanislav Petrov](http://www.answers.com/main/ntquery;jsessionid=3k4ajdo45cehr?method=4&dsid=2222&dekey=Stanislav+Petrov&gwp=8&curtab=2222_1&sbid=lc03b), Soviet colonel who may have averted World War III.