Debunking myths about US nuclear policy

The current debate over nuclear force posture is marred by many fundamentally incorrect statements. I will attempt to examine the strategic issues and the effects of nuclear weapons in an attempt to clear up some popular misconceptions.

Consider the destruction of a single one-megaton nuclear bomb over the Earth. Within a circle of radius 400 miles around ground zero the blast will destroy most frame houses; winds in excess of 100 miles per hour will unsettle flying debris that will wound many people. Everyone exposed to the initial flash of light from the explosion in this 10,000-square-mile region will suffer third degree burns. The heat will be so intense over most of this region that standard building materials will ignite spontaneously, making conditions optimal for generation of a firestorm, a massive fire that would either suffocate or roast everyone within this 50-mile region— even those in fallout shelters.

Thus the blast and thermal effects alone would be sufficient to kill most people within this 50-square-mile area; even if their immune systems had not been weakened by the radiation received in just the first few hours following the blast. Within this region, the radiation received in one day would be about 2000 roentgens— five times the lethal dose. If 50 square miles is then considered to be the lethal zone of a one-megaton ground burst inside of which almost everyone dies and outside of which almost everyone lives (with conservative estimates the blast would be lethal within a 5-mile radius and would cause significant damage to buildings and other structures for over 100 miles around ground zero), the total area of the United States that would be uninhabitable by 1985 would be about 100,000 square miles.

The Soviet Union's urban population of about 125 million people, together with much of its industry, is concentrated on about 5000 square miles and therefore cannot be annihilated by an attack on only 140 megatons, which can be delivered by about 20 percent of our submarines—7 or about 6 percent of our bombers—20 B-1Bs— or about 15 percent of our ICBMs—150 missiles.

The tremendous destructive power of nuclear weapons should suggest that nuclear superiority is a relatively meaningless concept, and yet a close examination of the strategic balance reveals that our nuclear arsenal is more secure than that of the Soviets.

I The United States has the advantage in the least vulnerable leg of the strategic triad, the SLBMs (submarine-launched ballistic missiles), with about 4000 warheads on 900 missiles in 58 submarines versus about 1900 warheads on 900 missiles in 62 Soviet warheads. Because strategic nuclear submarines are virtually undetectable even if they are submerged in the ocean, the SLBMs are considered to be largely invincible to any enemy attack.

The United States has a further advantage here because our submarines are quieter and therefore harder to detect than Soviet submarines. More importantly, the United States maintains 55 percent to 75 percent of its strategic submarines hidden in the ocean at any given time, while the Soviets have only about 15 percent of their strategic submarines at sea all the time. This gives us, at the very least, more than one time-square shot in invulnerable nuclear warheads on submarines at sea.

Workload on strategic bombers is also fairly secure because bombers can be put in the air during an enemy attack. The United States has more than a 5-to-1 advantage in bomber warheads with 2000 warheads on 380 lightly sophisticated B-57 jet bombers versus about 85 warheads on 120 obsolescent Soviet bombers, most of which are propeller driven. We keep 80 percent of our B-52s, with about 750 nuclear warheads, on alert at all times. According to the Los Alamos National Laboratory, the SLBMs are more than capable of destroying the entire Soviet strategic aviation in accomplishing its mission.

The Soviet Union deploys 75 percent of its warheads in land-based intercontinental ballistic missiles (ICBMs). Because ICBMs are kept in fixed silos in the ground and can, in theory, be destroyed by accurate enemy nuclear weapons, ICBMs are considered potentially vulnerable to attack. For this reason, the United States has deployed only about 20 percent of its warheads on ICBMs. The Soviet Union's advantage in ICBMs, therefore, is in the number of warheads on submarines at sea.

Guest Column/Joseph J. Romm

How to follow Fellini.