

The Nuclear Weapon Button: Presidential Power and Reducing the Threat of Nuclear War

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Early History of Nuclear Weapons

- The bombs dropped on Hiroshima and Nagasaki were nuclear fission weapons and released energy corresponding to about 13kT of TNT and 21kT of TNT, respectively.
- Estimates are that each explosion caused about 70,000 immediate deaths and about 80,000 additional deaths within 4 months.
- We now know that, in addition to short-term deaths, nuclear weapons would cause many long term illnesses and deaths, as well as much damage to the environment. The damage to the environment would be very widespread.

Early History of Nuclear Weapons (cont'd)

- In the years following WWII, the USA and other countries developed “Hydrogen bombs”, which use nuclear fusion reactions to produce much more powerful explosions. A typical Hydrogen bomb has an energy release of 1MT of TNT, about 50 times more powerful than the Hiroshima and Nagasaki bombs.
- The current nuclear weapons deployed by the major powers are almost entirely Hydrogen bombs.

As Jonathan indicated, the USA and Russia currently each have about 7000 nuclear warheads. Of these, slightly less than 2000 in each case are actively deployed.

These numbers are actually significantly less than during the Cold War, when the USA and the Soviet Union each had between 30,000 and 40,000 nuclear warheads. However, these are still crazy large numbers.

In addition, 7 other nations have nuclear weapons and the option to decide to use them. The danger of rogue states or groups getting access to nuclear weapons is also a real threat.

The truth is that if an incident occurred in which on the order of 10 nuclear weapons were exploded (anywhere on the Earth), it would end life as we know it.

- For these reasons, many of us believe that if humanity is to survive, we must totally eliminate nuclear weapons. It will not be easy to reach that point, but we must have this as a goal.
- In the meantime, it is very important to reduce the likelihood that a nuclear war could be started accidentally or by bad judgment. So we should work toward encouraging No First Use and limiting the ability of a single person to launch nuclear weapons. This last point is the focus of today's discussion.

- There actually was an encouraging development recently. In their summit a few months ago, Biden and Putin reiterated a statement that Reagan and Gorbachev issued in the 1980s to the effect that “a nuclear war cannot be won, therefore one should never be started”.
- However, the USA has recently launched plans to spend huge amounts of money on upgrading our submarine and land-based missile systems. This makes no sense in so many ways and would just increase the long-term existential threat that nuclear weapons pose to us.

- We hear a lot these days about the existential threat posed by Climate Change. This is absolutely true and we should do everything we can to reduce this threat.
- However, nuclear weapons clearly also pose an existential threat to humanity, one that will continue to exist until we eliminate all nuclear weapons. The focus of this meeting is a key step to reaching this goal.