

# REMOVING THE PERIL OF NUCLEAR WEAPONS—THE REYKJAVIK-2 APPROACH

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The emphasis in this symposium has been on the Comprehensive Test Ban Treaty (CTBT) and the Fissile Material Cutoff Treaty (FMCT), and their importance should not be underestimated in showing the political and practical commitment of the nuclear weapon states to the nonproliferation regime.

In particular, the CTBT is necessary to reduce the asymmetry between the nuclear weapon states (NWS) of the NPT and the rest of the world; it is just too great a distinction to permit the NWS in principle to test and build new nuclear weaponry while demanding that others deny themselves any access even to the most elementary nuclear weapons.

But CTBT and FMCT are not enough to eliminate the peril of nuclear weapons. Even if they and the NPT were wildly successful, there would still remain the hazard of an existing nuclear weapon or an improvised nuclear weapon being used by a terrorist group—and if one such explosion, why not several? Nor would these treaties prevent the use or threat of use of existing nuclear weapons against other states. To address these larger problems requires a broader agenda and new initiatives on the part of heads of State and of others who have influence in matters of international security.

Experienced leaders of the U.S. government from both the military and policy sides have been working for two years toward "A World Free of Nuclear Weapons." This was the title of an article they published January 2007 in *The Wall*

*Street Journal*,<sup>1</sup> followed by "Toward a Nuclear-Free World" on 15 January 2008.<sup>2</sup> Because of the city-destroying capability of even a single nuclear explosive, these authors argue that world security will be improved by getting rid of nuclear weapons. They outline a process toward that end that begins with improved security for nuclear materials, massive reductions in the legitimate nuclear weapon stockpiles, and the like. They argue that many more states will acquire nuclear weapons if the five states that legitimately hold them under the 1970 Nonproliferation Treaty do not fulfill their part of the bargain and adopt the elimination of nuclear weapons as their goal, with visible and early steps in that direction. George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn are practical people with the well being of their fellow humans at heart.

In response to their plea, one hears that it will be impossible to reduce and especially to eliminate nuclear weapons. What if they were indeed eliminated and some new state acquired a few? And, by the way, even if they could be permanently eliminated, wouldn't this give the United States, with its advanced conventional armory, the ability to intimidate and to command the entire world?

What our four colleagues are urgently advising is the elimination of the posture in which large numbers of nuclear weapons are ready to be used and a massive reduction of nuclear weaponry. In the atmosphere that does not have the Cold-War confrontation between the USSR and the USA, the number of nuclear weapons that might be built now would be far less than those that were built, quite unnecessarily, during that confrontation.

Do we want to eliminate nuclear weapons, even if elimination can be rigorously achieved?

Some argue that the elimination of nuclear weapons would establish American hegemony because of the qualitative lead the USA has in conventional weaponry, as the result of its defense budget far exceeding the total of all others in the world. It is hard to believe that French or British or Chinese nuclear weapons have prevented American military action against the interests of these countries up to the present time, but, some of our interlocutors argue, it might be so in the future.

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<sup>1</sup> "A World Free of Nuclear Weapons," by G.P. Shultz, W.J. Perry, H.A. Kissinger, and S. Nunn, *The Wall Street Journal*, January 4, 2007.

See also a valuable book of materials published by the Hoover Institute, "Reykjavik Revisited: Steps Toward a World Free of Nuclear Weapons," edited by G.P. Shultz, S.P. Andreasen, S.D. Drell, and J.E. Goodby, Hoover Institution, September 2008. [www.hoover.org/publications/books/online/15766737.html](http://www.hoover.org/publications/books/online/15766737.html).

<sup>2</sup> "Toward a Nuclear-Free World," by G.P. Shultz, W.J. Perry, H.A. Kissinger, and S. Nunn, *The Wall Street Journal*, January 15, 2008.

In response, we note that with its vaunted conventional forces, the United States involvement in Iraq has served largely to destroy that country in the presence of opposition. Naturally the opposition is not of a symmetric nature but is asymmetric, as is characteristic of all warfare.

But our four colleagues show no sign of wishing to advance American hegemony. Furthermore, it will be a long time, if ever, before nuclear weapons are totally eliminated. That time should be used to create a world security structure in which the military might of nations is to be used in support of the common goals of nations and peoples, and not to advance the goals of one nation over those of another. If nations prize advanced conventional weapon capability, it would not now be so costly to copy what works of the American force-- pilotless aircraft, GPS/inertial guided bombs and conventionally-armed missiles for one's state or coalition.

Faced with the enormous transfer of wealth from much of the world to the oil-producing countries, it is hard to see that either nuclear weapons or the U.S. conventional might has yet played a role in alleviating that problem. In fact, calls for military action in response to the oil problem have been rare to the point of nonexistence.

Finally, in eliminating the threat of nuclear weapons the leaders of nations must show the imagination of which they are evidently capable. This would involve not only U.S.-Russian-European cooperation in defense against ballistic missiles, but it might very well involve a small force of nuclear weapons under multilateral control, as an eventual but interim step of indefinite duration, as a step toward their complete elimination.

In this symposium of individuals from many States, it would be good to emphasize more rapid progress towards CTBT and FMCT and in parallel more far-reaching goals and a faster pace in reducing the numbers and threat from existing nuclear weapons and nuclear weapon materials.

*On the next page are remarks added in presentation.*

## THE SINGLE MOST IMPORTANT ENABLER OF A NUCLEAR POWER RENAISSANCE: ALLOWING COMPETITIVE, COMMERCIAL, MINED GEOLOGICAL REPOSITORIES

In recent years there have been many proposals for assured supply of low-enriched uranium for fuel for normal power reactors in states that agree not to have their own enrichment capabilities. I support these approaches and note also that a state can simply “buy ahead” and stockpile 8-10 years of needed replacement fuel at affordable costs. However, the spent fuel from nuclear plants contains enough plutonium to fabricate about 30 nuclear weapons from a single year of operation of each power reactor. Despite the fact that this “civil plutonium” is not the preferred material for such implosion weapons, weapons so produced might have a “fizzle yield” no lower than one or two kilotons of TNT equivalent, and with improved skill could have the full yield of normal weapons made from “military plutonium”<sup>3</sup>. Under current custom and laws, each country is responsible for the disposal of spent fuel within its borders—ultimately in a mined geological repository for the packaged spent fuel or for the vitrified fission products that result from the removal of plutonium for nuclear weapons or for recycle into ordinary reactors that could save as a result no more than 20% of the feed uranium.

From the viewpoint of a state or energy sector that simply wants to achieve the social benefits of reliable electrical power from nuclear reactors, the supply of fresh fuel and the disposal of spent fuel are absolutely required—the first before the reactors can begin to supply power and the second within decades afterwards. Well-established storage of spent fuel in water pools at the reactors and in “dry casks” after a decade or so can provide temporary and affordable care of spent fuel, but no society wants to be committed to 10,000 or 100,000 years or more of essential maintenance and rebuilding of these dry casks—hence the universal commitment to a permanent mined geological repository in each state. Not a single repository for raw or processed spent fuel is operating; the Yucca Mountain repository in the United States is most developed but will not be available for spent fuel loading until at least 2015.

In many states, the uncertain status of the repository is a bar to the installation or expansion of nuclear power. We have heard at this meeting that in both Finland and Sweden two localities have competed to house the repository, and I have long advocated a change in national laws and customs to permit the use of competitive, commercial, mined geological repositories that would be certified by the IAEA to store spent fuel or vitrified fission products in packages also

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<sup>3</sup> See full discussion at <http://www.fas.org/rlg/980826-pu.htm>, with pointer to the two pages of the National Academy of Sciences CISAC report that address this question specifically.

certified by the IAEA. No state would be required to host such a repository—it would be a business venture subject to national regulation and with perhaps a limited ceding of sovereignty to allow international forces to provide backup security as necessary.

I can see no downside risk to an effort quickly to modify the laws to permit such competitive, commercial, mined geological repositories for the storage of spent fuel or vitrified fission products. Of course provision would need to be made to support the IAEA in such an expanded role.