

## Consequences of nuclear weapons\*

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In the debate on nuclear weapons, there is an urgent need to put human and planetary survival back in the forefront of discussions. This presentation offers ecological and humanitarian perspectives that demonstrate the urgent need to transform outdated doctrines and postures in order that the nuclear weapons problem can be finally and firmly resolved.

### *Consequences of the use of nuclear weapons*

[Recent scientific studies](#) have found that a war fought with the deployed U.S. and Russian nuclear arsenals would leave Earth virtually uninhabitable.<sup>1</sup> In fact, NASA computer models have shown that even a “successful” first strike by Washington or Moscow would inflict catastrophic environmental damage that would make agriculture impossible and cause mass starvation. Similarly, in the January 2010 edition of [Scientific American](#), Alan Robock and Brian Toon, the foremost experts on the climatic impact of nuclear war, warn that the environmental consequences of a “regional” nuclear war fought between India and Pakistan would cause a global famine that could kill one billion people.<sup>2</sup>

Robock and Toon predict that the detonation of 100 15-kiloton nuclear weapons in Indian and Pakistani megacities would create urban firestorms that would [loft](#) 5 million tons of thick, black smoke above cloud level,<sup>3</sup> which would engulf the entire planet within 10 days. Because the smoke couldn't be rained out, it would remain in the stratosphere for at least a decade and have profoundly disruptive effects.

Specifically, the smoke layer would heat the upper atmosphere, and cause massive destruction of protective stratospheric ozone, while simultaneously blocking warming sunlight and creating Ice Age weather conditions on Earth.

Humans have had some experience with this sort of deadly global climate change. In 1815, the largest volcanic eruption in recorded history took place in Indonesia. Mount Tambora exploded and created a stratospheric layer of sulfuric acid droplets that blocked sunlight from reaching Earth. During the following year, which was known as “The Year without Summer,” the northeastern United States experienced snowstorms in June and debilitating frosts every month of the year, and there was famine in Europe.

Robock, Toon, and their colleagues predict that 10 years after a regional nuclear war, Earth's average surface temperatures would still be as cold, or colder, than they were in 1816. Most likely, the long-lived smoke layer would produce a “decade without a summer”.

Deadly climate change from nuclear war was first described as “nuclear winter” in the 1980s, and large

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\* This presentation was jointly drafted by IKV Pax Christi, Lawyers Committee on Nuclear Policy, People for Nuclear Disarmament, Physicians for Social Responsibility, Project Ploughshares, Reaching Critical Will of the Women's International League for Peace and Freedom, and the Western States Legal Foundation. It also also been endorsed by the Nuclear Age Peace Foundation.

<sup>1</sup> O. B. Toon , A. Robock, and R. Turco, “The Environmental Consequences of Nuclear War”, *Physics Today*, vol. 61, No. 12, 2008, pp. 37-42.

<sup>2</sup> I. Helfand, “An Assessment of the Extent of Projected Global Famine Resulting From Limited, Regional Nuclear War”, 2007, International Physicians for the Prevention of Nuclear War, Physicians for Social Responsibility, Leeds, MA.

<sup>3</sup> A. Robock, O.B.Toon, “Local Nuclear War: global Suffering,” *Scientific American*, vol. 302, pp. 74 - 81 (2009) doi:10.1038/scientificamerican0110-74

studies were conducted on this subject by the U.S. [National Academy of Sciences](#)<sup>4</sup>, the World Meteorological Organization, and the International Council for Science's Scientific Committee on Problems of the Environment<sup>5</sup>. New research has found that these *early studies significantly underestimated the climatic and environmental consequences of nuclear war*.

It is sobering indeed to realize that the 100 Hiroshima-size weapons detonated in the “regional war” scenario contain less than 1% of the combined explosive power in the operational and deployed nuclear weapons possessed by the United States and Russia.

Deadly climate change from nuclear war must be included as a primary consideration in the ongoing debate about the abolition of nuclear weapons. A failure to address the apocalyptic potential of existing nuclear arsenals will cause the abolition discussion to lack the necessary sense of urgency needed to facilitate the elimination of these true weapons of mass destruction—before it's too late.

It is also important to remember that, even if nuclear weapons are never used again, they pose an intolerable threat to humanity.

### ***The consequences of the development and maintenance of nuclear weapons***

From 20–22 September, UN Secretary-General Ban Ki-moon called on world leaders to attend a summit in New York to accelerate progress toward realizing the Millennium Development Goals (MDGs). The *2010 MDG Report*, produced by the UN Department of Economic and Social Affairs in advance of the summit, notes that “unmet commitments, inadequate resources, lack of focus and accountability, and insufficient dedication to sustainable development have created shortfalls in many areas.” Some of these shortfalls, the report explains, were aggravated by the global food, climate, economic, and financial crises as well as armed conflict.

However, upon releasing its 2010 Yearbook, the Stockholm International Peace Research Institute noted, “The financial crisis and economic recession that have affected most of the globe appeared to have little effect on levels of military expenditure, arms production or arms transfers.” In 2009, worldwide military expenditure totaled an estimated 1531 billion USD, an increase of 49% since 2000. Of those countries for which data was available, 65% increased their military spending in real terms in 2009.

This shocking reality offers a clear opportunity to highlight the links between military expenditure, the arms trade, violent conflict, and the reduction of available resources for social and economic development. The military-industrial-academic complexes absorb vast amounts of funding that could otherwise be spend on human security, including the MDGs.

All five of the NPT nuclear weapon states—the US, UK, Russia, France, and China—intend to or are already engaged in the modernization of their nuclear weapons, delivery systems, and related infrastructure. The US alone is planning to spend a whopping 180 billion USD by 2020 to modernize its nuclear weapons manufacturing complex, warheads, and delivery systems. Nuclear weapon states are investing billions of dollars in the name of “national security” at the expense of human security and

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<sup>4</sup> Committee on the Atmospheric Effects of Nuclear Explosions, National Research Council, [The Effects on the Atmosphere of a Major Nuclear Exchange](#) (1985) Commission on Physical Sciences, Mathematics, and Applications (CPSMA)

<sup>5</sup> Scientific Committee on Problems of the Environment (SCOPE), Report 28, Environmental Consequences of Nuclear War: Vol. I, Physical and Atmospheric Effects by A. Ptticok, T.P. Ackerman, P.J. Crutzen, M.C. MacCracken, C.S. Shapiro & R.P. Turco (eds.), 1986, 2nd ed.

international peace and stability. Human security cannot be brought about through military might. It can only be ensured through the equitable distribution of adequate food, shelter, clean water and air, health care, and education.

Real security requires an environmentally sustainable, socially equitable world, empowering the majority to live a healthy, dignified, and productive life. As an added benefit, if funding was shifted from armaments to fulfilling basic human needs, some of the root causes of violence would at the same time be addressed, thus reducing the excuses for military actions around the world.

Article 26 of the UN Charter mandates the UN Security Council to formulate a plan to promote the establishment and maintenance of international peace and security with the least diversion for armaments of the world's human and economic resources. The Security Council has entirely neglected this responsibility and its nuclear-armed permanent members have instead engaged in weapons profiteering and arms races, resulting in crises of international, national, and human security and undermining sustainable development.

The nuclear weapon states perpetuate the myth of nuclear weapons as the ultimate harbinger of security by expressing their willingness to spend billions of dollars on maintaining and upgrading them in the midst of a global economic crisis. Yet delegations to this very body spent the general debate calling unequivocally for disarmament in order to achieve international security. A record number of delegations said that the use of nuclear weapons would constitute a crime against humanity and a violation of international humanitarian law, shining a light on an important way of exposing the myth of nuclear weapons.

### ***Nuclear weapons and international humanitarian law***

The values and roles still assigned to nuclear weapons—deterrence, power, prestige, and wealth—are grounded in a state-centric, balance-of-power world view that does not comport with the globalized interdependency of the modern world and assumes that economic and technological power centered on militarism constitutes a viable long-term trajectory. Furthermore, the risk of proliferation remains high as long as some states maintain nuclear weapons; the root causes of regional or international insecurity cannot be resolved by governments that have the means to posit an existential threat over others. The challenge of eliminating nuclear weapons will be greatly aided by their delegitimization, which requires a new discourse about security, as well as nuclear weapons themselves.

A remarkable and welcome outcome of the 2010 NPT Review Conference was that the final document included language expressing “deep concern at the catastrophic human consequences of any use of nuclear weapons” and reaffirming “the need for all States at all times to comply with applicable international law, including international humanitarian law.”

The Review Conference statement strongly implies the illegality of nuclear weapons in any circumstance, advancing the 1996 advisory opinion of the International Court of Justice (ICJ). It without question develops the norm of non-use of nuclear weapons. Indeed, when combined with the *practice* of non-use since the US atomic bombings of Japanese cities, the provision strengthens the case for a customary legal obligation categorically prescribing non-use. In effect, the Review Conference takes the ICJ opinion further than did the Court itself. While the ICJ opinion stopped at stating that the threat or use of nuclear weapons is “generally contrary” to international law, the Review Conference links the catastrophic humanitarian consequences of “any” use of nuclear weapons with the call for compliance with law “at all times,” implying that use of nuclear weapons is unlawful in all circumstances. The Review Conference’s statement reinforces the moral unacceptability and

presumptive unlawfulness of any use of nuclear weapons.

### ***Recommendations***

In order to comprehensively address all facets of the consequences of nuclear weapons, the UN Secretary-General should establish a group of governmental experts to study the effects of the production, modernization, and use of nuclear weapons and of potential paths to disarmament. Similar studies were conducted from the 1960s to the 1980s. As we are now well into the twenty-first century, it is past time for a new UN study on these issues.

This study should look at:

1. Nuclear risks, including arsenals, postures, doctrines, and the consequences of the use of nuclear weapons;
2. Challenges to nuclear disarmament, including the modernization of nuclear weapons and related infrastructure and nuclear-armed alliances;
3. The economic, human security, and international law consequences of current policies; and
4. Expected benefits of nuclear disarmament achieved through the negotiation of a nuclear weapons convention or a step-by-step approach.

We also recommend that the UN Environment Programme and the Food and Agriculture Organization conduct substantial research on the ecological and agricultural consequences of nuclear war. In particular, we suggest that they utilize the precisely predicted decreases in sunlight, temperature, precipitation, and ozone noted in the recent peer reviewed studies to evaluate the consequences of both regional and strategic nuclear war.

### ***Conclusion***

Ordinary people everywhere understand the great perils of nuclear weapons. We would like to draw to your attention two recent expressions of international civil society's determination. During the opening week of the 2010 NPT Review Conference, President Libran Cabactulan and UN High Representative Sergio Duarte accepted symbolic presentations of *more than 17 million signatures* collected around the world expressing the collective will of international civil society to see the commencement of negotiations on a nuclear weapons convention without further delay. In conjunction with the opening of this Committee's general debate on October 4, youth leaders from many faith traditions presented *more than 20 million signatures collected in 140 countries* on the Religions for Peace 'Arms Down!' petition to Ambassador Duarte. The Arms Down! campaign has three goals: abolish nuclear weapons; stop the proliferation and misuse of conventional weapons; and redirect 10% of military expenditure to achieve the UN Millennium Development Goals by 2015.

The terrible earthquake in Haiti killed roughly the same number of people as the two primitive atomic bombs dropped by the United States on Hiroshima and Nagasaki. The Haiti disaster has shown us once again that there could be no adequate response to the catastrophe of a far larger nuclear explosion in a city anywhere today. Of course, there is a fundamental difference between these scenarios: while the earthquake was an unavoidable natural occurrence, a nuclear war would be completely manmade, and entirely preventable.