The Environmental Impacts of

Manufacturing, Storing, Deploying, and Retiring Weapons

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Introduction

The state of the global environment and the status of global disarmament efforts have each attracted considerable attention in recent years. We are here today to focus our attention on the intersection of these two momentous issues. We are seeking to improve our understanding of the environmental aspects of disarmament, to clarify what we know, to define the boundaries of what we do not know, and to chart a course of action that will serve the collective good in a global environment.

In many ways, our efforts today echo a goal identified some 54 years ago in the Charter of the United Nations. The Peoples of the United Nations cited in the Preamble of that historic document sought to save succeeding generations from the scourge of war. We seek today to explore ways of ensuring that efforts to alleviate one scourge of war -- through the implementation of disarmament measures -- will not end up creating another scourge for the natural environment.

It is clear that using scarce natural resources for the manufacture of weapons has its own impact on the

environment. So also do the storage, deployment, and retirement of weapons affect the health and ecosystems of human beings. The supreme irony is that in getting rid of such weapons in the interests of peace and security, we have arguments brought out in the name of environmental protection from the very quarters that created the arms.

A Tale of Two Causes

International efforts to advance the causes of disarmament and a healthy environment have largely evolved along separate paths, and this is perhaps the source of many of our difficulties today in grappling with these issues simultaneously. The conduct of diplomacy in these areas has been handled by negotiators with different backgrounds, working in different bilateral and multilateral arenas, relying upon separate institutional resources, and depending upon varying sources of support from within civil society. Even though individuals who work in international organizations, national governments, public interest groups, academia, and private research associations may well support both strong disarmament and environmental policies, the complicated relationships between these issues remain poorly understood.

This is not by any means to say that the international community has entirely neglected these relationships. Quite to the contrary: many disarmament or arms control agreements concluded since World War II were significantly influenced by environmental considerations. Widespread public concerns over the health risks from radioactive fallout from atmospheric nuclear tests led to the 1963 Partial Test Ban Treaty, which outlawed all nuclear tests everywhere -- in air, sea, and outer space -- except underground.

The history of the negotiation of this specific treaty probably provides the best illustration of what the arms control and environmental communities in civil society can accomplish when they work together. As indeed they must. For extensive cooperation will be necessary to ensure the early entry into force of the Comprehensive Nuclear-Test-Ban Treaty (CTBT). It will also play an important role in future reductions of strategic nuclear weapons and their delivery systems. It will help in achieving universal memberships in the Chemical Weapons Convention (CWC) and the Biological Weapons Convention (BWC). It will assist in promoting new efforts to prevent any future arms race in outer space. And it will be vital in implementing the safe destruction of massive stocks of surplus conventional arms and ammunition sitting in arsenals around the world.

The postwar period is rich with diverse approaches to reducing nuclear threats to humankind and the environment. Some of the most successful resulted from efforts to ban the deployment or acquisition of nuclear weapons in specific geographic areas. The 1959 Antarctic Treaty excluded both nuclear weapons and radioactive wastes from the entire Antarctic continent. This dual coverage was also a feature of the 1985 Treaty of Rarotonga, which created a nuclear-weapon-free zone in the South Pacific, the 1997 Bangkok Treaty, which created such a zone in Southeast Asia, and the Pelindaba Treaty, signed in 1996, which created the African nuclear-weapon-free zone. In 1967, the Treaty of Tlatelolco excluded nuclear weapons from Latin America and, in the same year, the Outer Space Treaty prohibited the

placement of such weapons in outer space, the moon, or other celestial bodies. The entry into force of the Seabed Treaty in 1972 only further extended this trend of limiting the geographic scope of areas where nuclear weapons could be deployed, albeit with their various provisos, including the rights of transit for vessels containing nuclear weapons.

These latter treaties protect the environment indirectly by significantly lowering the risk from catastrophes that could ensue from the use or storage of such weapons in those geographic areas. They are not disarmament treaties. The Biological Weapons Convention and the Chemical Weapons Conventions, however, aim at the actual destruction and total elimination of all such weapons in all countries. It is significant that both these treaties give a heavy stress upon protecting the environment. Both treaties were, moreover, negotiated in the Conference on Disarmament in Geneva.

Article II of the Biological Weapons Convention requires, for example, that "all necessary safety precautions shall be observed to protect populations and the environment" during the course of eliminating biological weapons materials. Similarly, Article IV of the Chemical Weapons Convention requires its parties to accord "the highest priority to ensuring the safety of people and to protecting the environment." One can only wonder if the negotiators who agreed on such terms themselves fully understood the dimensions of the Herculean task they had so eloquently and rightfully established.

Another class of treaty might be called a "non-armament treaty," that is, a collective effort by the world community not to create certain weapons. A good example is the 1977 Convention on the Prohibition of Military or any Hostile Use of Environmental Modification Techniques, or the ENMOD Convention. This treaty essentially outlaws the manipulation of the natural environment for weapons purposes. On 1 December of this year, the General Assembly also adopted without a vote a resolution -- the latest of several over the years -- reaffirming that effective measures should also be taken to prevent the emergence of new types of weapons of mass destruction, with their own unknown but potentially grave environmental effects. Weapons not built are of course the cheapest and safest to eliminate.

Coping with the Deadly Legacy

Yet some countries now find themselves managing large stocks of nuclear weapons, chemical weapons, biological weapons, long-range missiles, and excessive conventional arms. They are facing the enormous nightmare of having to cope not just with the environmental legacy of having produced such weapons, but now the high costs of having to destroy them safely.

The total costs of a nuclear weapons program alone are just astounding. The Brookings Institution has estimated that the historical costs of developing, maintaining, and cleaning up after the US nuclear weapons programme were over $5 trillion since World War II. In 1995, the US General Accounting Office estimated that -- in GAO’s own words -- "this cleanup will cost at least $300 billion (and perhaps as much as $1 trillion) and take more than 30 years to complete." Note that these are cleanup costs for the existing nuclear weapons program, independent of the costs of any future disarmament agreements or, presumably, any future environmental disaster than may occur as a result of the continuation of such

programs.

So much for the nuclear weapons part of the cost equation in just one country. I have no idea what the cost will be of cleaning up the environmental legacies of the other countries that have acquired such weapons. I cannot estimate, for example, the costs that the Russian Federation is facing as it confronts the environmental legacies of its own nuclear weapons programme, especially the costs from radioactive contamination at different sites in that country. I cannot estimate the costs of cleaning up after various known fires, explosions, and radioactive leaks that have plagued virtually all nuclear weapons programs around the world.

Though estimates of the total global costs will necessarily vary, the US Department of Energy issued a report in 1996 (DOE/EM-0266) which offered the following perspective on the problem -- "About 98 percent of nuclear weapons production occurred in the United States and the former Soviet Union, and the quantities of waste and contamination in those countries correspond roughly to the total number of weapons produced."

This waste is not all radioactive -- much of the legacy of these weapons relates to extremely toxic nonradiological hazards. Examples include acids, solvents, nitrates, oils, heavy metals, fluorides, explosives, mercury, beryllium, asbestos, and numerous other contaminants. Last July, US Secretary of Energy Bill Richardson announced that he was "reversing a policy of denial of compensation" for workers in US nuclear weapons plants who suffered from the environmental legacy of a half century of nuclear weapons-related activities. The price of these programs -- in human and material terms -- just seems to keep on growing and growing.

We have all heard similar stories about the enormous expenses associated with the destruction of chemical agent and munitions under the CWC. The official cost estimates for destroying the US chemical weapons arsenal have consistently been rising over recent years amid continuing public concerns over the safety of storing, transporting, and incinerating chemical agents. As costs have risen, the projected completion dates have been extended. With severe budget contraints, the Russian Federation has also experienced enormous difficulties in fulfilling its CWC obligations in a timely manner, as have other countries that produced such weapons on a large scale.

The Challenges Ahead

Regardless of which country one is addressing, rich or poor, it may be safely assumed that national leaders will be facing very difficult choices in the years ahead over the extent to which environmental considerations should guide funding decisions, particularly decisions made pursuant to international disarmament agreements. The worse the environmental problems become, the narrower will be the margin for choice.

The easiest way for countries to manage the costs of disarming themselves of weapons of mass destruction is simply not to acquire such weapons in the first place. It is high time that due credit is

given to the enormous savings that countries have reaped from what might be called the "non-armament dividend" -- that is, the savings in human, environmental, and financial resources from not having pursued weapons of mass destruction. Fortunately, most countries have not only chosen this path to their national security, but have registered such commitments in terms that are binding under international law. And despite many rumors to the contrary that are exploited for familiar purposes -- a few of which are admittedly true -- the overwhelming majority is in full compliance with those obligations.

Problems arise, however, when arsenals get so big and disarmament so expensive that serious national sacrifices must be made. These problems worsen when leaders respond by either postponing disarmament or by pursuing it at the expense of the environment. This is seen in actions such as cutting corners in destruction activities, exempting military programs from environmental controls, under-funding cleanup activities, failing to enact stringent domestic environmental legislation, or simply not enforcing such laws.

Problems also arise when the economic and environmental costs of disarmament become convenient excuses not to disarm. And even more problems arise when these costs are examined in isolation of the costs of getting into a war involving the use of those weapons. The environmental consequences of disarmament must, therefore, be assessed not in isolation but relative to the alternatives, including the alternative of catastrophic events that may arise from the failure to disarm. There are always costs to measure from actions, but there are also costs to measure from inaction.

And there are additional problems from decisions to acquire or to expand an existing WMD stockpile, or to acquire new types of WMD. The hard lesson to be learned from all these various problems I have just surveyed is that the costliest disarmament is cheaper than the cheapest arms build-up, a point I emphasized in the Olof Palme Memorial Lecture in Stockholm last September and that I would like to stress again today.

The UN cannot itself renegotiate arms control and disarmament agreements that did not contain environmental provisions, or that included only ambiguous provisions, or that neglected any mention of the need to verify or enforce compliance with such provisions. The UN cannot write domestic legislation nor can it issue regulations that are binding on its members. The UN cannot levy fines or impose other sanctions upon polluters. These are sovereign functions reserved to Members of the United Nations. Since the primary actor in the UN system remains the individual Member State, it is not at all surprising that serious proposals for reform -- whether they be in the fields of disarmament, the environment, or in both fields together -- have focused, as well they should, upon reforms at the level of the nation state.

This said, it remains an undisputed fact that many of the most serious environmental problems simply cannot be effectively addressed by individual countries acting alone. This is especially true with respect to trans-boundary migrations of lethal substances, including some radioactive materials whose half-lives are dated by hundreds and even thousands of millennia, a sobering thought as New Year’s Day approaches.

Despite its many problems of funding and lack of support at times, the UN remains at an unique vantage point for making very significant contributions to addressing issues relating to the environmental effects not just of disarmament, but of other human activities that are increasingly being conducted on a global scale. We have offices all over the world that gather information about local conditions and benefit from scientific expertise available in the field. Collectively, we are arguably closer to the wants, needs, and living conditions of the peoples of the world than is any other single government. We seek not to control nation states but to be useful to them -- we recognize the need to strengthen the capacities of nation states to implement global environmental and disarmament norms, particularly in developing countries.

Through the activities of the UN Environment Programme, we are developing our own capability to monitor environmental conditions on a truly planetary scale. Through the activities of the World Bank and other multilateral financial institutions, countries are receiving assistance in protecting their own environments and in making more efficient use of scarce resources. Through our debates, conferences, and publications we can help to educate an international society that must inevitably confront environmental and security challenges on a global scale.

The Road to Sustainable Disarmament

As a combined result of the forces of globalization and the responses of international organizations and nation states to these new challenges, the very notion of "national security" has arguably undergone more of a transformation just in the last two decades than it had experienced since the days of the Peace of Westphalia almost four centuries ago. Most governments today have offices that are responsible for dealing specifically with environmental issues -- and I am pleased that officials from several of these agencies are represented here today.

Indeed, the world community has learned some important lessons in the closing decades of this century about the close relationship between development and the environment. Some of these insights were gained thanks to the work of international commissions under the distinguished names of Brandt, Palme, and Brundtland. Other lessons were learned from global environmental gatherings held in such cities as Rio de Janeiro, Montevideo, Stockholm, Basel, London, and Nairobi, to name just a few. Through the activities of its specialized agencies and through its many resolutions, special studies, conferences, and advocacy work, the United Nations has itself contributed significantly to developing the global norm of "sustainable development."

The central lesson of those efforts is that development and the environment goals can -- and indeed must -- be pursued in tandem. They must be mutually reinforcing rather than traded off one against the other.

The same fusion is important to establish between disarmament and the environment. On many other occasions, I have tried to develop the argument for a new concept of "sustainable disarmament." At the heart of this idea is a grand coalition of diverse groups both in civil society and within government that can together provide the support needed to design and implement a continuing process of responsible disarmament efforts. Disarmament undertaken with no regard for its own environmental consequences

risks jeopardizing the very political foundation upon which all serious disarmament efforts rest. Considered against the costs of continued arms production or of war, advocates of a clean environment have an enormous stake in ensuring the success of disarmament efforts.

On 1 December, the UN General Assembly once again voted overwhelmingly (159-0-4) in favor of a resolution (54/54 S) reaffirming that international disarmament forums "should take fully into account the relevant environmental norms in negotiating treaties and agreements on disarmament and arms limitation" and that all states should contribute fully to ensuring compliance with such norms in the implementation of treaties and conventions to which they are parties. To the extent this resolution is observed in practice, the net result would be a significant gain for both the environment and disarmament. It would be a gain, in short, for sustainable disarmament.

Enlightened leadership from nation states will of course be crucial to the success of international efforts with respect to either the environment or disarmament. But visionary leaders are not enough. They require support deep within civil society.

I am encouraged by the diverse backgrounds of the participants at this symposium. The task of harmonizing disarmament and environmental goals will require extensive interdisciplinary co-operation both inside countries and between them. To the extent that the UN can become a "centre for harmonizing the actions of nations" in the attainment their common ends -- an official purpose of the organization found in the Charter -- the United Nations will have its part to play in the new millennium, particularly with respect to the disarmament and the environment. With a strong foundation in civil society, our common hopes and dreams will be all that closer to realization. The peoples of the world have a right to the cry, *"Whose environment? Our environment."* But the action to be taken in pursuance of this slogan must be in terms of constructive change in a new compact between governments and societies.