

The CTBT and Beyond

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Preface

The United Nations Institute for Disarmament Research (UNIDIR), which has been in existence since 1 October 1980, was established by the General Assembly as an autonomous institution within the framework of the United Nations to carry out independent research on disarmament and related international security issues.

The Institute's work, which is based on the provisions of the Final Document of the Tenth Session of the General Assembly, aims at:

1. Providing the international community with more diversified and complete data on problems relating to international security, the armaments race and disarmament in all fields, particularly in the nuclear field, so as to facilitate progress, through negotiations, towards greater security for all States, and towards the economic and social development of all peoples;
2. Promoting informed participation by all States in disarmament efforts;
3. Assisting on-going negotiations on disarmament and continuing efforts being made to ensure greater international security at a progressively lower level of armaments, particularly nuclear armaments, by means of objective and factual studies and analyses;
4. Carrying out more in-depth, forward looking and long-term research on disarmament so as to provide a general insight to the problems involved, and stimulating new initiatives for new negotiations.

In publishing this series of research papers, UNIDIR wishes to make available to the international diplomatic as well as scientific community analyses prepared by the staff of the Institute or persons working within its framework who express their personal points of view on current questions. The papers will deal with a very broad range of subjects and will vary in scope, depending on the evolution of security, disarmament and arms limitation problems, as well as on the specialization of the authors, although it will invariably be related to the Institute's programme of work.

UNIDIR takes no position on the views and conclusions expressed in these papers which are those of their authors. Nevertheless, UNIDIR considers that such papers merit publication and recommends them to the attention of its readers.

Sverre Lodgaard
Director, UNIDIR

The CTBT and Beyond

Herbert F. York*

The first attempts to control nuclear weapons were made immediately after the first bombs were used. The most important of the early steps was the so-called Baruch Plan, named for Bernard Baruch, who presented it on behalf of the United States to the United Nations in 1946. The substance of the Plan was drafted by a group chaired by David Lilienthal, the man who soon after became the first chairman of the United States Atomic Energy Commission. Robert Oppenheimer, the wartime director of the Los Alamos Laboratory, was one of the four other members. In words which I believe to have been authored by Oppenheimer, the Report presenting the Plan to the Secretary of State at one point says:

The program we propose may seem too idealistic. It may seem too radical, too advanced, too much beyond human experience. All these terms apply with peculiar fitness to the atomic bomb. In considering the Plan, as inevitable doubts arise as to its acceptability, one should ask oneself "what are the alternatives?" We have and we find no tolerable answer.

From "A Report on the International
Control of Atomic Energy",
for the Secretary of State, by
David Lilienthal *et al*, 3/16/1946

In retrospect, the Plan was indeed "too radical, ... too much beyond human experience". In particular it called for intrusions on sovereignty that were totally unacceptable to the Soviets, then under the rule of Stalin, and, I believe the US Senate would have found them unacceptable also, if such an agreement had been put before it for ratification in those times. During the next dozen years other

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proposals were put forward, but none could be realized under the international conditions then prevailing.

Finally, in 1958, President Eisenhower and Chairman Khrushchev undertook the first serious negotiations designed to achieve a comprehensive ban on nuclear weapons testing. I cannot be certain of Khrushchev's motives, but I know that Eisenhower had two major goals and one minor one in his mind at the time.

The first major goal was to take a decisive, though modest, first step down the long road leading to the eventual elimination of the nuclear threat that hangs over the heads of all of us. There had been many prior proposals for achieving some sort of control over the atom. Some were simply much too broad and much too difficult to verify - "General and Complete Disarmament", for example. Others required too much international intrusion on national sovereignty - the Baruch Plan is an example. Others were rejected because they seemed threatening in other ways - Eisenhower's "Open Skies" proposal may have been in this category. In any event, all prior attempts to restrain nuclear arms had failed, and in 1958 a CTBT, being both limited in scope and relatively easy to monitor, seemed to offer a good chance for getting the whole process restarted.

The second major purpose was to begin the gradual process of opening up the Soviet Union. Recall that in those days the USSR was still a very tightly closed society. From the beginning of the new negotiations, all parties seemed to recognize that some sort of international observation and inspection system would be needed for a CTB. And, since visitors of any kind to any part of its vast territory were still few and far between, the possibility of opening up that huge country to any sort of international inspection, however modest, seemed to be a useful step in the right direction.

Eisenhower's minor goal was to eliminate atmospheric tests in particular, tests which were then causing an increasingly troublesome radioactive pollution of the atmosphere. Ever since the fallout accident at the US Pacific test site in 1954, radioactive contamination of the atmosphere by nuclear testing had been a political issue, both at home and abroad. This minor goal was eventually accomplished through the Limited Test Ban Treaty of 1963. As we now know,

achievement of a more comprehensive ban would have to wait for other major changes in the international political environment.

In the meantime, in the mid 1960s, after the first five states had already tested and deployed nuclear weapons, negotiations on a treaty to stop further proliferation got underway. The final result was the NPT - the Non Proliferation Treaty - which entered into force in 1970. Article six of that treaty calls on "each of the parties to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament ... under effective international control". The preamble of the treaty and the negotiating record make it abundantly clear that a comprehensive test ban was widely considered to be an essential part of this whole process. Thus, by 1970, the achievement of a CTB had taken on a new purpose and new importance. Such a ban had become, in brief, a part of the promise the states that had nuclear weapons made to the states that did not have them in order to persuade them to forever forego the acquisition of such weapons for themselves. No time limit was set at that time, and the arms race has been reversed in some of its other major dimensions in the meantime, but even so it is still widely believed that the fulfilment of this particular promise is long overdue.

Today the reasons for pursuing a CTBT have been further expanded. Not only is the willingness to accept a CTB still widely regarded as the principle measure of a state's attitude towards the NPT, but it has become more generally a measure of a state's seriousness with regard to the larger goal, the eventual total elimination of nuclear weapons everywhere. The substantial reductions in the stockpiles of the superpowers now called for by the various START agreements can, of course, be accomplished in the absence of a CTBT, but truly deep reductions by all nuclear states to levels in the low hundreds, or even less, can be realistically achieved only in the context of other security arrangements, including not only a CTB but also certain other major restraints I will describe below.

A Comprehensive Test Ban has become, in sum, a necessary condition for any further really serious progress towards eliminating the nuclear threat.

Let me now turn to what a test ban cannot do.

Necessary as a test ban may be for preventing further proliferation, it is not sufficient for that purpose; that is, it cannot by itself prevent the acquisition of nuclear weapons by new states.

The reason for this is simple. In brief, testing is no longer a necessary prelude for developing and building nuclear weapons.

The early experiences of the original nuclear states are misleading in this regard. Back in the 1940's nuclear weapons were completely new. At first, no one could be sure they could even be constructed. It took, in each of the early instances, great teams of highly competent scientists to cope with the questions involved, and tests were absolutely essential in order to verify the scientists ideas. A few years later, in the 1950's, thermonuclear weapons were introduced and the process was repeated. The development of this new type of weapon involved another set of radically new ideas and test continued to be necessary for verifying the scientists theories and calculations. In the 1960's and the 1970's the nuclear weapons developers did acquire both experience and confidence in their predictions, but testing remained necessary because radically new designs were being explored. At that time, at what we now know was the apogee of the arms race, weapons design criteria were set by the awesome requirements for the ever more sophisticated weapons that each superpower saw as being necessary to deter the other. As a result, some nuclear weapons were built that could be fitted into a six inch artillery shell. Others were built to fit into nose cones having very restricted dimensions and requiring greatly reduced weights so that many independently targetable re-entry vehicles (MIRV), each containing a nuclear warhead, could be delivered by a single rocket. Fulfilling these ever more demanding requirements continued to be difficult during those years, and so tests remained a necessary part of the design process.

With the passage of time in general, and with the end of the superpower arms race in particular, this situation has changed greatly. Nuclear weapons technology, instead of being at the "cutting edge", is now well inside the technological base possessed by all advanced countries, both large and small, and by some others as well. Moreover, the special requirements for extreme designs that characterized the great arms race do not apply in the case of potential newcomers. Nuclear weapons

more powerful than the one exploded over Hiroshima, weighing much less than a tonne, and fitting into an external diameter of much less than a meter can be confidently designed and built without tests by any state having an indigenous modern technological base or by a less advanced state with enough money to buy the necessary technology. Weapons with yields, weights and dimensions in that range can be easily delivered to distant targets by a wide variety of missiles and aircraft now readily available from commercial sources. In addition, such weapons do not need tritium, another circumstance that also makes their design, construction, and maintenance simpler. If further evidence of this change in the need for tests is wanted, we need only consider the "real world" cases of Pakistan, Israel, and South Africa. All of them have, it seems, designed and built nuclear weapons without prior tests. And even in the additional case of India, which did make a single test in the early 1970's, that was so long ago that it is, I estimate, probably no longer particularly relevant to whatever weapons it may have today.

In sum, a CTB will not by itself prevent proliferation. And neither will the NPT by itself do so. The reason is that as it is currently written, the latter is both voluntary and has the usual escape clause. Something that goes well beyond both of these treaties is clearly needed.

Let me now offer for your consideration a specific proposal for the Next Big Step.

I suggest that the long term solution to the nuclear threat is the simultaneous establishment of three universal prohibitions, one on further proliferation, one on the threat of use, and one on the actual use of nuclear weapons. All of these prohibitions would be enforced under the authority of the United Nations' Security Council by means of advance arrangements and final actions analogous to those so effectively used in the Gulf War of 1990-91. The prohibition on further proliferation, once it is agreed, can in most instances be successfully handled either by political and economic persuasion or, if those fail, by purely conventional means. In many cases it should also be possible to enforce the second and third prohibitions solely by conventional military means, but in some particularly difficult instances at least the realistic threat of nuclear retaliation - the threat that

we have in the recent past called "nuclear deterrence" - may be necessary. Let me explore some of the components of this proposal further.

The NPT, now voluntary, must be made compulsory. Though obviously novel, such a change is, I think, clearly necessary. In making this proposal, I know that the objection will be raised that prohibiting some states from ever creating nuclear weapons while others continue to possess them is inherently "unfair" and "discriminatory". This same objection was raised in connection with the NPT itself. There, it was solved - for the moment, at least - by including the famous article VI in which the superpowers promised their best efforts to end and reverse the main arms race. A long time passed before they even started to seriously fulfil that promise, but since the Cold War ended a few years ago the arms race has in fact ceased, large reductions in stockpiles have been achieved and are continuing, and a CTB in sight. Something similar will be needed in this new case. A reasonable minimum commitment by the nuclear weapons states might be to reduce all remaining stockpiles to no more than one hundred at the time the new arrangements go into force, combined with a clear promise to the effect that the goal is to reduce all of them to zero as soon as suitable international conditions and arrangements are in place. Some might wish to go all the way to zero at the same time as these three universal prohibitions go into effect, and thus eliminate all unfair discrimination at the start, but I believe that would be going too far too soon. Indeed, I am convinced that the total elimination of all weapons, especially including those possessed by the current nuclear powers, can only come after the world has had some experience with arrangements of the sort I describe here, and not be coincident with them. (Another discussion of the conditions that must be fulfilled before nuclear weapons stockpiles can be reduced to the low 100's, or ultimately even zero, is in "Further Reins on Nuclear Arms: Next Steps for the Major Nuclear Powers" by Andrew Goodpaster, former Supreme Commander of the NATO forces. It was published by the Atlantic Council, in August, 1993).

Combining the prohibition on further proliferation with the prohibitions on threat and on use, as I am suggesting here, has several merits. The principle merit is that all of these prohibitions are desirable, they are logically connected, and the means for enforcing them is in general the same. Another is that the second and third prohibitions do not suffer from the "unfairness" handicap and thus the whole

package would be easier to sell than a free standing compulsory Non Proliferation Treaty.

In the scheme proposed here, only the Security Council would have the right to threaten the use of nuclear weapons, or, if the threat alone was not sufficient, to authorize their actual use by one or more of its members on its behalf. This is, obviously, very different from the circumstances we have been living with for most of the last fifty years. Throughout the Cold War the United States and its allies openly reserved the right to initiate the use of nuclear weapons under certain extreme conditions. This policy was commonly referred to as "extended deterrence". A well known example was in the case of NATO, which made it known that it would reply to a massive ground attack on Western Europe with nuclear weapons if, as seemed all too possible, other means of resistance failed. Other states, while usually denying such intentions, very probably had similar plans for meeting similarly extreme contingencies.

Since the end of the Cold War the attitudes of most leaders in the current overt nuclear states has changed radically. Formerly, such leaders commonly thought of nuclear weapons primarily as a solution to otherwise intractable security problems. The defense of western Europe against a massive armoured invasion, as already noted above, is an easy example. Now the leaders of these same states recognize that the problems created by nuclear weapons in the hands of a growing number of other states override whatever advantages their own possession of them might still bring. These other states are, in general, smaller and militarily weaker than the current overt nuclear weapons states, and their leaders evidently see the possession of nuclear weapons as the best, and often the only means for "levelling the playing field" in a confrontation with a larger and otherwise more powerful state. As a result of these changes in their thinking, the leadership of the nuclear states is now, or soon will be, on the threshold of being ready to accept a universal prohibition on the use of such weapons.

A universally agreed "No First Use" policy for nuclear weapons would, in theory, have much the same effect as a universal prohibition on their use, but its practical effect and the possibilities for its being widely accepted would be very different. As commonly described, a "no first use policy" is voluntary and it is

backed up only by "a piece of paper". These two characteristics have made it seem too weak and too uncertain to be taken seriously by many governments. The prohibition proposed here is both compulsory and backed up ultimately by force, two characteristics that make it more reliable and more credible, and hence more widely acceptable.

As already noted above, each of these prohibitions would be enforced by means analogous to those used to initiate and win the Gulf War. In the present case, well in advance of the need for any action, the United Nations Security Council would pass resolutions spelling out each of these prohibitions and clearly declaring its intention to use whatever means may become necessary for their enforcement. The Security Council would then make advance arrangements with all of its permanent members, and certain other major powers as well, to make the necessary means available. Again by analogy to the Gulf War, I do not imagine that the forces needed would either belong to the Security Council or be commanded by that body. They would, as in that earlier situation, continue to belong to, be maintained by, and be commanded by the individual states, but both the prior commitments and the final authority to use them would be in the hands of the Security Council. These forces would be primarily conventional in nature, but in order to be ready for a potential violation of the second and third prohibitions, those banning both the threat of use and the actual use of nuclear weapons, a reserve of nuclear weapons, again in the hands of certain members of the Security Council, and to be used only in the most extreme situations, would still be necessary.

In general, the ban on further proliferation could probably be enforced without the use of any military force. In most cases a realistic threat of universal and forceful political and economic sanctions would probably do the job. In some, the actual application of such sanctions may become necessary. And indeed, a few cases may prove to be so intractable, that something more than sanctions and other external pressures would be needed. In such extreme cases it may be necessary to actually destroy the infrastructure dedicated to the design and manufacture of nuclear weaponry. By employing a sufficiently large number of conventional "smart weapons", similar to those used so effectively in the Gulf War, it should be possible to permanently eradicate such facilities with minimal

casualties among persons other than those then at work in them. Many will find it more than a little unpleasant to contemplate such actions from the present quasi-peaceful perspective, but doing so is necessary if we are ever to eliminate the nuclear menace. Indeed, the existence of a firm and obvious political will to deal decisively with such extreme cases is the most promising way of assuring that they are unlikely to arise even once, and surely not a second time.

Enforcing the second and third prohibitions, those concerning the threat of use and the actual use of nuclear weapons, involve similar considerations. In these cases, too, the creation in advance of an obviously adequate enforcement mechanism, backed up by the clear political will to use it, should, in most cases, be sufficient to accomplish the objective. To say it differently, the primary reason for creating such a mechanism is to deter, not to counter, the prohibited actions. And here as in all other cases, for deterrence to succeed it must be credible. That is, it must be made obvious to any potential transgressor, to any renegade state, that the international community is fully prepared to deal with the even the most intransigent cases by using whatever means may prove to be necessary.

In most instances, these "necessary means" should be purely conventional, of sufficient size and involving the most modern weapons available, but not including any of the so-called "weapons of mass destruction". We must, however, be prepared to cope with the extreme case, the one in which, for whatever reason, conventional military forces alone are not enough either to deter or to respond to a prohibited act on the part of a renegade state. The civilized world must, therefore, continue to maintain some residual nuclear forces for as long as such possibilities can still become real. Like the conventional forces, these nuclear forces would remain in the possession of and under the immediate control of certain individual states - presumably those constituting the "permanent members of the Security Council. However, the threat to use them and their actual use would be under the exclusive control of the Security Council and in accordance with the rules and plans established when the original arrangements for enforcing these prohibitions were made.

I realize full well that the proposals I am offering here go well beyond anything now being actively promoted by governments, well beyond anything

currently being negotiated. They are, obviously, meant for some future time that I hope will not be too long in coming. As a partial justification for bringing them up here today I return to the remarks quoted at the beginning of this talk. They were originally made almost fifty years ago, at what was in many ways a very different time. Although much has been accomplished in the meantime, the problem we are dealing with here today remains, unfortunately, unresolved. Nuclear Weapons still pose a threat to humanity that goes "beyond human experience". We must develop and put in place a "tolerable answer".