

Nuclear Abolition Treaty Provisions (2018 Ed.)

Frederick N. Mattis

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Worldwide elimination of nuclear weapons would bring the following benefits to humanity: first, freedom from nuclear war or nuclear attack, including escalation of a border conflict, or a lashing-out by a desperate or deranged dictator. Second, freedom from the danger of a “false-alarm” nuclear missile launch (and counter-launch and nuclear war). Third, elimination of risk that terrorists could acquire a nuclear weapon from a state’s arsenal.

A new treaty, the Treaty on the Prohibition of Nuclear Weapons (or “Ban Treaty,”) was introduced for states’ signature in 2017 and will enter into force for its signatories upon achievement of 50 states as ratified parties. The Ban Treaty does not contain, however, most of the provisions—discussed below—that are likely necessary for a worldwide abolition treaty.

Following are provisions, and their rationale, for a treaty abolishing nuclear weapons.

1. The proposed abolition treaty (often called a “Nuclear Weapons Convention”) would not enter into force until 180 days after the U.N. Secretary-General announces that all U.N. member-states, plus U.N. “non-member observer states” and Republic of China (Taiwan) have joined (this will be referred to as “all states” having joined). By treaty terms, however, even this unprecedented requirement of all states for entry into force is not “absolute,” because within the first 60 of those ensuing 180 days, a state can formally object—and thereby liquidate that presumptive 180-day interval toward entry into force. Whenever (and assuming here) the state withdraws its objection, a new 180-day interval commences, and again with prerogative of a state to object during the first 60 days and liquidate that interval toward entry into force. (Conceivably, although improbably, this pattern could continue.) Also: once the treaty enters into force (after all states have joined and in absence of formal objection), the treaty proclaims that its prohibition of nuclear weapons and of specified nuclear-related activities applies “everywhere,” to cover any ambiguous areas and non-state realms such as polar regions, the open oceans, the atmosphere and outer space.

Nuclear abolition, to be true to its name, can only be achieved when “all states” join an abolition treaty. Further, today’s nuclear weapon possessors predictably will not join such a treaty unless it applies worldwide. In response to this postulated entry-into-force requirement (all states joining), it may be objected that since today’s nuclear possessors have expressed little serious interest in renouncing their arsenals, those states will not join such a treaty—and therefore abolition will not be achieved. However, that cannot be reasonably adduced on the basis of lack of current serious interest, because it is to be expected that the nuclear weapon

possessors will not truly consider eliminating their nuclear weapons until the text of a suitable, comprehensive abolition treaty is completed (or nearly so), because only then will the three main security benefits of abolition (noted initially above) become a realistic possibility — to be actualized for all states when all have joined the treaty and it enters into force.

How then would the treaty's 60-day period to "object" to entry into force be an incentive, and likely a necessary one, for today's nuclear weapon possessors to join the treaty? The predicate issue here is that the proposed treaty is "non-withdrawal" (discussed in #'s 7 & 9 below). With non-withdrawal being so different an aspect for a treaty, today's nuclear weapon possessors will be more likely to join such a treaty if their legislative and executive leaders know that their "successors in office" (or they themselves if still in office) could legally halt and liquidate, within a 60-day span, the treaty's commenced 180-day interval to entry into force—if the state's leaders at that time believe, for example, that the treaty requires further crucial discussion within the state, or with certain other states.

Nonetheless, some readers may oppose the proposed 60-day span for a state to "object" to entry into force, arguing that it would open the door for any state to thwart the desire of all other states to rid the world of nuclear weapons. But an abolition treaty requires unanimity of states for entry into force, or else most or all of today's nuclear possessors will not join; and a state in any event could "undo" or repudiate its signature or ratification of the treaty (before its otherwise presumptive entry into force, 180 days after unanimity of accession is announced by the U.N. Secretary-General). The 60-day span—the first one-third of the 180-day period—would allow a state, if it deemed it necessary (and in the face of world scrutiny), to delay entry into force but without the drastic step of treaty repudiation (the latter which would destroy, at least in the near-term, the [anticipated] abolition regime, which requires participation of all states).

It bears emphasis that the momentum for a nuclear-free world by the time all states have joined an abolition treaty would seemingly greatly reduce the chance that a state would "object," or maintain an objection for excessive duration. But states should have the right to object, as incentive for them to join the treaty—and to provide a less-than-repudiation option if a state felt that delay of entry into force was absolutely necessary, at the time of pending entry into force (after U.N. Secretary-General's declaration that all states have joined).

The largest challenge in nuclear abolition is assent by today's nuclear-armed states, and every reasonable incentive for them to join should be included in the treaty.

2. The treaty stipulates that states have no obligations, express or implied, under the treaty until it enters into force.

This provision is intended to exempt treaty states-parties from Article 18 of the Vienna Convention on the Law of Treaties (the "treaty on treaties"), which adjures signatories to a treaty to "refrain from acts which would defeat the object and purpose" of the treaty before its official entry into force. This stricture, which reflects the presumptive beneficial intent of treaties amongst states-parties, needs to be removed from any "international law" applicability to the abolition treaty, because of the near-certainty that today's nuclear-armed states will not relinquish their basic nuclear stance (including possible, although unsought, use of the weapons) except simultaneously with all other states—upon entry into force of a worldwide

abolition treaty. Meanwhile, though, during accumulation of states as treaty signatories, the widely-joined 1968 nuclear Non-Proliferation Treaty would remain in effect.¹

3. States must be full parties to the 1993 Chemical Weapons Convention (CWC) and the 1972 Biological Weapons Convention (BWC) before signing the nuclear abolition treaty.

This is founded on the probability that at least some, including Israel, of today's nuclear weapon possessors will not sign an abolition treaty if any other states—being non-parties to the CWC and/or BWC—could with relative impunity maintain chemical or biological (chem-bio) weapons. (Most states have already renounced those instruments of inhumanity by joining the CWC and BWC; the USA is still in process of eliminating its massive Cold War chemical stockpiles.)

This recommended requirement of accession by states to the CWC and BWC before signing the nuclear abolition treaty, combined with unanimity of accession by states to the nuclear treaty for its entry into force, means that the states (estimated as just five to seven currently) that maintain arsenals or some stockpiles of chemical or biological weapons or both would have to formally renounce them, through accession to the CWC and BWC, before the nuclear treaty has been unanimously joined and takes effect. Would those states do so? An exemplar case is Egypt, which is widely seen as possessing chemical weapons—primarily in opposition to nuclear weapons of Israel. But Egypt knows that nuclear weapons are the most reliable, and in realistic scenarios are vastly more extensive and varied in their effects—blast, heat, fire, radiation—than chemical or even biological weapons.

With introduction for states' signatures of a nuclear abolition treaty, the prospect of freedom from the supremely destructive threat of nuclear weapons would be an incentive for today's states that are non-parties to the CWC/BWC to join those bans. Another incentive would be the foreseeable praise, and possible trade and diplomatic benefits, for such states as a result of joining and thereby removing roadblock to unanimity of states needed for nuclear treaty entry into force.

Egypt, which is party to the BWC but not the CWC, might reasonably call, though, for Israel to join the nuclear abolition treaty before Egypt (which is already an NPT non-nuclear weapon state) joins the CWC (and in order to sign the nuclear treaty, Israel like all states would have to be a full party to the CWC and BWC, which Israel currently is not). Such a presumed insistence by Egypt that Israel should first join the nuclear treaty is reasonable because, whereas Egypt would have to renounce its current (presumed) chemical weapons upon joining the CWC and before the nuclear treaty's entry into force, the proposed nuclear treaty would impose no obligations (see #2 above) on Israel or any signatory state until all states have joined and it enters into force—and with all states having renounced chem-bio weapons by joining the CWC and BWC before signing the nuclear treaty. (See also later section, "Comment on Israel.")

4. "Reservations" to the treaty are not permitted.

On occasion, a "reservation" is set forth by a state as part of its formal documentary accession to a treaty, for the purpose of limiting or vacating the state's obligation to comply

with some aspect(s) of the treaty. If allowed for a nuclear abolition treaty, however, reservations could doom its necessary equal application to states. By aforementioned Law of Treaties, a state-party's reservation is not supposed to abrogate any major principle of a treaty; but this is too subjective to justify opening the floodgates to various reservations, some likely problematic, by states when joining a nuclear abolition treaty.

It is relevant to recall here that the U.S. Senate, subsequent to its ratification (1997) of the "no-reservations" chemical weapons ban (CWC), passed a "Sense of the Senate" resolution that criticized no-reservations treaties and asserted at length the Senate's right, if it chooses, to ratify any treaty with reservation(s). However, a Sense of the Senate resolution does not have the force of law or constitutional law, so the Senate could with legal propriety ratify a no-reservations nuclear abolition treaty.

In view of the U.S. Senate's criticism of no-reservations treaties, it is ironic that the Senate in all probability would not ratify an abolition treaty if it permitted reservations, because of their potentially unequalizing force—if proclaimed by, say, Russia or China or Iran.

5. After all states join the treaty and it enters into force, the weapons [warhead] elimination period does not begin until: (a) All states enact their national (domestic) implementing legislation for the treaty, plus—as almost all states, being CWC parties, already have done—for the CWC (but not for the BWC, which does not require such, primarily because the BWC does not have a stipulated verification regime nor does it require "declarations" by states); (b) All states accept their fellow states' implementing legislation for the nuclear treaty (and CWC) as adequate; (c) All states submit required declarations of nuclear materials, facilities, and weapons; (d) The nuclear treaty's Technical Secretariat (inspectorate) completes and reports on achievable verification of states' declarations, including report on any problems with states' cooperation; (e) All states agree to proceed to the "next step" of weapons elimination.

#5(b) and #5(e) directly above are evident junctures at which a state could suspend [without time limit] further implementation steps of the treaty, and with this as indicated being before warhead elimination even begins. If, instead, states under the treaty could not do so even in event of perceived, major problems with a state's nuclear declarations (including cooperation in their achievable verification), or prior to that with a state's nuclear treaty (or CWC) national implementing legislation, then some states likely would decline to initially join the treaty and it would not enter into force. However, the geopolitical and psychological impact of a worldwide treaty that applies equally to states would be powerful impetus for states to meet their unfolding treaty obligations—pre-eminently the enactment of treaty-consonant, adequate implementing legislation, and cooperation in achievable verification of nuclear declarations (of warheads, fissionable material, nuclear facilities), as required by the treaty.

"Implementing legislation" by states brings to attention that the USA's implementing legislation for the CWC contradicts the CWC on its important aspect of "inspection"—by proclaiming that the USA can invoke a "national security exception" to CWC-authorized inspection. Although never invoked so far by the USA, this would, if not repealed by the USA, become a major controversy and stumbling-block to other states as they consider their potential accession to a nuclear abolition treaty. And, from the standpoint of the USA: if it is willing, for

the benefits of a nuclear weapons-free world, to join the nuclear treaty and comply with its requirement of sufficient and treaty-consonant implementing legislation by all states, and to accept nuclear inspection in full (as states must, under the treaty), then in all likelihood the USA (and any other relevant states) would also be willing to rectify CWC contradictions in their current CWC implementing legislation or related national laws.

It may be objected that even with all states having enacted suitable nuclear treaty (and CWC) implementing legislation, a state later on could enact treaty-contradicting national law—such as “national security exception” to treaty-authorized inspection. This, though, would predictably be viewed by the world as tantamount to a “breakout,” and breakout would be deterred by the geopolitical force of the enacted, worldwide treaty, and its benefit to all states and people of removal of threats of nuclear war or attack, false-alarm nuclear missile launch, and terrorist nuclear acquisition. (However, since breakout or similar “material breach” cannot be ruled, *a priori*, as impossible, it must be addressed; see later section, “Enforcement.”)

6. The treaty prescribes time-bound elimination of nuclear warheads (including gravity bombs under that rubric).

Recent estimated total warhead numbers are 7,000 for Russia and 6,700 for the USA, with substantial number of those on each side already awaiting dismantlement—but with no anticipated haste. (Peak combined Russian-U.S. total was about 65,000 warheads in 1986.)

Based on the numbers (7,000 and 6,700) above, it will be conservatively postulated here that the USA and Russia will each have less than 6,000 total warheads by the time nuclear abolition treaty negotiations are undertaken and then a finalized treaty attains unanimous accession by states and [in absence of formal objection by a state] enters into force. (On seemingly remote chance that the then-remaining number of Russian or U.S. warheads is greater than 6,000, then the maximum elimination period—see directly below—would be extended by treaty terms for six months or a year.)

Under the proposed treaty, duration of the warhead elimination period is 3.5 or 4.5 years, with the latter used if either Russia or the USA possesses over 5,000 total nuclear warheads (but again reasonably positing less than 6,000) when states initially submit their aggregate warhead numbers, shortly after treaty entry into force.

“Total warheads” and “warheads” here includes strategic and sub-strategic (tactical), both those deployed and those in reserve, plus warheads awaiting dismantlement. Assuming for discussion that Russia has 4,500 total warheads and the USA 4,000 when a nuclear abolition treaty enters into force, meaning a 3.5-year elimination period (because neither has more than 5,000), Russia would have to reduce to 4,000 before the USA begins reducing—or vice versa if quantities were reversed. The “.5 years” represents the first six months of the 3.5 (or 4.5 year) elimination period, during which Russia or the USA would bring down its warhead level to achieve parity with the other.

From the date that Russia in this example has reduced over six months’ time to the USA’s level (and the USA then joins in and commences parallel further reductions with Russia), the other (currently seven) nuclear possessors must commence a 90-day period of dismantling 25

percent of their warheads; but thereafter they can “wait” until Russia and the USA, reducing in tandem and following the elimination timetable, reduce to the other states’ varying [25 percent-reduced] levels, at which successive points those states join in the final phases, by then on a month-by-month and soon a week-by-week basis, of the progress to zero.

It may be objected that, prior to but in anticipation of the treaty’s entry into force [and the required 25 percent warhead reduction by nuclear states except Russia and the USA], some of the former states might increase their arsenals. However, even if some did, which would be subject to criticism with abolition on the horizon, they would still have to promptly and transparently eliminate 25 percent of their warheads. To fail to require a reduction such as this by those states would probably result in rejection of the treaty by the USA and Russia.

The USA and Russia, for their part, would be dismantling from their starting points many more warheads than the other nuclear weapon possessors, but due to massive arsenal size those two countries would still, as today, be possessors of a large (though diminishing) majority of the world’s nuclear warheads throughout most of the warhead elimination period. Near the end, though, such as the final six or nine or 12 months, the USA and Russia reducing in tandem would reach the varying levels of the other nuclear possessors and as noted would then be joined by them in further decreases as the elimination timetable fixes ever-lower permissible ceilings on warhead possession.

On another facet of warhead elimination, the proposed abolition treaty allows states to retain their diminishing warheads as active, rather than requiring their overall, mass inactivation or extreme de-alerting (although other active treaties and agreements on de-alerting or limiting delivery systems would of course remain in effect by their terms). This is because today’s nuclear weapon possessors would prefer and likely would insist upon having a “ready arsenal” (although steadily shrinking-to-zero) as a “hedge” against a conceived treaty breakout—until all warheads are eliminated under a treaty with the geopolitical force of all states joining before its entry into force. (Definition of “eliminated” or “dismantled” would be a point of negotiation for treaty drafters.)

Also, after baseline accountancy and documentation (registry) of warheads, undertaken by the nuclear treaty regime’s Technical Secretariat [inspectorate], states would not be required during the elimination period to maintain their remaining, diminishing warheads in the “same place(s),” nor to report movement of warheads. [However, the treaty’s required time-bound dismantling of warheads by nuclear states would of course be monitored and verified by treaty regime inspectors.] Reason: a state with a relatively small arsenal, if required to keep its shrinking inventory of weapons in a declared location or locations during the period of warhead elimination, could be afraid of its nuclear weapons being an easy target for liquidation by another state’s military resources—even non-nuclear.

Then, under an abolition treaty and with all warheads having been eliminated, what would deter a state from attempting to secretly develop nuclear weapons, or for that matter to initially “hide” some warheads and not declare and then progressively eliminate them under monitoring by the nuclear treaty Technical Secretariat? Response: the geopolitical impact of unanimous accession by states to the treaty before its entry into force; the absence of assured or easy success in cheating due to the verification regime (see #10); the certainty of worldwide outrage against a [revealed] treaty “cheater”; the equal applicability and thus fairness to all

states of the treaty; and the security benefits to all people of the treaty's worldwide elimination of nuclear weapons.

7. The treaty does not permit states to withdraw.

If, to the contrary, withdrawal from the enacted treaty is legally permitted—as with treaties in general—then some states, particularly today's nuclear possessors, probably would not join the treaty (and it would not enter into force) due to trepidation that a state might “capriciously,” but legally and therefore relatively easily, drop out—which would probably be followed by a few others at least, thereby eliminating the reality and benefits of a nuclear weapons-free world (and this being after the nuclear weapon possessors have eliminated their arsenals and opened their nuclear facilities and fissionable materials to international treaty inspection and safeguards). Also: if the treaty allows withdrawal by its states-parties, there would be concern that a state at some time in the future might use either a direct threat, or a mere hint, of legal treaty-permitted withdrawal to gain leverage over other states on some important matter. (However, a state would not be barred by treaty terms from suspending its compliance with the treaty if another state initially flouted it; see #9.)

8. The enacted nuclear treaty pledges its states-parties (all states) not to withdraw from the CWC and BWC [so that, with states being parties to the CWC and BWC before signing the nuclear treaty, all states would be permanent parties to the international legal prohibitions on nuclear and chem-bio weapons].

9. (Note: The following is consonant with Article 60(2) of the Vienna Convention on the Law of Treaties, which conveys that in event of “material breach” of a treaty that affects all its parties [which presumably would be the case for such breach of a nuclear abolition treaty based on unanimity], a state-party may disregard the treaty for duration of the breach.) For the nuclear treaty and by its terms, before taking the drastic step of suspending compliance with the treaty in event of here-positing “material breach,” a state must publicly name which state it arraigns as being in such breach, and also must present “essential attained credible evidence” of the charge. Further, states are pledged by the nuclear abolition treaty to also follow those two requirements with respect to material breach of the CWC or BWC. Also, the nuclear treaty affirms that material breach of either the nuclear treaty, CWC or BWC would not be justification for a state to suspend its compliance with either of the other two agreements—although the agreements are “connected” by nuclear treaty provision that states will not withdraw from the CWC and BWC, once the “non-withdrawal” nuclear treaty enters into force. And, the treaty expresses that all states-parties understand the seriousness of proclaiming a state as being in “material breach” and will endeavor to avoid such proclamation by all possible prior peaceful means that are consistent with the state's security.

A material breach (concerted, intentional, consequential) of a worldwide abolition treaty that regards states equally can reasonably be viewed as extremely unlikely to occur. But some states will probably insist on maintenance of a “sovereign right” to temporarily disregard an abolition

treaty, if in reaction to a substantial (material) breach. The states that would cherish this prerogative would likely not be willing to simply let a collective body, such as the U.N. Security Council, be the ultimate determiners of existence of “material breach of the treaty” – and response to it, including possible suspension by a state of its treaty participation during another state’s here-positing, initial material breach.

A merit of the proposed nuclear abolition treaty’s required “prior naming” by a state of the state that is in material breach (i.e., before the former state could suspend its own treaty participation) is that it would prevent a state from surreptitiously violating or attempting to violate the treaty (or CWC/BWC) and later on claiming as justification that it did so because another state “was already in material breach.”

When [and assuming here] a state’s initial material breach comes to exist no more, any state that in response to the breach had suspended its treaty compliance would be legally obliged to return to full compliance—because the treaty does not permit withdrawal [and pledges states not to withdraw from the CWC or BWC]. As with the “existence” of material breach, individual states would not be denied by the treaty the ultimate determination of its genuine cessation. However, the geopolitical force of a unanimously signed, non-withdrawal treaty would provide incentive for a state that had decided to “ignore” the treaty or part of it (in reaction to another state’s material breach) to return to full compliance with the treaty when the breach comes to be securely rectified—probably in consultation and together with any other states that had taken the same path in response to a state’s initial material breach.

Some readers may object to this discussion, arguing that its essence would give free rein to any single state to destroy the nuclear weapons-free world by declaring, without sound basis, another state to be in material breach. Such a scenario, conceivably, could happen; there will always be some voluntary aspect to maintenance of a nuclear-free world. But barriers to a duplicitous, or simply rash, accusation of another state as being in “material breach” would include factors that would also formidably deter a “real” material breach, including the geopolitical force of a worldwide treaty, and its equal applicability and thus fairness to states, and its benefit to all states and people of removal of nuclear weapon threats.

10. To briefly cite major elements of inspection/verification:

(a) The heart of verification, international “safeguards” on fissionable materials (i.e., monitoring and accountancy using cameras, seals, measurements, on-site personnel) are based largely on today’s long-developed “Model [Additional] Protocol” (IAEA INFCIRC 540) for safeguards administered by the International Atomic Energy Agency. [At present, the four non-NPT states and the five NPT nuclear weapon states are not required by the NPT to declare and submit their fissionable materials to international safeguards/monitoring—but all states would do so under nuclear abolition, under direct auspices of the treaty’s Technical Secretariat (which would likely absorb many of the IAEA’s expert personnel).]

(b) Access (perhaps likely to be deemed “managed full access”) by inspectors to suspicious, undeclared sites, including military, is required. [Inspectors of course are pledged to follow their treaty regime mission, not the behest of any state or bloc, and all states would be subject to

inspection at newly suspicious (and previously undeclared) sites, so none could complain of “unfairness” — as with today’s NPT, with its [five] NPT “nuclear weapon states.” However, no state would be subject to inspection at such sites in absence of articulated, reasonable suspicion, with ultimate decision on a special inspection by majority vote of treaty Executive Council states, which includes all pre-treaty nuclear weapon possessors.]

(c) The treaty permits “challenge inspections” by individual states—but which can be disallowed by three-quarters vote of nuclear treaty Executive Council states, analogously to today’s Chemical Weapons Convention. [If a state ever issued a challenge inspection request without some credible evidence of treaty violation, then in addition to the likelihood of denial of the request, the state would face worldwide criticism—and predictably so, which would help deter any such attempt to “abuse” the challenge inspection provision of the abolition treaty.]

(d) Enriched uranium and separated plutonium in transit within a state or internationally is monitored and guarded by a treaty-created, international “Nuclear Protective Force” equipped to alert the U.N. Security Council, in event of attempt to seize material, such as by terrorists or a renegade faction within a state, while in transit.

(e) Treaty permanent Executive Council members—the pre-treaty nuclear weapon possessors—are entitled to maintain observation and video surveillance/communication posts outside of states’ sites holding plutonium stocks or (see #11) highly enriched uranium (HEU) pending its conversion to low-enriched (LEU).

While complying under treaty terms with essential international inspection and fissionable material safeguards modalities such as above, states will also need to protect their stocks of fissionable material, to eliminate any easy or preventable access by terrorists or others. The proposed abolition treaty therefore contains requirement that states comply with strictures and procedures of the Convention on the Physical Protection of Nuclear Material, with its strengthening 2005 Amendment, plus that states follow nuclear treaty-specified [i.e., non-redundant to Physical Convention] recommendations of the International Atomic Energy Agency for states’ protection of their nuclear material and facilities in INFCIRC/225/Rev. 4, or any pre-treaty sequel.

Obviously, compliance with the treaty’s declarations and international inspection/safeguards (verification) requirements will necessitate that today’s nuclear weapon possessors in particular alter or repeal various of their laws on nuclear and state secrecy. That needs to be done, though, to achieve worldwide elimination of nuclear weapons, with the treaty’s provisions applying to all states (or else some will not join).

On the question of “confidentiality” of nuclear treaty verification/inspection information: it would be unwise for the treaty to promise or even imply a likelihood of confidentiality with respect to information, including fissionable material declarations and ongoing reports and data and other findings of the Technical Secretariat. Nuclear weapons are just too “extreme” for all states to consent to abolition—unless they have access to treaty-required reports, etc., by states on their nuclear programs and materials, plus results of ongoing and any special inspections.

But as outlined earlier, the nuclear declarations by states (containing much prior secret information in the case of today's nuclear weapon possessors) would not be mandated until after the treaty achieves unanimous accession and enters into force, and thereafter all states agree that all states have enacted treaty-consonant, adequate implementing legislation—detailing, among other matters, a state's commitment to and channels for cooperating with baseline and then ongoing inspection and implementation of fissionable material safeguards.

It is well-known that various states' declarations of aggregate production and disposition of nuclear material such as plutonium would lack precision, primarily from waste-stream losses of material over decades of warhead production; also contributing has been "reprocessing" of spent (irradiated) nuclear fuel to extract plutonium for new nuclear reactor fuel use. However, achievable baseline nuclear treaty verification of current nuclear material stocks and establishment of safeguards on the material is only a major deterrent to attempted treaty cheating, not an absolute barrier—but this deterrent to cheating would further strengthen a treaty that already carries the unprecedented force for compliance of unanimous accession by states before entry into force, and equal treatment of states.

Under an enacted nuclear abolition treaty, ongoing accountancy of plutonium will suffer further loss of precision than otherwise if reprocessing expands in the future. Whether or not that occurs, the proposed nuclear abolition treaty does not prohibit reprocessing due to these considerations: (1) The nuclear treaty is of unlimited duration [as are many treaties]; (2) The treaty is "non-withdrawal" (although with caveats noted in #9 above); (3) Our planet has only a finite amount of accessible uranium for power reactor use on the once-through basis, without reprocessing; (4) We do not know whether reprocessing will be "necessary," or be perceived as such by some states, in the future.

Therefore it is likely that several states would be very reluctant to join a permanent, non-withdrawal treaty if it prohibits reprocessing. (And more states would be reluctant if "nuclear power" for electricity was banned, although its future is now uncertain in some areas.)

Let it be noted that reprocessing is not widespread or burgeoning, and it may die a natural death or come close to it. In concept, reprocessing reduces radioactive nuclear waste and reduces need for new reactor fuel; but today, mostly for economic reasons but also due to proliferation concern (i.e., separation of actinides such as plutonium from irradiated reactor fuel with standard reprocessing), the great majority of power reactors use fuel—usually LEU of just 3 to 5 percent enrichment—on the long-established once-through basis, without reprocessing. (Enrichment of less than 20 percent in isotope uranium-235 is considered LEU.)

11. World stocks of HEU, which is the suitable material for a relatively simple "gun-type" nuclear weapon, are converted to LEU over a span of years [which may need to extend by treaty terms beyond the warhead elimination period of here-positing 3.5 or 4.5 years, depending on how much current HEU—mostly Russian and U.S.—has been converted before treaty entry into force]. Also: new loadings of HEU fuel in reactors (mainly naval and research) must cease six months before warhead elimination ends, with exception thereafter for any highly-protected projects using research or test reactor if approved by supermajority such as 75 percent of treaty Executive Council vote, including all permanent Council members' votes.

The majority of research reactors have been or are slated to be converted to LEU fuel use, an effort led by the USA since 1977, especially in inducing and aiding other countries to do so. If, contrary to the recommendation here, HEU fuel use is permitted in reactors under a worldwide nuclear abolition treaty, then the dangers of HEU will remain—it being the fissionable material for a relatively rudimentary “gun-type” weapon, whether constructed by a state or terrorists (although terrorists themselves in extreme probability could not produce HEU for a bomb; it would need to come from supplies produced by a state or under state auspices). However: under the proposed nuclear treaty, with its basic prohibition of HEU, if an HEU project was of such import and had such international protection that the treaty Executive Council voted in the affirmative by a supermajority such as 75 percent, including all its permanent members (the pre-treaty nuclear weapon possessors, plus perhaps some others), then such an HEU project could proceed under treaty terms.

HEU is ideal for use as a “target” for neutron bombardment in the production of medical isotopes in certain isotopes; LEU can be used but is less efficient and thus more expensive than HEU. But an increase in just one aspect, medical isotope production, of the universe of health-care costs is not reason enough to avoid treaty-required down-blending of readily weapons-usable HEU to LEU (and with the resulting LEU having economic value as nuclear power reactor fuel, assuming that electricity production from nuclear fission retains viability). If, however, under the nuclear treaty specific HEU project(s) for medical isotope production can be protected assuredly and internationally enough that a specified supermajority such as above-mentioned 75 percent of nuclear treaty Executive Council states vote for it, including all permanent Council members, then it should be permitted. (See also later section, HEU and Naval Reactors.)

12. The nuclear abolition treaty proclaims in the name of its parties—all states—that “future states” must abide by the treaty’s prohibitions relating to nuclear weapons and materials and must promptly join the treaty. (This encompassing of future states, while unprecedented, is justified by the unanimous accession by states to the treaty before its entry into force.)

[Note: There exists a draft of an abolition treaty, the “Model Nuclear Weapons Convention.”ⁱⁱ]

Other Issues

Delivery Systems

It is likely best that a nuclear abolition treaty have no restrictions on delivery systems, for the following reasons. First, restriction or elimination of delivery systems would add substantially to the challenges of verification/inspection. Second, it would add substantially to the breadth, and therefore intrusiveness, of verification/inspection. Third, there are many potential means, including cargo ships and some regular bombers, to deliver nuclear weapons—far too many to realistically attempt to meaningfully “restrict” or “inspect.” Fourth, since various delivery methods are dual-use, there would be much contention in attempting to formulate restrictions acceptable to all states, with their varying overall military capabilities.

(Certainly, though, states at any time if they wish either bilaterally or multilaterally could negotiate or expand de-alerting, reduction, or elimination of delivery systems; and extant agreements and treaties on restricting deliver systems would of course not be directly affected by entry into force of an abolition treaty.)

The proposed nuclear abolition treaty also does not attempt to restrict or eliminate “missile defense,” which is now entrenched in national defense doctrines of many states—and which aims to offer some level of protection against “conventional” as well as nuclear-armed missiles.

Enforcement

Under color of international law and the U.N. Charter, the abolition treaty would be enforceable under auspices of the U.N. Security Council. (However, less internationalized “enforcement” is conceivable, such as by NATO or even an individual state such as the USA.)

Although tempting to include, the abolition treaty should not have a pronouncement that its “violation” would be a “threat” to peace and security; such a determination on the international plane regarding any state’s particular action since 1945 has rested with the U.N. Security Council, and this would not change—and should not be controversially “enhanced” by reference to treaty violation (as “threat”) in the treaty text. Further, there is no guarantee that a treaty “breakout” state could or would be challenged and defeated under Security Council auspices, or by NATO or other means. (And what if a breakout state was one of the Security Council’s “P-5” that hold veto power?)

Regarding “enforcement” of nuclear abolition, and in skepticism of enforcement’s uniform validity (and therefore in skepticism of abolition itself), proponents of nuclear deterrence may say, “Even though we have NATO, and monolithic communism has receded, and even though expansionist powers were totally defeated in World War II, it is possible that a state, under nuclear abolition, would at some time feel so genuinely threatened by another state with ‘conventional’ weapons that the former would develop nuclear weapons to deter an attack. This would be a treaty ‘violation,’ because the treaty is ‘non-withdrawal’ and there was not a ‘material breach’ by another state; but the former state would not necessarily be deserving of worldwide opprobrium and opposition, much less potential U.N. Security Council-authorized ‘enforcement,’ assuming it was possible to carry out.” Regarding opprobrium and opposition and potential Security Council action, the extent and reasonableness of such would of course depend on the totality and true exigency of circumstances. And if (as recommended above) the treaty does not specifically deem its violation to be a “threat” to peace and security, a reasonably “case-specific” response by the world would be expected—although, certainly, the situation would be uncharted waters.

So why pursue abolition if it can even be conceived or imagined that a state might at some time cease to comply with the treaty, and if so would probably be joined by some or most of the pre-treaty nuclear possessors? First, if such ever happened (despite the massive deterrence to breakout of a unanimously-joined treaty), it is almost certain that any nuclear weapons created in response would be much fewer (especially U.S.-Russian) than current levels, which is a benefit in itself. Second, and more importantly, while “breakout” from a unanimously joined treaty that regards states equally is exceedingly unlikely, at present—in the absence of such a

treaty—the world continuously labors under multi-point risks of nuclear war or attack, false-alarm nuclear missile launch, and terrorist nuclear acquisition.

HEU and Naval Reactors

On the issue of conversion or replacement of current naval HEU propulsion reactors for LEU use, for the USA in particular that treaty requirement would be a major step—but necessary, in all likelihood, to achieve a nuclear weapons-free world. If, to the contrary, nonsafeguarded HEU (in reactors of vessels at sea) is permitted, especially indefinitely, then the treaty, which must regard states equally, would also have to permit states such as North Korea to possess nonsafeguarded HEU; but this would probably deter some states from joining the treaty and it would not enter into force (with HEU being the fuel for swiftest, simplest creation of a bomb).

However, the treaty would permit vessels using HEU fuel to continue to do so for the fuel load's lifespan, which in cases of recent refueling could be 20-30 years. This will be an incentive for the USA, Britain and Russia to join the treaty; they would only have to convert their nuclear naval vessels to LEU use when the HEU fuel was to be unloaded anyway.

Although LEU naval reactors require four-to-five times more frequent refueling than reactors using ultra-grade HEU, the ongoing development of “high-density” LEU reactor fuels will likely diminish that disadvantage of LEU by the time a nuclear abolition treaty comes to be finalized and is introduced for signature, then achieves unanimous accession by states and 180 days later enters into force (in the absence of formal objection and delay by a state), and a few years later requires no more reloading of HEU fuel, with this occurring six months before the end of the warhead elimination period.

Of the five most-longstanding nuclear-armed states, for nuclear naval propulsion China uses LEU only, and France is pursuing conversion to LEU, leaving presumptively only the USA, Russia, and Britain as states that would be asked by the world community, and required under the enacted treaty to discontinue fresh loadings of HEU fuel in their naval reactors. (India's nascent nuclear naval program, and announced programs of Brazil, Argentina, and Iran would also of course have to use LEU. Under the treaty, international inspectors would monitor the loading and unloading and disposition of nuclear reactor fuel from naval vessels.)

The proposed permissibility of LEU for marine propulsion reactor fuel may bring up the objection that a nuclear naval state could secretly dock a submarine, secretly unload the nuclear fuel, secretly separate and process the built-up plutonium, and then secretly fabricate a bomb (probably just one, if that, from the plutonium in reactor fuel from a single attack submarine). So, it may be suggested that the nuclear treaty should ban even propulsion with LEU fuel, because under-sea reactors cannot be internationally monitored and fuel diversion alarmed against or prevented. But if that was the case—no nuclear naval propulsion permitted at all—would the USA join the treaty? If not, or if Russia or Britain or France would not join, then the treaty would not enter into force. The risk that one or more states would not join seems great enough that the proposed treaty does not prohibit LEU naval propulsion. (Russia also has icebreaker ships that are nuclear-powered, currently with HEU.)

Deterring a nuclear treaty “breakout” by a nuclear naval state (using plutonium from “diverted” LEU reactor fuel) would be, first, states' foreknowledge that a breakout state would

become the political foe of all or virtually all other states. The hypothetical naval-fuel diversion scenario would barely add to any breakout risk in a treaty with such a low inherent risk—with the treaty being predicated on unanimous accession by states before entry into force. Second as a deterrent, the various steps to attempt to secretly undertake the diversion scenario to completion would predictably afford opportunities for a single person of conscience to “blow the whistle” on the scheme—such as contacting the nuclear treaty Executive Council with a credible report. Third, since built-up plutonium is only 1-2 percent of spent (irradiated) nuclear fuel composition, the naval fuel diversion scheme seems an inefficient choice to even extract enough plutonium for a handful of weapons. Every separate submarine reactor for collectively extracting enough plutonium to create just a small arsenal would constitute an additional risk of revelation by a person of conscience somewhere along the chain of scheme-hatching, involvement of other civilians, substantial military involvement, specific ship’s-crew’s involvement, technicians’ and scientists’ involvement for separating plutonium and creating a nuclear weapon. If a state, instead, to acquire more plutonium from a single naval vessel source, decided to “secretly” offload the fuel from the larger reactor of an intercontinental ballistic missile submarine or aircraft carrier, such an effort, due to massive necessary staffing and oversight levels of those vessels, would at least as greatly also pose a major and foreseeable risk that just one person involved in the complicated scheme would “blow the whistle” on it.

Although substantial separated plutonium (mostly from dismantled weapons) probably will continue to exist in a nuclear weapons-free world (at least for foreseeable future), the recommendation here, as noted earlier, is that HEU stocks be converted to LEU. If HEU exists and can be produced by states, there will always be the risk that terrorists could gain access to HEU and fabricate a “gun” nuclear weapon with only the assistance of a few rogue technicians and a rogue nuclear physicist. It is HEU, not plutonium, that presents a significant nuclear terrorist threat because plutonium cannot be used, due to level of neutron emission, for a relatively simple gun-type weapon (although plutonium could be used for a non-fission “radiological” weapon).

Finally, as initially noted, conversion of naval reactors to LEU would a big step for the USA (and presumably also Britain and Russia). To crystallize the various inducements for those states to assent to use of LEU instead of HEU fuel: first, none would have an “HEU naval propulsion advantage” over another, with all using LEU (i.e., up to just below 20 percent enrichment in isotope uranium-235). Second, ongoing efforts to develop high-density LEU fuel will likely reduce the current efficiency advantage of HEU compared to LEU-powered reactors. Third, since the prohibition on fuel loading of naval vessel with HEU would not take place until six months before the end of the weapons elimination period, the current HEU naval states could use that 3-4 year interval to re-fuel (if they wished) various vessels (some perhaps in this context on an “early schedule”), so that such vessels could have up to a 20-30 year life-span (using HEU) after warhead elimination (before needing to re-fuel—with LEU). Fourth, and the major inducement, by assenting to worldwide prohibition of HEU, the risk of terrorist fabrication of a nuclear weapon would be virtually eliminated; and peace would be served because a here-posed “rogue” or “aggressive” state, for its part, could not quickly create a relatively simple HEU (gun-type) weapon—which, even in the case of “neophyte” nuclear state [if permitted by treaty to possess HEU], would not require a test explosion to be reliable.

Peaceful Nuclear Cooperation

Should the nuclear treaty, which would replace today's NPT, have an NPT-like injunction that states-parties co-operate to facilitate technological exchange on peaceful applications of nuclear energy? No, because the purpose of the nuclear abolition treaty is not to promote peaceful nuclear energy use (nor to discourage it), but to eliminate nuclear weapons (and chem-bio weapons, with required accession by states to the CWC and BWC before signing the nuclear treaty). States' cooperation and assistance, or lack thereof, on peaceful nuclear matters should be left to individual states, and not be adjured or even commended in a treaty with the purpose of ridding humanity of the nuclear weapons threat. If, instead, there is such an injunction in the nuclear treaty, then if a state did not wish to and therefore did not extend cooperation to some other state, the former state would be breaking its word (in a mild sense) on the treaty—not an auspicious aspect for a treaty or its parties. (However, the references to peaceful cooperation/exchange would remain in the 1993 CWC and 1972 BWC, due to those treaties' present existence and the many states-parties that have already undertaken their constitutional processes of joining the chem-bio bans, whereas the nuclear treaty would be new.)

Advisedly, though, the nuclear treaty could declare: "There is no intent of this treaty to prevent or deter a state from development and peaceful use of nuclear energy."

Comment on North Korea

Admittedly, some adjustment in relations, or at least in rhetoric, between North Korea and the USA (and perhaps some other states) may be necessary for North Korea to join a nuclear abolition treaty. But if so, the depth of necessary adjustment may be less than would be initially thought, with the various factors noted below having a cumulative weight.

No state is perfect, but traits of the North Korean government are particularly alarming by most measures of democracy, freedom, and human rights. North Koreans are people, though, and everyone knows that there is something terrible and inhuman about nuclear weapons—due to their vast, indiscriminate killing power—and in some part of the mind people everywhere want no part of them.

In addition to that possible motivation (elemental humanity), incentive for North Korea to join a worldwide abolition treaty includes freedom from the "nuclear threat" or perceived such threat from another state. (North Korean leader Kim Jong Un stated on 8 October 2017 that his country's nuclear weapons are necessary "for defending the sovereignty of the country from the protracted nuclear threats of the U.S. imperialists.") Also, there would be wide praise for the decision to join—and potential concomitant benefits to North Korea, although not by abolition treaty terms.

As with the other nuclear-armed states, North Korea has often asserted (as directly above) that its nuclear weapons are for deterrence of aggression. But such putative deterrence is a double-edged sword for North Korea: if the USA felt compelled during a time of escalating North-South Korean tension to attack "pre-emptively" (presumably with non-nuclear weapons) suspected North Korean nuclear weapon sites, all-out war or nuclear war could engulf the

Peninsula and the region. (At this writing, North Korea has announced its “suspension” of nuclear and long-range missile tests.)

North Korea is often accused of perfidy in its nuclear machinations, with implication that it could hardly be considered or accepted as a genuine party to a nuclear abolition treaty. But on this head, and agreeing that North Korea has long been probably the world’s most prickly and difficult state to deal with (and North Korea routinely disregards U.N. Security Council edicts), it is notable that for eight years before it first tested a nuclear weapon, North Korea did verifiably freeze its relatively well-developed plutonium-based weapons program under the Clinton-era 1994 “Agreed Framework” — which collapsed in late 2002, shortly after the USA announced its discernment of North Korean uranium enrichment work, and then cut off oil supplies to North Korea (part of the Agreed Framework). The U.S. umbrage toward North Korea with respect to its pursuit of uranium enrichment was at least somewhat understandable; but the Framework, for its part, did not specify a prohibition on enrichment (which can be used for peaceful as well as weapons purposes). So, it is not fair to cast complete blame and censure on North Korea for collapse of the plutonium-pertinent Agreed Framework. (North Korea, for its part, averred that it was the cutoff of “Framework” oil by the USA that fatally abrogated the Framework; later the G.W. Bush administration tacked toward dialogue with sporadic six-party talks.)

Subsequent to the demise in late 2002 of the Agreed Framework after its eight-year sway, during two shorter periods North Korea verifiably froze its nuclear weapons program — i.e., its relatively well-developed plutonium route, and North Korea even laboriously shut down its source of new plutonium (Yongbyon reactor, now re-activated). Both these relatively satisfactory periods ended when the USA and others condemned North Korea satellite rocket-launch attempts (conducted on 5 April 2009 and 13 April 2012), because of their “dual-use” — missile as well as “rocket” — technology implications.

Talks with North Korea about its nuclear program have never included the offer or possibility of the USA (and all other states) also renouncing nuclear weapons — as with an abolition treaty.

Finally: if, prior to enactment of an abolition treaty, North Korea renounces and eliminates its nuclear weapons (pursuant to changes in U.S.-North Korean relations), the stability and strength of such an agreement (which would leave nuclear weapons in U.S. hands) would be less than with a treaty that applies to all states — thereby being regarded as “fair and equal.”

Comment on Israel

Israel’s relatively small population and geographic size, plus the hostile posture of some of its neighbors, underlie Israel’s possession of nuclear weapons. But worldwide elimination of nuclear weapons would benefit Israel, first of all because the treaty would eliminate (or virtually so) Israel’s greatest security concern: that Iran will attain nuclear weapons.ⁱⁱⁱ

Assuming the worst — that this is, or may become, a “goal” of Iran — the feasible “way out” for Israel is with the unprecedented geopolitical force of a worldwide abolition treaty. Positing Israel’s, Iran’s, and all states’ accession to such a treaty and its entry into force, the treaty would benefit Israel by vanquishing its supreme national security concern regarding Iran. Iran, for its

part, would not violate the abolition treaty that was joined by Iran and all states, because Iran would know that breakout from a worldwide treaty would be actively opposed by virtually the entire world. (The 2015 nuclear agreement with Iran, while valuable, obviously does not hold for Iran, nor would a similar agreement with any state, the same geopolitical and psychological force for ongoing compliance of a unanimously joined abolition treaty.)

Also, under an abolition treaty the possible terrorist nuclear threat against Israel (and all states) would be reduced to asymptotically near zero if the treaty requires conversion of stocks of readily weapons-usable HEU to LEU—and with elimination of states' current nuclear arsenals under the enacted treaty, which would obviate the specter of "loose nukes" ending in the hands of terrorists.

Further, since states must be full parties (as most already are) to the Chemical Weapons Convention and the Biological Weapons Convention before signing the nuclear treaty, accessibility to terrorists of potential chemical and biological agents for possible use against Israel would be curtailed; and the force of unanimity, with all states being CWC/BWC parties, would powerfully deter chem-bio possession and use by any state against another.

Also, Israel would be aware that it would not be denied by the nuclear abolition treaty the recourse to suspend its treaty participation if there was "material breach" by another state—but with requirement (as for any state), before curtailing treaty compliance in any way, to publicly name the state in breach and to present essential attained credible evidence.

(Finally, under nuclear abolition, Israel will continue to have technologically-advanced non-nuclear military forces, and the support of states such as the USA.)

Comment on Pakistan

Due to its smaller size and population compared to India, Pakistan is easily conceived as reluctant to join an abolition treaty (which needs participation by all states to enter into force). But Pakistan, like India—and all countries, but especially nuclear weapon possessors—is currently, in the absence of worldwide abolition, facing the three main nuclear security dangers of possible escalation of a localized conflict into nuclear conflagration, and terrorist acquisition of a nuclear weapon (or HEU to construct one), and false-alarm nuclear missile launch—if India or Pakistan (mistakenly) believes it is under nuclear attack.

In addition to resolution of the above nuclear-related security dangers, another incentive for Pakistan (and India and all states) to join the abolition treaty would be to be part of a worldwide movement that eliminates weapons that, if used, impose unspeakably cruel sufferings and death on vast numbers of people.

Pakistan may still say, "We have problems with India, particularly in Kashmir." But will nuclear weapons solve the problem of Kashmir? (Of course not.) And it is germane to Pakistan's situation and interest (and similarly so with some other nuclear weapon states) that the proposed treaty does not specify that treaty violation is a threat to the peace (although, it could be declared to be so by the U.N. Security Council; and this would require no veto being cast by any of the five countries that hold veto power).

Finally, a presumed reluctance by Pakistan to join the abolition treaty, when it is introduced for states' signatures, would not necessarily last long, as the reality (which we tend to "block out" of consciousness) of the three main nuclear dangers becomes more publicized—with the prospect of the dangers being eliminated elimination, when all states have joined and the treaty is fully enacted.

"Inhumanity" of Nuclear Weapons

Should the nuclear abolition treaty proclaim nuclear weapons to be contrary to international law, particular humanitarian law? Indeed, if any weapons fit such a category, it would be nuclear (due to their vast, varied, indiscriminate effects). But, although this may dismay some long-time proponents of a nuclear weapons-free world, the recommendation here is that the abolition treaty not even mention "international law" or "international humanitarian law." Two reasons: first, if "contrariness to international humanitarian law" is included, it would amount to an admission by today's nuclear weapon states that for decades they possessed and were ready to use (only if "necessary," of course) weapons of such extremely harmful and indiscriminate effects they are [now] deemed contrary to basic humanitarianism. Today's nuclear weapon states will be reluctant to agree to that, in all probability, because it would amount to an official "self-condemnation" by those states. Second, since under the treaty states would not be prohibited (by treaty terms) from [temporarily] "ignoring" the treaty if another state initially was in "material breach" (although with stricture of "reacting" state first publicly naming the state-in-breach and offering substantial evidence), then if one of today's nuclear weapon states ever did re-develop nuclear weapons (in reaction to a material breach), the state would be in a position of possessing weapons that it (by signing the treaty) deemed to be "contrary to international law" because of their grievous humanitarian impact. This prospect, too, would be a psychological barrier to today's nuclear weapon states joining the treaty. (For the same reasons, the treaty should avoid the terms "illegal" or "unlawful" with respect to states' nuclear weapons—although perfectly suitable to use terminology such as "prohibit," "renounce," "eliminate" and "abolish"). Even Preamble should avoid describing nuclear weapons as contrary to (humanitarian aspects of) international law (also for two reasons above).

It is acknowledged that above recommendation will be surprising or even shocking to many long-time advocates and progenitors of potential worldwide nuclear abolition. But why throw another obstacle (predominantly psychological in this case) in the path of today's nuclear weapon joining the treaty? Such states will not join because the [prospective] treaty deems nuclear weapons as contrary to international law, nor because the states suddenly or completely "agree" with that characterization, but because they believe that abolition (undertaken by all states) increases their security by eliminating catastrophic dangers of nuclear weapons—nuclear war or attack, false-alarm missile launch, terrorist nuclear acquisition.

(For its part, the 2017 Ban Treaty does assert (on an international plane, it being a multi-lateral treaty) the contrariness of nuclear weapons to humanitarian aspects of international law.

With that said, the abolition treaty most certainly can and should in its preamble make profound note of the catastrophic effects of any use of nuclear weapons.

Key Points of Provisions

All states must join the proposed nuclear abolition treaty before its entry into force, and states have ability [although in face of world scrutiny] to delay (without specified time limit) entry into force, and when in force the treaty's prohibitions of nuclear weapons and non-safeguarded fissionable material apply "everywhere"; states are exempt from any treaty-related obligations until entry into force (but meanwhile today's widely-signed NPT remains in effect); states must formally renounce chem-bio weapons by fully joining the CWC and BWC before signing the nuclear treaty; "reservations" to the treaty by states are not permitted; warhead elimination period of proposed 3.5 (or 4.5) years does not begin until assented to by all states—after states have enacted nuclear treaty (and CWC) implementing legislation and have supplied treaty-required declarations of weapons and fissionable materials, and have permitted inspectors' initial verification of nuclear sites, and inspectors have completed their compilation of inventory/registry of nuclear warheads held by states; time-bound elimination of warheads requires nuclear possessors other than Russia and the USA to eliminate within 90 days 25 percent of their warheads, but thereafter they can cease further reductions until Russia and the USA, following the treaty timetable and reducing in tandem, have decreased their warheads to respective levels of the other possessors (after the latter's 25 percent reductions); "withdrawal" by states from the enacted treaty is not permitted; states promise by nuclear treaty terms not to withdraw from the CWC or BWC; before suspending its participation in the nuclear treaty (or CWC or BWC) in event of "material breach," a state must publicly name the state that is in such breach and must present essential attained credible evidence; ongoing nuclear treaty inspection regime includes avenue of challenge inspections by individual states and extension of fissionable material safeguards to all states; states must comply with strictures of the Convention on the Physical Protection of Nuclear Material; states must convert highly enriched uranium [the fissionable material for a relatively simple "gun-type" weapon] to low-enriched (below 20 percent uranium-235); states with HEU reactors (mostly marine or research) may continue to use current HEU fuel but cannot reload such reactors with HEU after six months before the end of the treaty's weapons elimination period; on the basis that all states are party to the treaty, it proclaims that "future states" must abide by the treaty's prohibitions and must promptly, formally join.

The proposed treaty does not: newly restrict or eliminate delivery systems (nor "missile defense"); proclaim that violation of the treaty is a "threat to the peace" [although this would not affect the U.N. Security Council's general prerogative to declare existence of a threat to the peace and authorize action]; prescribe facilitation of technological exchange for peaceful use of nuclear energy; mandate "final disposition" of plutonium stocks (although as fissionable material it would be internationally safeguarded); prohibit reprocessing; prohibit marine/naval use of LEU in reactors; promise confidentiality to states of information submitted to the treaty regime; require states' (diminishing) warheads to be de-alerted [i.e., during the elimination period]; require warheads to remain in the "same place" prior to their presentation for dismantlement (under treaty regime monitoring at successive phases of the elimination period).

With the complexities of worldwide abolition, is the effort to achieve it worthwhile? Here are some words (by former Nagasaki Mayor Iccho Itoh) describing the explosion over Nagasaki:

The explosion generated an enormous fireball, 200 meters in radius. The next instant, a ferocious blast and wave of heat assailed the ground with a thunderous roar. The surface temperature of the fireball was about 7,000 degrees C, and the heat rays that reached the ground were over 3,000 degrees C. The explosion instantly killed or injured people within a two-kilometer radius of the hypocenter, leaving innumerable corpses charred like clumps of charcoal and scattered in the ruins. In some cases not even a trace of the person's remains could be found. A wind of over 300 miles per hour slapped down trees and demolished most buildings. Even iron-reinforced concrete structures were so badly damaged that they seemed to have been smashed by a giant hammer. The fierce flash of heat, meanwhile, melted glass and left metal objects contorted like strands of taffy, and the subsequent fire burned the ruins of the city to ashes.

Drafting an Abolition Treaty

Neither the 1968 Non-Proliferation Treaty nor the 2017 Treaty on the Prohibition of Nuclear Weapons (“Ban Treaty”) are realistic vehicles for worldwide abolition, with both having substantial value but lacking many provisions (such as most of those expressed in this paper) which will likely be necessary to induce today's nuclear weapon states to seriously consider signing a treaty eliminating nuclear weapons. Therefore, despite the existence of the 1968 NPT and the recent Ban Treaty, there is no reason to delay negotiation of an abolition treaty (such negotiations will obviously require more time than for the short [12-page] and relatively simple Ban Treaty). The Nobel Committee which awarded the 2017 Peace Prize to the International Campaign to Abolish Nuclear Weapons (which has partner organizations in over 100 countries) for its efforts to bring the Ban Treaty to fruition, seemed to recognize that the Ban Treaty is not sufficient as an abolition vehicle, stating in its Peace Prize press release the need for nuclear weapon states to “initiate serious negotiation with a view to the gradual, balanced and carefully controlled elimination of the almost 15,000 nuclear weapons in the world.” (Achievement of this will require negotiation of a detailed abolition treaty.)

An abolition treaty would stipulate that it is replacing the 1968 NPT—because the former's scope [universal upon entry into force] is broader than the NPT, and various abolition treaty strictures are beyond or different from those of the NPT. The 2017 Ban Treaty, for its part, would likely remain in force, because it requires of its signatories certain things, mostly of humanitarian nature, that the abolition treaty would not—although as emphasized (and like the NPT), the Ban Treaty, which has already increased world awareness of the ever-present dangers of nuclear weapons, lacks many provisions that will be necessary for an [abolition] treaty that must be voluntarily joined by all states before entry into force.

The 2017 Ban Treaty is not supported by any of the nuclear weapons; but they will be much more likely to join an abolition treaty, because of its much greater detail and its first premise that all states would have to join before it enters into force. But even with that said, for the time being most of the nuclear weapon states will likely continue to avoid overtly embracing the

concept of abolition, for fear of seeming to prematurely endorse an as-yet non-existent treaty. However, in view of the three ongoing dangers of nuclear weapons—nuclear war or attack, false-alarm nuclear missile launch, terrorist nuclear acquisition—here is a recommended viewpoint or position for today’s nuclear weapon states: “We will not try to close the door on potential worldwide nuclear abolition. We will not condemn negotiation of an abolition treaty that would not enter into force until all states have joined. We may even join such negotiations, or offer informal input. But until a treaty is finalized and can be examined in detail, we cannot say that we will join or even that we are likely to do so.”

Compliance Inducements

What aspects of an enacted worldwide nuclear abolition treaty would help convince states to abide by it? First, all states according to their constitutional processes joined the treaty and thereby publicly accepted its obligations—once all states have joined and it enters into force. Second, and unlike today’s NPT, the abolition treaty would regard states equally (fairly), thereby removing the prime “psychological” justification for treaty breakout or violation. Third, the verification regime would pose a major risk of disclosure and thereby serve as a deterrent to attempted cheating. Fourth, states would foresee that a credible report (“societal verification”) by just one citizen or actor of prohibited nuclear activity would gain nuclear treaty regime attention and, if warranted, a special inspection. Fifth, states would also foresee that a state perniciously violating the treaty would become, at minimum, the political foe of the world’s other states. Sixth, compliance with an abolition treaty by all states would obviously be necessary to sustain its benefits to all people and states of freedom from nuclear war or attack, freedom from “false-alarm” nuclear missile launch, and virtually eliminated risk of nuclear terrorism (with conversion of readily weapons-usable HEU to LEU and elimination of states’ potentially vulnerable arsenals), plus worldwide prohibition of chem-bio weapons through states being parties to the CWC and BWC before signing the nuclear abolition treaty.^{iv}

ⁱ The 1968 Non-Proliferation Treaty has been a bulwark against proliferation, but the NPT is unsuitable as a vehicle for eliminating nuclear weapons for various reasons, among them its “withdrawal” provision and its designation as NPT “nuclear weapon states” those that exploded a nuclear weapon or “explosive device” before 1967 (USA, Russia, Britain, France, China). Non-NPT states, and possessors of nuclear weapons, are Israel, India, Pakistan, and NPT dropout North Korea.

ⁱⁱ See link to the “Model Nuclear Weapons Convention” (MNWC) at www.lcnp.org.

Although most of the recommended abolition treaty provisions discussed in this paper are additional to, or differing (some just in part) from MNWC provisions, the MNWC will serve as a valuable and time-saving resource and foundation for an actual nuclear abolition treaty [convention].

(The MNWC includes detailed “Definitions,” plus delineation of composition and duties of nuclear regime Executive Council, Conference of States-Parties, and Technical Secretariat.)

iii Iran is an NPT non-nuclear weapon state, but Iran has likely at some time conducted research on creating nuclear weapons. Most importantly, though, Iran's nuclear (fissionable) material is under international "safeguards," and Iran has never enriched uranium beyond just below 20 percent — far from the 80-plus percent needed for a relatively simply-constructed, no-test-explosion required "gun-type" nuclear weapon.

iv For further nuclear treaty details and related topics, including analysis of the "Model Nuclear Weapons Convention," see *Banning Weapons of Mass Destruction* by Frederick N. Mattis (2009), pub. Praeger Security International (available on Amazon Books). ["Banning" in this book's title is equivalent to "Abolishing," because the treaty discussed would require unanimity of states for entry into force.]

"... states get to the bargaining table, Mr. Mattis has some very useful ideas for them to consider."
- *The NonProliferation Review*