THE FUTURE OF THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY

By SERGIO DUARTE

The world's first nuclear test, "Trinity", took place on 16 July 1945, in a torrid desert in New Mexico which the Spanish Conquistadores had named *Jornada del Muerto* (Journey of the Dead Man). In the decades that followed, over 2,000 such tests occurred in eight countries, some in the atmosphere, some underground and others underwater.

Today, the world is poised to turn a new page in the history of nuclear testing. With some enlightened leadership from key States that possess such weapons, as well as sustained diplomatic encouragement from other countries and persistent efforts from civil society, there is a good chance that the Comprehensive Nuclear-Test-Ban Treaty (CTBT) will finally enter into force sometime in the foreseeable future, thereby outlawing all such tests in any environment.

Why would readers of the *UN Chronicle*, who are interested in many other issues, care about the outcome of the CTBT treaty? How is it relevant to their concerns? What are some possible consequences if the treaty never enters into force? These are all legitimate questions and all have good answers—but before we can respond and look forward, we must look back.

The United Nations Charter, signed one month before the "Trinity" test in June 1945, is a pre-atomic document. Yet, in January 1946, the General Assembly's first resolution called specifically for the elimination of all nuclear weapons and other such weapons "adaptable to mass destruction", including biological and chemical arms. The term "mass destruction" is tricky, since the many thousands of conventional bombs dropped in the Second World War—not to mention the havoc wreaked centuries earlier by the Mongol conquerors in Central Asia—established rather conclusively that many types of weapons can cause mass destruction. Yet, what is unique about nuclear weapons, and to a lesser extent other weapons of mass destruction (WMD), is their ability to produce large-scale, indiscriminate deaths with *a single detonation*. While the UN Charter addressed both "disarmament" and "regulation of armaments", the General Assembly clarified that disarmament applied to WMD, while the parallel goal was the control or limitation of conventional arms.

This distinction is significant. The United Nations does not seek merely to "regulate" nuclear weapons, but rather to prohibit and eliminate such weapons, along with all other WMD, while limiting conventional arms. This is what "general and complete disarmament" means. It has been on the General Assembly's agenda for 50 years and has been the "ultimate goal" of the United Nations since the Assembly's first special session on disarmament in 1978.

Nuclear weapons, of course, do not spring out of nothing. They are enormously complex artefacts of human ingenuity. The production of the fissile materials that fuel such

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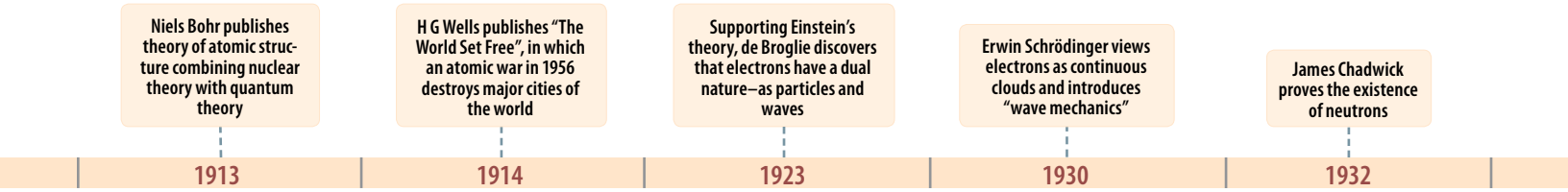

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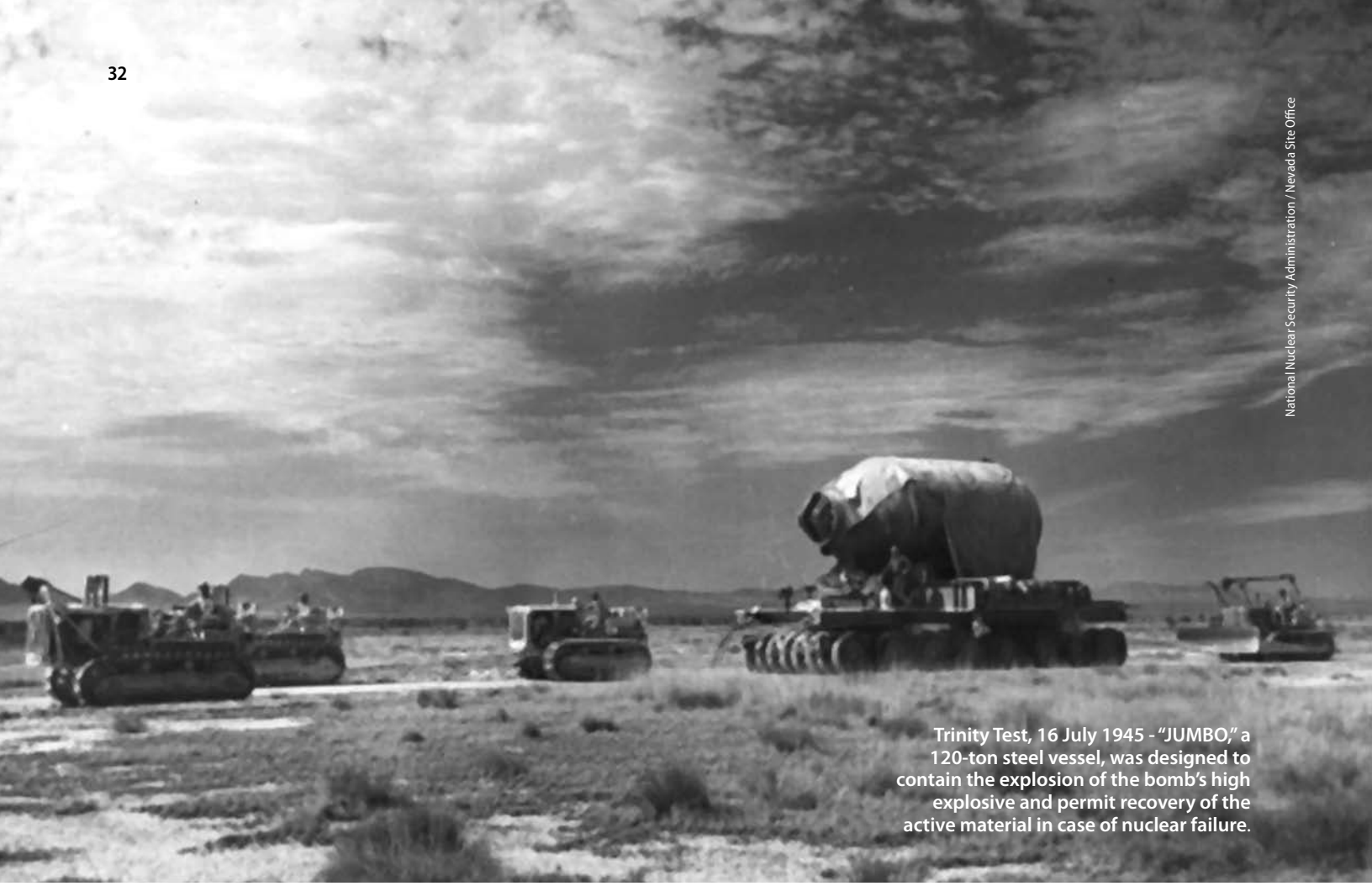
weaponry—plutonium and highly enriched uranium—is in itself a tremendously difficult process, which only a few countries have mastered, even today. Designing such a weapon that is light yet durable enough to be delivered to its intended target is another difficult task, and here is where explosive tests play such an important role. Of course, one can design a workable nuclear weapon without having tested it, as illustrated conclusively by the development and use of the "Little Boy" bomb that devastated Hiroshima on 6 August 1945. Even using 1945-vintage technology, the designers of that uranium bomb had so much confidence that it would work, they were comfortable putting it to use even without a test.

However, all the States that have declared possession of such weapons—namely, the five permanent members of the Security Council, namely China, France, Russian Federation, United Kingdom and United States, plus the Democratic People's Republic of Korea (DPRK), India and Pakistan—have also tested such devices. Testing is a way for a State to signal unambiguously to the international community possession of such a weapon. But symbolism alone does not explain the testing of over 2,000 nuclear weapons over the past several decades.

Testing is essentially an experimental tool used by scientists and engineers to improve these weapons or, as occurred rarely in the past, confirm their reliability. Sometimes these "improvements" are intended to enhance the safety or security of a weapon, for example, to ensure that it will not go off prematurely, explode as a result of an accident or be subject to theft or use by a terrorist group. Yet, these improvements are also intended to enhance the performance of a weapon, give it a new role or make it better able to survive the hazards of their delivery—the intense pressures, temperatures and defensive measures that such weapons encounter on their way to their targets—and the effects of their aging process. Some tests, of course, can serve to develop entire new generations of weapons—this is how the hydrogen bomb was developed in the early 1950s.

Historically, efforts to prohibit nuclear tests have focused on three possible benefits: environmental, non-proliferation and disarmament. The impetus that led to the conclusion of the Partial Test Ban Treaty of 1963 (PTBT)—which outlawed nuclear tests in the atmosphere, underwater or in outer space—was influenced by the outpouring of demands from civil society, as well as at the United Nations, for efforts to put a halt to the environmental contamination from nuclear tests.

Fallout from a 1954 hydrogen bomb test in the Pacific contaminated a Japanese fishing boat, called the "Lucky Dragon", killing the radio operator and injuring its crew. Radioactive isotopes from such tests were found later turning up in mother's milk and children's teeth. Public outrage mobilized in response to studies documenting the health and environmental effects of these tests. Concerns of the scientists and the public soon became the subject of legislative hearings and other such inquiries. The media was drawn to the issue serving to expand public interest even further. Countries with no interest in acquiring nuclear weapons were finding traces of radioactive materials on their territories. The effect of these findings snowballed, leading to the PTBT.



National Nuclear Security Administration / Nevada Site Office

Trinity Test, 16 July 1945 - "JUMBO," a 120-ton steel vessel, was designed to contain the explosion of the bomb's high explosive and permit recovery of the active material in case of nuclear failure.

There were, of course, other reasons to oppose nuclear tests. Policymakers and students of nuclear weapons often speak of the difference between "horizontal" and "vertical" proliferation: the former consists of the geographical spread of these weapons to additional States, while the latter represents the qualitative improvement or expansion of existing nuclear arsenals. Others have expressed concern over the ubiquity of such weapons in transit worldwide—through the sea via submarines, or in the skies via aircraft. Some of these vessels carry weapons that can be fired at a moment's notice, and some have been involved in collisions and crashes over the years.

As suggested by the precedent of "Little Boy", a test ban alone cannot prevent a country from acquiring an early-generation nuclear weapon. Prohibition can, however, make it more difficult for other States to pursue nuclear-weapon programmes. If there is an agreed global norm against testing, a State wishing to defy this norm will have to face some significant political and diplomatic repercussions for conducting a nuclear test, including international condemnations, sanctions and possible military responses from neighbouring States. Such a norm will also serve to discourage countries,

1944

Joseph Rotblat resigns from the Manhattan Project since he believed that Nazi Germany would not succeed in developing an atomic weapon

1945

May 8
War in Europe ends

July 16
World's first atomic detonation, Trinity, yields 19 kilotons

August 6
Little Boy, 15 kilotons, is detonated 1,900 feet above Hiroshima. Some 90,000 to 100,000 persons are killed immediately

August 9
At 9:44 am, Bockscar, a B-29 carrying Fat Man, arrives at its primary target, Kokura. The city is covered in haze and smoke from an American bombing raid on a nearby city. Bockscar bombs secondary target Nagasaki at 11:02 am

December 19
India begins nuclear research at the Tata Institute of Fundamental Research

1946

January 10
UN General Assembly holds its opening session in Central Hall, Westminster

January 24
UN General Assembly establishes an Atomic Energy Commission (AEC)

July 1
US begins nuclear weapons testing at Bikini Atoll in the Pacific

groups and individuals from assisting in the conduct of any such test.

A test ban can indeed serve as an important barrier to horizontal proliferation, even if it cannot offer any panacea. One great merit of a multilateral, legal test ban is that it helps to neutralize any possible status or prestige that may come from conducting such a test. With such a norm, tests will be viewed throughout the world community not as status symbols but as a taboo to be stigmatized.

A global ban on nuclear tests would also be necessary, but is alone insufficient in the process of achieving nuclear disarmament. One can imagine a world with many nuclear-weapon States that simply refrain from nuclear tests, whether pursuant to a treaty or as a result of a national policy decision. Yet, no one should underestimate the positive contributions of a legal ban on nuclear tests in advancing the goal of global nuclear disarmament.

First, a test ban would help to prevent certain forms of "vertical proliferation", including the development of new generations of nuclear weapons or major improvements in existing arsenals. Second, a test ban would lead to a process of taking apart some of the elaborate institutional infrastructure that had been established to develop and maintain those arsenals. Third, a test ban would help in the evolving process of delegitimizing the very existence of nuclear weapons—claims that testing is needed to "maintain the reliability" of existing arsenals, for example, are much harder to sustain in a climate of global expectations that such weapons should not exist at all.

What are these expectations? It was Prime Minister Jawaharlal Nehru of India who made one of the first calls for a ban on nuclear tests, in a speech to his Parliament on 2 April 1954, just a few weeks after the "Lucky Dragon" event. His proposal for a "Standstill Agreement" had quite an effect at the United Nations, where under the leadership of Secretary-General Dag Hammarskjöld and concerned Member States, numerous proposals were put forward to halt tests.

The Scientific Committee on the Effects of Atomic Radiation was established in 1955 and continues to meet annually. Many Governments introduced specific proposals for a comprehensive ban on all nuclear tests, though great differences remained, especially during the cold war, over the ever-sensitive issue of verification. By the late 1950s, States were referring to such proposals as "partial measures"; in other words, there was a growing recognition at the United Nations that nuclear disarmament would not occur at once, but through an evolving, incremental process. Halting nuclear tests was positively and widely viewed at the time as one of those essential steps, just as it is now.

Global efforts to achieve a comprehensive ban did not end in 1963 with the conclusion of the Partial Test Ban Treaty, which foresaw future challenges in its preamble, underscoring that parties were "seeking to achieve the discontinuance of all test explosions of nuclear weapons for all time [and] determined to continue negotiations to this end".

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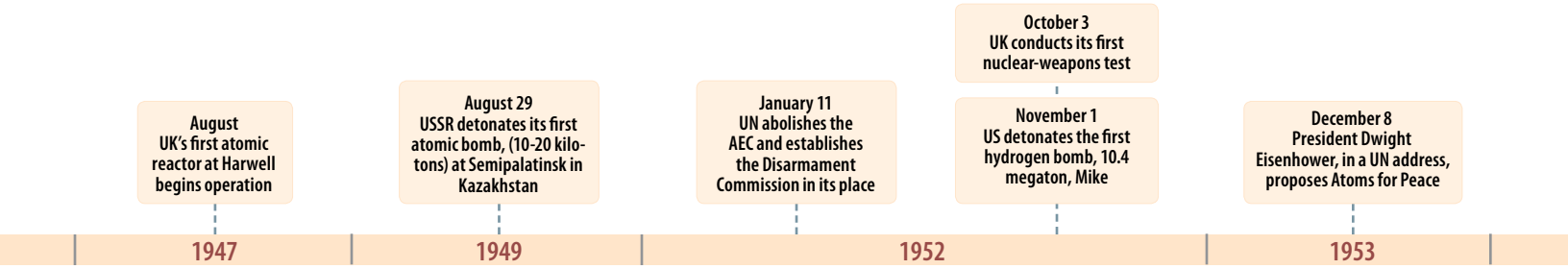
In 1968, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was opened for signature; its preamble echoed the more comprehensive goal of PTBT, and its Article VI obliged each of its States parties "to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarma-



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ment, and on a treaty on general and complete disarmament under strict and effective international control".

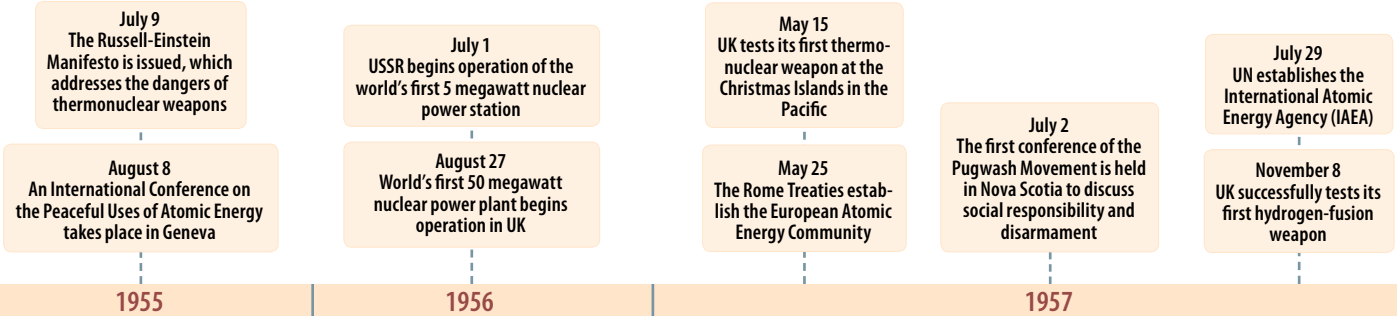
The NPT was extended indefinitely in 1995 as a result of a "package deal" which included the conclusion of a Comprehensive Nuclear-Test-Ban Treaty by 1996 as one of its key elements. The "early entry into force" of the CTBT was also the first of "thirteen steps" for nuclear disarmament agreed upon at the 2000 NPT Review Conference. The global norm for a comprehensive ban on nuclear tests has also received additional support, with the inclusion of a test ban in the texts of the treaties which created regional nuclear-weapon-free zones in Latin America and the Caribbean, South Pacific, Southeast Asia, Africa and Central Asia, representing the combined commitments of 112 States.

However, though the CTBT was finally opened for signature in 1996, it has not yet gained all of the 44 ratifications required for its entry into force. As of July 2009, 180 States have signed the treaty and 14 have ratified it. Of the 44 key States, 35 have ratified it, nine have not, while three have not signed the treaty. Support for theCTBT's entry into force, however, was not limited to NPT States. The General Assembly has been adopting resolutions for literally decades on behalf of a comprehensive test ban, typically receiving an overwhelming majority of votes. The last one on CTBT, resolution 63/87, was adopted in December 2008 by a vote of 175 to 1, with 3 abstentions.

Banning nuclear testing is a goal that has long had the strong support of UN Secretaries-General, including Secretary-General Ban Ki-moon, who stated: "I see emerging in the world today a 'zero tolerance' of any further tests of nuclear explosive devices. I hope to see the day when this expectation is made legally binding and remain convinced that the CTBT is the way that this goal will ultimately be achieved." (Interview in *CTBTO Spectrum*, July 2007). His interest in this issue is quite sincere and longstanding as illustrated by his past service as Chairman of the Preparatory Commission of the Comprehensive Nuclear-Test-Ban Treaty Organization in 1999 and by his many messages to the periodic meetings of CTBT signatory States (organized to promote the Treaty's entry into force). He also included the nuclear-test banning goal in his five-point disarmament proposal announced at the United Nations on 24 October 2008.

The goal to ban nuclear testing continues to receive strong support from civil society and has been incorporated in numerous disarmament proposals presented in recent years. In 2006, for example, the international WMD Commission, chaired by Hans Blix, placed a particular emphasis on the need for the United States leadership in bringing CTBT into force:

"The Commission believes that a US decision to ratify the CTBT would strongly influence other countries to follow suit. It would decisively improve the chances for entry into force



of the treaty and would have more positive ramifications for arms control and disarmament than any other single measure. While no nuclear-weapon tests have been carried out for many years, leaving the treaty in limbo is a risk to the whole international community. The United States should reconsider its position and proceed to ratify the treaty. Only the CTBT offers the prospect of a permanent and legally binding commitment to end nuclear testing." (*Weapons of Terror*, 2006)

By now, many of the questions posed at the beginning of this article have been answered. A world free of nuclear weapons would tremendously benefit all of humankind—it is what the Secretary-General has called a "global public good of the highest order". And a comprehensive ban on nuclear tests would advance that goal in many significant ways, while also reducing many of the risks of proliferation and helping to protect the environment. Progress in disarmament may also free some financial and technological resources for social and economic development purposes. Our world will be safer and more prosperous as a result.

This is why I personally believe that the real "constituency" of disarmament includes not just all of humanity, but also future generations. Progress towards global nuclear disarmament, which surely includes the entry into force of the CTBT, deserves strong support and encouragement from all people everywhere—especially from *UN Chronicle* readers who appreciate the importance of multilateralism, the rule of law, the need to channel more resources into meeting the UN Millennium Development Goals, and the concrete benefits for international peace.

These steps towards a nuclear-weapon-free world are deeply rooted in the UN Charter—together they help to define the very identity of the United Nations as an institution dedicated to peace, security and human welfare. This helps to explain why there is so much support for CTBT throughout the United Nations.

Yet, UN Member States do not view the treaty as an end in itself. To the contrary, they recognize the many ways that this global treaty will advance their specific national interests, while also advancing other multilateral goals of disarmament and non-proliferation. They also understand that the inability of a single treaty to achieve all these historic UN goals is no reason whatsoever for deferring its entry into force.

What CTBT can do, however, is to put an effective end to all nuclear testing. More than just a vision of a desired goal, it offers an effective international regime backed up by a robust global monitoring system that has significantly expanded in recent years; and CTBT continues to improve its ability to detect any clandestine nuclear explosions, even those far smaller than the blasts at Hiroshima and Nagasaki.

It is my great hope that certain developments in the months ahead will have a profound and positive impact on the future of CTBT—including two important conferences in September 2009 and May 2010 concerning the CTBT and NPT, respectively, and the unfolding of policies of President Barack Obama, who has spoken favourably about the CTBT treaty. However, the treaty's future will not be determined by the actions of just one country, but by the support it deserves among all countries, and this support has been and remains considerable. Ultimately, its strongest foundation of support remains among the people, who will be both its true beneficiaries and its most persistent and effective advocates. Enlightened leadership from countries, backed by an informed public, can accomplish a great deal in this world, even one of the greatest of all arms control achievements—a comprehensive ban on nuclear tests.

One question remains: "What are some possible consequences if the treaty never does enter into force?" In all likelihood, countries will continue to maintain their unilateral moratoria on tests, which may or may not hold for a while. If one State decides to resume testing, pressures will grow on others to follow suit. A resumption of testing would damage the NPT by departing from one of the key terms that led to its indefinite extension. It would be a severe blow to any hopes for progress in disarmament, and would create new environmental hazards, even if the tests remain underground.

The best argument for the Comprehensive Nuclear-Test-Ban Treaty, however, rests not on fears of its failure to enter into force, but on the prospects for a safer and saner world when it does. unc