Nuclear Energy and Disarmament: The Challenges of Regulation, Development, and Prohibition

By

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I would like to begin by thanking Professor Eduardo Grebler for kindly inviting me to participate on this panel today. Both as the UN's High Representative for Disarmament Affairs, and in my earlier role as a Brazilian diplomat, I have been impressed by the efforts of the International Law Association to promote the rule of law in all dimensions of contemporary international relations. It is very gratifying to know that the presidency of the Brazilian branch of the ILA is in such capable hands.

Our subject today is an excellent addition to this Conference Programme, for legal norms—both national and international—will no doubt continue to have an enormous role to play in addressing all nuclear energy issues, both civilian and military. Enshrined in multilateral treaties, domestic legislation, and national regulations, these norms cover virtually everything about nuclear energy, starting from environmental controls on uranium mining, through the legal requirements for the final disposition of spent fuel and radioactive waste, and all the many steps in between. The reason for this robust legal framework relates to the unique potential dangers from the misuse of nuclear technology, as well as to the dual-use nature of this technology, especially the most sensitive parts of the nuclear fuel cycle—uranium enrichment and nuclear reprocessing.

In this light, there is obviously a lot more at stake in the future uses of such technology than strictly national development goals, especially given the legitimate security concerns that are motivating demands for global nuclear disarmament, controls over the international proliferation of nuclear weapons, and efforts to prevent nuclear terrorism. All these issues raise delicate issues relating to national sovereignty, the right of self-defence, and the future of international peace and security—not just for some states, but for all.

While evolution of world events concerning such issues will no doubt be driven largely by political considerations, I believe that law will continue to play its own vitally important role, both in promoting or enabling peaceful uses and in advancing the goals of disarmament, non-proliferation, and reducing the risk of nuclear terrorism. If we view the nuclear regime as a sailing ship at sea, politics provides its wind, law provides its anchor, and both will be needed to navigate the turbulent waters that lie ahead.

To elaborate this theme, I would first like to provide some historical context. Nuclear energy entered our world through a gate of fire. Ever since the destruction of Hiroshima and Nagasaki by nuclear weapons—made respectively of highly-enriched uranium and plutonium—governmental leaders, other public officials, and concerned members of the public have sought to ensure that nuclear energy is used only for peaceful purposes. They have sought to achieve this goal while also promoting treaties, laws, and regulations to advance the closely related goals of nuclear disarmament and non-proliferation—and, especially in recent years, to reduce the risk of nuclear terrorism.

Given the complexity of this technology and the ebb and flow of political events, it is rather astonishing that much of the world community's present agenda for dealing with the challenge of nuclear energy was actually framed in the early post-war years. There is some permanence amidst all this change. Consider for a moment some of these early developments.

In November 1945, just three months after the nuclear bombings, the President of the United States and the Prime Ministers of the United Kingdom and Canada issued a joint declaration outlining their proposal to create a UN commission to consider effective means to eliminate the use of atomic energy for destructive purposes, while promoting peaceful uses.

On 24 January 1946, the UN General Assembly adopted its first resolution, which established such a commission and identified the goal of eliminating from national arsenals all nuclear weapons along with all other weapons adaptable to mass destruction. A few weeks earlier, the US State Department had established a Committee on Atomic Energy to develop a plan for international cooperation to control the uses of atomic energy. After three months of work, the Committee issued what became known as the "Acheson-Lilienthal report", which argued for international control of the most dangerous parts of the nuclear fuel cycle. In June of that year, Bernard Baruch—who was serving as the US representative to the UN commission, presented a plan for comprehensive international control along similar lines.

When there was no consensus on that plan or an alternative Soviet proposal, the world community searched for some alternative solutions, including the famous "Atoms for Peace" proposal offered by President Eisenhower in 1954, which offered cooperation on peaceful uses of nuclear energy under safeguards, which would later be implemented by the International Atomic Energy Agency, established in 1957. In 1959, the General Assembly put the issue of "general and complete disarmament" on its agenda, where it has remained ever since. This goal seeks the complete elimination of all nuclear, biological, and chemical weapons, along with the limitation of conventional armaments for specific self-defence and peace-keeping purposes, in accordance with the UN Charter.

Despite their agreement on the important US/Soviet joint proposal for general and complete disarmament offered in the McCloy-Zorin joint statement of 1961, the inability of the nuclear powers to agree on comprehensive disarmament proposals led soon thereafter to what were called "partial measures". These included a greater emphasis on non-proliferation issues, both global—in the form of the Nuclear Non-Proliferation Treaty or NPT—and regional (as seen in the creation of regional nuclear-weapon-free zones in Latin America and the Caribbean, the South Pacific, Southeast Asia, Africa, and Central Asia). The ongoing

effort to bring the comprehensive nuclear-test-ban treaty into force is another such partial measure, as is the goal of negotiating a treaty to ban the production of fissile material for use in nuclear weapons.

Throughout this early post-war era, efforts have also been underway to promote the peaceful uses of nuclear energy under safeguards, consistent with the "Atoms for Peace" vision. The IAEA adopted its first system of international safeguards in 1961, which it revised in 1965, 1966, and 1968—this early safeguards system applied only to specific nuclear facilities. After the NPT entered into force in 1970—the Agency later implemented what were called "full-scope" or comprehensive safeguards to cover all nuclear materials in non-nuclear-weapon states and the facilities containing such materials. In the mid 1990s, the Agency again upgraded its safeguards standards by adopting the Additional Protocol, which expanded the Agency's ability to detect undeclared nuclear material and activities in a given state. The history of safeguards improvements evolved in parallel with disturbing developments relating to proliferation—including, but by no means limited to, the first nuclear tests by France and China in 1960 and 1964, India's nuclear test in 1974, and the uncovering of Iraq's nuclear-weapon programme after the war in Kuwait in 1991.

Many of these efforts to promote peaceful uses under enhanced safeguards stemmed from the NPT and various understandings or interpretations agreed at its review conferences. The 1995 NPT Review and Extension Conference included disarmament, non-proliferation, and peaceful uses together in a decision on "principles and objectives" that was part of the "package deal" leading to the indefinite extension of the treaty. The Final Document of the 2000 NPT Review Conference built on this, by elaborating thirteen steps for nuclear disarmament as well as additional language concerning peaceful uses and non-proliferation. The point here to underscore is that the states parties to the NPT agreed on the close, symbiotic relationship between all the key goals of that treaty.

Many observers, however, are now reporting that the NPT is facing a crisis in terms of the achievement of all of these goals. First, global nuclear disarmament has not been achieved, and continues to remain at best a distant goal, despite the obligation of the states parties under Article VI to pursue negotiations—in good faith and at an "early date"—to fulfil this commitment.

Second, proliferation threats remain—some non-nuclear-weapon states parties to the NPT have in the past pursued nuclear weapons (e.g., Iraq, the DPRK, and Libya) while Iran has been the focus of four Security Council sanctions resolutions dealing with its own nuclear activities. The treaty is also affected by the lack of full universality, as three countries possessing nuclear weapons—Israel, Pakistan, and India—never joined the NPT and the DPRK announced its withdrawal from the treaty in 2003.

Third, with respect to peaceful uses, many states believe that the "inalienable right" described in the NPT's Article IV extends to the right of all states parties to acquire fuel-cycle technologies, including those capable of producing fissile materials that are directly suitable for use in weapons. IAEA Director General Mohamed ElBaradei has repeatedly warned that widespread international dissemination of such technologies could well constitute the "Achilles' heel" of the global nuclear non-proliferation regime. Instead of attempting to safeguard growing numbers of sensitive national fuel-cycle facilities worldwide, an extremely difficult task, ElBaradei has proposed that such activities should only be undertaken under multinational facilities. Meanwhile, many non-nuclear-weapon states object to the ever-growing and intrusive constraints on their own peaceful nuclear programmes. There is widespread agreement on the principles of verification, transparency, irreversibility, and bindingness—yet all too often it appears that these principles are being applied unequally to the non-nuclear-weapon states and not to the nuclear-weapon states.

It might be an exaggeration to say that these concerns are jeopardizing the international rule of law that has evolved over the years governing disarmament, non-proliferation, and peaceful uses. After all, some 189 states have joined the NPT and the overwhelming majority of its parties remain in compliance with this treaty and have demonstrated no interest whatsoever in acquiring nuclear weapons.

Yet there is indeed a crisis to address, one that relates to what might be called "due process". Substantively, states seek standards that are fair and equitable, not discriminatory. Procedurally, states seek to participate and have a voice in the development and implementation of international nuclear norms. Yet today, concerns are growing that the standards of the NPT are not being equitably applied, and new standards are being demanded of the non-nuclear-weapon states, while progress in disarmament is widely seen as continuing to languish, as weapon modernization programmes continue. These concerns lie at the root of the crisis of the NPT, especially the perceived double standard.

Non-nuclear-weapon states have long been concerned about this problem. It was a key reason why the draft NPT was unable to command a consensus at the relevant multilateral negotiating forum, the Eighteen Nation Committee on Disarmament, prior to the treaty's signature in 1968. I witnessed these disagreements personally while serving as a junior member of the Brazilian delegation to that Committee.

There have, of course, been many proposals over the years to achieve a compromise between the inalienable right of every party to the NPT to use nuclear energy for peaceful purposes, and the collective interest of the world community in achieving nuclear disarmament and non-proliferation goals. For literally decades, the IAEA has been studying various ways of

arranging for assurances of supplies of fuel to states, so that they would not have any perceived need to acquire sensitive fuel-cycle facilities for themselves. It has also studied various proposals for establishing regional nuclear fuel cycle centres and for the safe international storage of spent fuel.

Many of the proposals we are hearing today draw upon the legacy of those earlier attempts to promote peaceful uses through the establishment of multilateral or plurilateral arrangements. Germany has proposed a "Multilateral Enrichment Sanctuary Project" to reduce the economic incentives for launching new national uranium enrichment facilities. Russia is building the Angarsk International Uranium Enrichment Centre in eastern Siberia. Japan has proposed a system of "standby arrangements" by which the IAEA can assure fuel supplies. The United States has launched its Global Nuclear Energy Partnership, which would offer various fuel services as an alternative to the national development of fuel-cycle facilities. Indeed, by the IAEA's count, there are today over a dozen proposals for multilateral approaches to the fuel cycle.

It is of course impossible to predict the future of these various initiatives. Some non-nuclear-weapon states may well follow in the path of countries like Sweden, Switzerland, and Canada, which mastered fuel-cycle technology on their own but decided not to pursue it as a national priority. The Netherlands and Germany chose another course, by becoming partners with the United Kingdom in the URENCO consortium—states could follow this model or they may consider establishing their own consortia. Japan, Brazil, Argentina, and other countries are investing in their own national fuel-cycle facilities under IAEA safeguards. Three other states (India, Pakistan, and many believe Israel) have followed the five existing nuclear-weapon states and used national fuel-cycle facilities to produce fissile material for military purposes.

The main obstacle to all fuel-assurance proposals relates to concerns over their credibility—how can states be sure that political considerations will not lead to future interruptions of supply, or to threatened interruptions? Other concerns have arisen from the lack of a multilateral treaty to make such assurances binding.

While predictions are difficult in this field, it does appear likely that more and more states will in the decades ahead acquire the means to produce their own fissile materials—namely separated plutonium and highly-enriched uranium. Since the availability of such material is the most difficult challenge in producing a nuclear weapon, one could say that it is indeed likely that the world will see more states that could, if they so choose, produce nuclear weapons. Such states are often called "threshold" nuclear-weapon states and when such states acquire sensitive nuclear technology, it is often called "latent proliferation".

All together, the global spread of fuel-cycle capabilities will have implications not only for proliferation, but also in terms of risks of nuclear terrorism. Expanded production, transportation, and storage of fissile materials will open up new possibilities for theft and sabotage. It is also worth noting that such risks will exist regardless of whether fuel cycle operations take place in national or multilateral facilities.

In all likelihood, no single model will account for how the world community will address the many economic, political, and security-related challenges posed by the nuclear fuel cycle. We are, I believe, entering a period of diverse, experimental approaches to this problem. Exercising their legal sovereignty, and in pursuit of their political independence, a number of states may decide to forgo nuclear power all together and generate electricity by alternative means, with a strong emphasis on renewable energy, conservation, energy efficiency, and cleaner uses of some hydrocarbon fuels. Others, on the same grounds, may decide to pursue their own fuel cycle capabilities, either alone or in combination with others.

Whichever approach states decide to take, the horrific consequences from the misuse of fuel-cycle technologies demands the most stringent standards of physical security and nuclear safeguards. It remains to be seen if even such strict standards will be sufficient to guarantee absolutely against the risk of proliferation or terrorist threats involving fissile materials. The authors of the Acheson-Lilienthal Report, and the current Director General of the IAEA, have voiced their doubts that this can be achieved. The challenge will only grow if the long-anticipated "nuclear renaissance" finally arrives and hundreds of additional reactors become operational.

It may be that technology itself will solve this problem, through the development of fuel-cycles that do not involve, at any step, the presence of fissile material that can directly be used in manufacturing a weapon, and by devising safe, foolproof ways of disposing of nuclear waste. Basic and applied research on such fuel cycles, however, have been underway for several decades to achieve such goals, and it still appears that many more years of such work will be needed to establish whether this can indeed be achieved safely and economically.

To conclude, I would like to return to the themes in the title of my statement today: regulation, development, and prohibition. The overwhelming majority of the world community is clearly not satisfied with the goal of merely "regulating" nuclear weapons. Indeed, all states have formally and repeatedly endorsed the goal of general and complete disarmament, including specifically the total elimination of all nuclear weapons. The latter involves a lot more than just lowering the numbers of such weapons, reducing their risk of use, and limiting the number of states that possess them. It involves the elimination of existing weapons and the prohibition of their future production.

Because of legitimate development aspirations, however, the world is much more divided on the question of prohibiting certain of the steps needed to make nuclear weapons. There is simply no international consensus on the international nuclear fuel cycle—the inalienable right of states to engage in the peaceful uses of nuclear energy, under the NPT, must always be assessed relative to proliferation risks. Inalienable rights, in short, are not free of obligations, duties, and responsibilities. Since there is clearly no international consensus that sensitive fuel-cycle activities should be prohibited globally, the next option is to pursue a solution in the form of enhanced safeguards, whether regionally, nationally, or in various consortia, with the alternative of shifting more to renewable energy technologies that have no proliferation risks and are more environmentally friendly.

It is rather predictable that new efforts will be underway internationally to circumscribe or further limit the "inalienable right" to fuel-cycle technology. Prospects for the success of these efforts will depend both on the fairness and universality of the safeguards standard for such facilities, and on the readiness of the nuclear-weapon states to agree to implement their own disarmament commitments. Ad hoc cartel arrangements and discriminatory regimes that seek to divide the world into technological haves and have-nots will not likely advance these prospects for success, and the same is true if additional years go by without substantial progress in nuclear disarmament.

Global nuclear disarmament, non-proliferation, and a world free from the threat of nuclear terrorism are three extremely important goals to all states. The economic and social development of their peoples are imperative duties of all governments—there is no reason why they should be seen as incompatible with these vital security interests. Ultimately, it may be that states, through exercising their own sovereignty, may voluntarily have to decide to limit their own freedom of action for the greater good of the world community. This will be possible only if such limits are universal and fair, if they are widely perceived in the world as essential to achieve these three vital and historic goals, and if they are fully understood and supported by the public.

Finally, I wish to congratulate the International Law Association for taking up these issues of nuclear energy, disarmament, and development. These are among the most important challenges of our time, and success in these areas will surely require a stable framework that only a rule of law can provide.