

Shadow & Substance

Securing the Future of Atoms for Peace

by Lawrence Scheinman

The “Atoms for Peace” proposal in 1953, and the policy evolving from it, opened an era of accelerated spread of nuclear knowledge. It ushered in the dissemination of nuclear know-how and activity to a larger number of States than otherwise would have been the case. At the same time, it is clear that maintaining a policy of nuclear secrecy and denial would not have held back the inevitable growth in the number of countries that would acquire nuclear knowledge and gain access to nuclear technology. The difference is that Atoms for Peace—while quickening the pace of nuclear dissemination—also spearheaded the establishment of a normative framework that in its absence likely would not have emerged.

The International Atomic Energy Agency (IAEA)—with its mandate not only to facilitate access to the peaceful benefits of nuclear energy, but also to develop and implement an international nuclear safeguards system—very likely would not have come into being. Nor would a normative framework have been set down for developing a civil nuclear economy. Instead, States in a position to do so, and motivated for one reason or another to do so, would have transferred nuclear technology, possibly on restrictive terms and conditions, possibly not.

History provides insights. In the mid-1950s, as staunch a proponent of non-proliferation as Canada transferred an unsafeguarded research reactor capable of producing plutonium to India—only to find nearly two decades later that the reactor produced the plutonium used by India in its 1974 so-called peaceful nuclear explosion. This resulted in a deterioration of Indo-Canadian relations. Great Britain for its part provided India with reprocessing technology. France in 1956 agreed to sell Israel a comparable research reactor without safeguards, but unlike Canada in the case of India, apparently without any illusions regarding its end use. France also built Spain’s first nuclear power plant, Vandellós, in the late 1960s also without any provision for safeguards.

The point is that the absence of Atoms for Peace or some functional equivalent would **not** have meant no sharing, no dissemination of nuclear knowledge, technology, materials or equipment. Rather it would have meant continued nuclear dissemination—perhaps slower, perhaps less widespread, under unstructured conditions and the absence of a framework of agreed rules, principles and norms with all the nega-

tive consequences for stability and security that such a situation likely would have implied.

Nuclear Motivations & Incentives

The Indian test in 1974 gave substance to concerns about the relationship of civil nuclear activity to nuclear weapons proliferation. The words of three nuclear physicists affirm this relationship. David Bergmann, a former chairman of Israel’s Atomic Energy Commission commented that “It is very important to understand that *by developing atomic energy for peaceful uses you reach the nuclear option; there are not two atomic energies.*” Even more succinctly, Sweden’s Hannes Alven remarked that “*the peaceful atom and the military atom are Siamese twins.*” Edward Teller—addressing concerns that as nuclear reactors spread among nations their production would enable almost every country to acquire nuclear weapons—said: “This statement, most unfortunately, is true...eventually nuclear proliferation is unavoidable unless we find better solutions to international problems than are now on the horizon.”

Teller’s remark speaks to a dimension of proliferation that is often noted but not as often the focus of non-proliferation policy, namely the motivations and incentives of States to strive for nuclear capability or weapons. It is a dimension not to be discounted, for it underscores another truth—that *capability alone is an insufficient explanation of the risk of proliferation. Motivation also matters.* To acknowledge this is not, however, a reason to relax vigilance regarding capabilities, especially those associated with the presence in a country of plutonium and/or highly enriched uranium or the means by which to produce them. That is a danger that Atoms for Peace in its early phase left open. The danger remains open under an imperfect and uncritical reading of Article IV of the Nuclear Non-Proliferation Treaty (NPT) where it speaks to the “inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination.” Sometimes overlooked are the added words “and in conformity with Article I and II of this Treaty”, that is to say the non-proliferation Articles.

The NPT Regime

The NPT is the foundation upon which the regime stimulated by Atoms for Peace rests. It is problematic whether

there would have been an NPT or at least an NPT with the near universal adherence that the Treaty enjoys were it not for Atoms for Peace, or a comparable initiative by the predominant States in the international system. The initial drafts of a Treaty tabled by the United States and the Soviet Union did not contain three articles that a broad cross-section of non-nuclear weapon States insisted upon as *quid pro quos* for their support even while holding the view that their security would be better served with than without such a Treaty. Those were the articles on peaceful use (IV), the benefits of peaceful nuclear explosions (V, now defunct), and nuclear disarmament (VI).

Article IV essentially codifies the promise of Atoms for Peace, which is why it can be said that without it the necessary support for the NPT might not have been there. Global society was sold on the proposition (some would say the myth) that nuclear energy was the key to economic development and a golden future. This was not a promise and expectation to be let go of and it became, and remains a *quid pro quo* in the nuclear non-proliferation bargain, despite the economic, safety and waste management problems that trouble the nuclear industry. The same is true and even more so for Article VI. In the longer run, it is Article VI and the pursuit of nuclear disarmament that draws the political attention and concern of the non-nuclear world and on which failure to make continued progress poses the greater threat of undermining the Treaty.

The “Heavy Lifting”

As a general proposition in the arena of international initiatives and agreements, the heavy lifting comes with implementation. In the case of Atoms for Peace, the IAEA was the institution created to foster a policy of internationalizing the peaceful benefits of atomic energy and to channel nuclear technology development toward constructive and non-military ends. Its charter is to “accelerate and enlarge the contribution of atomic energy to peace, health and prosperity” and “to ensure, as far as it is able, that assistance provided by it or at its request or under its supervision or control is not used to further any military purpose.”

To a substantial degree that role was preempted by the leading nuclear States—the US, UK, France, Canada—entering into bilateral cooperation agreements with States interested in nuclear energy. In two years following amendment of its atomic energy law (in 1954) to permit international cooperation, the United States entered into more than twenty such agreements. This development took the IAEA out of a central role, particularly in nuclear assistance, and removed the urgency in developing and deploying a safeguards system. For almost three years, several key States, primarily India supported by the Soviet Union, argued against the need to develop a safeguards system since national exporters were, where they chose to do so, applying bilateral safeguards to their transactions.

Another key provision in the IAEA Statute that has to this day not been implemented relates to the prospect for managing plutonium. Article XII.A.5 of the Statute gives the Agency the right to approve the means to be used for chemical processing of irradiated materials—although this applies only to ensure that the processing will not lend itself to diversion, and not to determine the legitimacy of the activity itself. More importantly, the same subparagraph grants the IAEA the right to require deposit with the Agency of any excess of any special fissionable materials recovered or produced over what is needed for use for research or in reactors. This provision was included in anticipation of a substantial IAEA supplier role that never materialized. But it was central to a controversy in the aftermath of the International Nuclear Fuel Cycle Evaluation (INFCE, 1978-80) about the feasibility of international plutonium storage arrangements in conjunction with the development of reprocessing spent nuclear fuel.

An ambiguity in this provision is whether this refers to what can be *legally authorized in the event of a voluntary agreement* by States to participate in an arrangement such as international plutonium storage, or whether it refers to a *discretionary authority of the IAEA to impose requirements on States*. India and some other States fought vigorously against the latter interpretation at the time the Statute was negotiated and again in the context of contemplating plutonium storage arrangements. Atoms for Peace did not give as much attention to the longer run problem of reprocessing, recovery and use of plutonium as it should have and in this respect might be criticized for faulty vision. That flaw, of course, has turned out to be one of the 800-pound gorillas on the non-proliferation playing field.

Atoms for Peace & Knowledge

Another way of evaluating the relationship of Atoms for Peace to nuclear proliferation is to consider what opening the doors to training in the scientific fields relevant to nuclear development has wrought. Thousands of scientists and engineers from many different countries have been educated and trained in the US and other advanced industrial State universities in nuclear research, technology, reactor construction and management, and the like. This, as reflected in the statements of Bergmann and Alven cited earlier, gets to the argument that by virtue of the linkage between civil and military nuclear programs, Atoms for Peace has contributed to proliferation. This is the argument that the United States has been making for years now with regard to the Iranian nuclear program.

The training provided by an advanced nuclear State—and which is part and parcel of the Atoms for Peace initiative as well as a major IAEA activity either by direct training or by arranging for scientists and engineers from developing countries to go to an advanced nuclear State for education in nuclear engineering, physics, metallurgy, chemistry and so on—has relevance to the concern with proliferation.

A blunt example is that Indian technologists were trained in French laboratories on designing and producing neutron initiators which while relevant to peaceful nuclear activities are critical to triggering a chain reaction in an implosion weapon. The same applies to training in the operation of hot cell manipulators that are used for radioisotopes like cobalt-60 for medical applications but also for plutonium for military applications. The list can go on. The options for dealing with this are several. They range from refusal to accept certain nationalities for education and training, which for some countries runs counter to their political credo, to reaching secure agreements with the countries in question about foregoing on a credibly verifiable basis the development of sensitive technological activities not critical to a civil nuclear program.

But to return to the basic question of the relationship between Atoms for Peace and proliferation, one cannot avoid concluding that education and training for ostensibly peaceful nuclear activity can end up being used in support of a weapons development program, and that civil nuclear programs can be effective covers under which military nuclear activities can proceed. It is fair to say that so far, this has, fortunately, been true for only a few countries—India, Pakistan, Iraq, and apparently Iran as well.

Revisiting Imperatives

At one level, as reflected in the assertions that there is only one atomic energy and that the peaceful and military atom are Siamese twins, it cannot be denied that Atoms for Peace at the least opened the *possibility* for the proliferation of military uses of the atom. The caveat is that proliferation is fundamentally a political act, and arguments about technological determinism notwithstanding, motivation and incentive—which can range from security to status and prestige to hegemonial aspiration—is the intervening variable between technological capability and proliferation per se. In the law of negligence we have a doctrine of attractive nuisance into which we might place nuclear technology, but a political incentive still remains the predominant requirement.

Atoms for Peace was conceptually strong and visionary; a problem it ran up against is that implementing practices and policies by States capable of making a difference did not always keep up—assuring that the dissemination of nuclear technology and material would be used for civil purposes required that institutions with the requisite authority, resources and political support were in place and deployed in tandem with the diffusion of nuclear technology. As noted, suppliers in a sense raced into the field to plant their flag and in so doing sometimes left behind less than optimal terms and conditions upon which the assistance was being made available.

Had the IAEA been used as the vehicle for transactions, its statutory provision for safeguards on IAEA-assisted projects

(even in cases where States were suppliers) would have had to be invoked. Had that happened at the outset, it would have been an action-forcing event in establishing an operational safeguards system. That did not happen until 1960, three years after the IAEA was up and running, thereby diminishing the role that the IAEA could have played in shaping the world of international nuclear transactions.

Thinking more outside the box of State sovereignty also might have stanch proliferation opportunities. In particular, at the time of the NPT and after, this would have meant putting political support behind exploring concepts such as regional nuclear fuel cycle centers where sensitive technological activities could have been conducted, thereby reducing the rationale for and presence of reprocessing and enrichment facilities on national territory under national jurisdiction and control. Also, the need for some of the training in design and management that might have been provided under the rubric of civil nuclear development, would have been reduced.

In sum, there remains today a need to revisit the nature and feasibility of institutional alternatives to purely national owned and operated nuclear fuel cycles, and to find ways and means to fulfill the promise and commitment of NPT provisions that codify the perceived benefits of Atoms for Peace.

There unfortunately are no panaceas for unequivocally foreclosing the potential risk of proliferation, which is a matter of motivation as well as capability. Neither strengthened safeguards nor institutional alternatives alone can assure success although efforts in both directions can be mutually reinforcing and increase the prospects for containing proliferation. Granted this limitation we must build out from the existing regime structures and explore fashioning stronger institutional arrangements to address existing and emerging concerns. Progress would close important gaps in the non-proliferation system and serve as additive building blocks that contribute to reconciling efforts to enable nuclear energy to play a constructive role for the world's development without at the same time increasing the risk of proliferation. Fully achieving that objective will require the full effort of all States to move toward greater security and a nuclear-weapon-free world.

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*For a comprehensive discussion of Atoms for Peace, see David Fischer's *Stopping the Spread of Nuclear Weapons: The Past and the Prospects*, London, Routledge (1992).*