

‘The Proliferation Challenge’

Wolfgang K. H. Panofsky

At the end of World War II after two nuclear weapons had been detonated over Hiroshima and Nagasaki the United States made an unsuccessful first attempt to prevent the spread of the newly introduced nuclear weapons technology to other countries through the ill fated Baruch Plan. Not unexpectedly, the Soviet Union did not accept that proposal which would have maintained the U.S. monopoly on nuclear weapons until full international control was established. Subsequently the Soviet Union and then the U.K, France, and China tested nuclear weapons. Nevertheless a worldwide conviction spread that uncontrolled proliferation of nuclear weapons would eventually prove to be unmanageable and be in fact a danger to human civilization.

This concern is well founded in history. All new technologies have become dual use—that is, they have served both to improve the human condition but at the same time they have been converted into instruments of war. Moreover all new technologies have spread in time throughout the globe limited only by the economic and technical resources of the various nation states.

Mainly at the initiative of the United States a multi-lateral “Treaty on the Non-Proliferation of Nuclear Weapons” (NPT) was negotiated and was signed at Washington, London, and Moscow on July 1st of 1968 and The Treaty entered into force in March of 1970. Negotiation of that treaty was a complex process. Most nations were interested in preventing further spread of nuclear weapons but those nations who had tested them were reluctant to give them up. But at the same time during the negotiations the non-nuclear weapons states pressed for conditions which would minimize the discriminatory nature of the proposed treaty by encouraging the peaceful applications of nuclear energy to also accrue to non-nuclear weapons states, while at the same time *decreasing* the role of nuclear *weapons* in international relations. In this respect the non-nuclear weapons states echoed the vision expressed by President Eisenhower in his famous ‘Atoms for Peace’ speech fifty years ago which envisioned a society in which the peaceful applications of the atom took precedent over its military uses.

The Non-Proliferation Treaty and the associated regime is a complex bargain between the nuclear weapons states parties (NWS) and the non-nuclear weapons states parties (NNWS). The nuclear weapons states agree not to transfer any of their nuclear weapons, associated devices, or technology and not to encourage other states to acquire such devices. The non-nuclear weapons states parties agree not to develop nuclear weapons or to receive them or the know-how to make them from others. The non-nuclear weapons states further agree to place their peaceful nuclear installations under safeguards administered by the International Atomic Energy Agency (IAEA) and to negotiate an agreement with the IAEA to implement those safeguards. However, to soften the discriminatory nature of the NPT bargain the nuclear weapons states are encouraged to share and encourage the peaceful applications of nuclear energy including those pertaining to electric power and medical uses with countries not possessing nuclear weapons. Finally, Article VI of the Treaty obligates the nuclear weapons states to proceed in good faith towards adopting measures leading toward the cessation of the nuclear arms race, and to actively pursue nuclear disarmament.

Although the NPT entered into force in the 1970s not all countries of the world joined immediately. Further signatures were obtained and ratification followed over a protracted period; in fact two of the nuclear weapons states—China and France--did not ratify the Treaty until 1990. Today all nations in the world are parties to the NPT with the exception of India, Pakistan, and Israel and after its recent withdrawal, North Korea. Numerous states in the world pursued nuclear weapons programs only to abandon them after being convinced that their national security is better served without nuclear weapons. Among these are Australia, Switzerland, Sweden, Brazil, Argentina, South Korea, and South Africa. The latter had actually accumulated a working arsenal of six gun-type uranium weapons but agreed to join the NPT as a non-nuclear weapons state and destroy its arsenal of nuclear weapons. After the Soviet Union ceased to exist Ukraine, Kazakhstan, and Belarus were persuaded to deliver the nuclear weapons on their soil to Russia and joined the NPT as non-nuclear weapons states parties

While this record by historical standards can be designated to be an extraordinary success story, we must agree that at this time the non-proliferation regime is under siege. But the difficulties which I will enumerate shortly should not be over emphasized considering that the stemming of proliferation of nuclear weapons is historically an unprecedented undertaking.

In addition to the NPT itself, other auxiliary measures are important in assuring the non-proliferation regime. Among these are various export controls including the so-called ‘Nuclear Suppliers Agreements’, which limit the traffic in nuclear weapons-useable materials. Other components of the non-proliferation regime are ‘nuclear weapons-free zones’ which currently cover about half of the globe.

Also of great importance are the ‘positive’ and ‘negative’ security assurances. A ‘positive security assurance’ is a binding commitment given by a nuclear weapons state or states to come to the assistance of non-nuclear weapons states should they find themselves under attack from a nuclear weapons state. This “nuclear umbrella” in effect extends the reality of deterrence which exists between nuclear weapons states directly to those states which have received positive security assurances. ‘Negative security assurances’ are guarantees by nuclear weapons states not to attack non-nuclear weapons states with nuclear weapons unless non-nuclear weapons states attack the U.S. and are in direct alliance with a nuclear weapons state. However today these negative security assurances have lost significant credibility owing to the fact that, in particular the United States, has explicitly reserved the right to use nuclear weapons if either chemical or biological weapons are used, or threatened to be used, against it or its allies. In my view such threats are highly counterproductive to the durability of the nuclear non-proliferation regime. In general chemical weapons are no more destructive per unit weight and volume of munitions delivered than conventional explosives. Biological weapons indeed have a potential lethality which could match that of nuclear weapons, and modern bio-technology unless managed responsibly threatens to augment the biological weapon threat. However their delivery faces many uncertainties and there is no experience of this kind and protective measures can have substantial effectiveness. Therefore to explicitly threaten nuclear retaliation against biological or even chemical threats is in my view wrong, and dilutes the negative assurances which are integral component of the non-proliferation regime. In particular the United States as the leading power measured by the power of its conventional weapons should strengthen rather than weaken its negative security assurances

Thus, the overall non-proliferation regime is a complex structure which must be considered as a whole. The present United States Administration has officially endorsed the Non-Proliferation Treaty but at the same time invokes its provisions selectively. The United States indeed participates in controls on nuclear trafficking and is attempting to cooperate with Russia in strengthening its control over that country's nuclear weapons inventories. At the same time some United States policies are in blatant violation of the policies undertaken under Article VI of the Non-Proliferation Treaty in that de facto the United States in its declared nuclear weapons policies has not *deemphasized* the role of nuclear weapons. On the contrary, the United States Administration continues to search for new missions for nuclear weapons which could be satisfied, albeit in some cases possibly with somewhat lower effectiveness, with conventional weapons.

Parties to the NPT carry out every five years a Review Conference examining the performance of the Treaty and attempting to suggest steps for strengthening the Treaty. The latest of these conferences took place in the year 2000. The Conference Report included a list of thirteen practical steps to strengthen the performance of the Treaty. All members of the conference, including the United States, agreed to those steps. However the nuclear weapons states, and in particular the United States, have in fact done little to implement these steps and in some cases have undertaken actions in direct contradiction. For example the first of the thirteen steps emphasizes the importance of accelerating the entry into force of the Comprehensive Nuclear Test Ban Treaty. The third step emphasizes the necessity of negotiating at the Conference on Disarmament a treaty on discontinuing the production of fissile materials for nuclear weapons. The fourth step provides for the Conference on Disarmament to establish a supplementary body to deal with nuclear disarmament. The fifth step promotes the principle of irreversibility to apply to nuclear disarmament—a move contradicted by the United States withdrawal from the ABM Treaty. Time does not permit to analyze all these steps including the ones not mentioned here but it is clear that the willingness of the participants in the review conference to sign the final document including these steps, and the actual implementation of these steps are very far apart.

The demonstrated overwhelming strength of the United States in high technology conventional weapons in itself can be an incentive to nuclear proliferation. It is difficult for some states hostile to the United States to resist the argument that, since they can not afford to acquire expensive high technology conventional weapons, the only way to counter the expanding power of the United States is through obtaining nuclear weapons.

All the foregoing is background to the present threat to the nuclear weapons regime. Nevertheless we must recognize that at this time, after the dismantlement of Iraq's nuclear weapons program after the first Gulf war, the only current threats to that regime are those originating from North Korea, and potentially, Iran. Note that the nuclear threat from Iraq was greatly exaggerated by the U.S. and the U.K. in the prelude to the recent war.

The verdict is not in regarding Iran's nuclear weapon ambitions. Iran has been deficient in the past in respect to the required declarations about the details of its nuclear activities. However the recently uncovered enrichment facilities do not in themselves signal a definite military intent. Iran has thus far resisted pressures by the IAEA to expand the power of the International Atomic Energy Agency in carrying out inspections under an expanded "Additional Protocol" but this is a matter under intense current diplomatic activity, including pressure by the IAEA itself.

Thus at present North Korea is the only important sore point in the non-proliferation regime. North Korea clearly violated the terms of the NPT during the time it was still a party to that Treaty, as did Iraq prior to the 1991 Gulf war; after its withdrawal from the NPT North Korea is presumably no longer subject to formal constraints. However the potential of North Koreans becoming a de facto nuclear weapons state is a severe threat. One reason is that should North Korea acquire a significant number of nuclear weapons this would constitute a clear motive for South Korea and Japan to follow that example resulting in a domino effect of nuclear weapons acquisitions across Asia. Moreover, North Korea under its dismal economic conditions has acquired foreign currency primarily by military sales, notably of missiles; therefore a serious concern is that once North Korea acquires a nuclear weapons capability it would extend its exports into that area also. In summary, while the non-proliferation regime as it has been laboriously constructed over the last decades has been a remarkably successful by historical standards, the current threats to its viability are real.

There is no single simple solution to the nuclear proliferation threat. The problem must be attacked from two directions—to decrease motivation for nuclear proliferation, but at the same to strengthen the controls over nuclear weapons and the materials to make them now available and to complement them with new ones. In broad terms, decreasing motivation is directly related to the much broader problem of mitigating the confrontational atmosphere now prevailing in much of today's international relations. A large part of the responsibility in this direction must rest on the shoulders of the United States. As the only remaining super power today the United States should take leadership in de-emphasizing the utility of nuclear weapons in conflict and in strengthening rather than denigrating international norms and initiatives. But this is a topic going much beyond the scope of this session.

Here we face a specific dilemma: the United States has declared in its National Security Strategy of 2002 that it sees the need for taking 'anticipatory action' to forestall or prevent hostile acts by its adversaries by acting preemptively. This doctrine has been interpreted as going much beyond the traditional right of 'anticipatory self defense' which for instance can be invoked if an incoming fleet of war ships is threatening even if that fleet has not actually commenced shooting. But extending this concept of anticipatory self defense against surmised acquisitions of weapons of all Weapons of Mass Destruction, including chemical, biological, and nuclear weapons, greatly extends the concept of anticipatory self defense in an unacceptable manner. In fact such a strategy in itself can be a major incentive to proliferation of nuclear weapons. Anticipatory action has been analyzed by legal scholars in considerable detail in relation to the Charter of the United Nations, in particular whether the acquisition of nuclear weapons by a state not now possessing them, whether or not that state is a party to the NPT, can constitute "a threat to the peace". Quite apart from the legal aspects, it is clear that this extended concept of anticipatory self defense makes very high demands on the reliability and interpretation of the intelligence on which such military action is based. Specifically in the recent case of Iraq the quality, or at least the interpretation, of the available intelligence was inadequate to support such extension. Thus we have here an example where military moves, ostensibly in the interest of stemming proliferation of weapons of mass destruction, can actually serve to *accelerate* proliferation of nuclear weapons.

But there is no question that the tools, and in particular the international tools for controlling nuclear weapons and the materials to make them, need strengthening. Historically nuclear weapons programs have been initiated either by creating dedicated facilities or diverting nuclear weapons-

useable materials from ostensibly peaceful nuclear activities. Enhanced controls are needed for both. Foremost among these issues is the need to amplify the authority of the International Atomic Energy Agency and the scope of its activities. Here the situation is complex. Currently Article III of the NPT requires that the non-nuclear weapons states should enter into an agreement with the IAEA providing adequate controls. This is interpreted generally that the countries adopt the IAEA procedures which are specified in its Circular Number 153 (INFCIRC 153). But the IAEA Board interpreted that provision in the past to mean that the non-nuclear weapons states are urged, but not required, to comply with that arrangement. Actually, not all non-nuclear weapons states have agreed to the terms even of the Circular 153, although most of those who have not concluded such an agreement do not constitute an appreciable risk since they do not operate civilian nuclear programs of adequate size. A New Safeguards Agreement in the form of Circular 540 (INFCIRC540), the so-called 'Additional Protocol', has been prepared which gives the IAEA considerably more authority. In essence Protocol 540 greatly strengthens the "full scope" safeguards which are applied to all sources and all fissile materials in all peaceful nuclear activities, whether declared or not. Again negotiating acceptance of this protocol is currently not a requirement. As noted previously Iran is now being strongly urged to sign this additional protocol in order to lift the suspicion about its expanding "peaceful" program.

The problem is how to persuade all NPT parties to adopt sufficiently effective IAEA safeguards, including the new Additional Protocol. Only some 80 countries have negotiated Additional Protocol safeguards with the IAEA and even countries that strongly supported these new safeguards have not yet ratified them. Only one county (Luxembourg) of the European Union has not as yet ratified the Additional Protocol but under European Union rules none of the members are legally bound by the protocol until *all* members have ratified. This situation is very fluid and the main problem remains that at this time the U.N. Security Council has not been able to agree to take a firm position in requiring all non-nuclear weapons members of the NPT to accept the Additional Protocol. Thus each particular situation such as the one pertaining to Iran becomes a major diplomatic issue. Moreover the budget and personnel of the International Atomic Energy Agency would have to be substantially enhanced if the requirements in regard to the Additional Protocol became more universal. This is a situation where unified international action is clearly a matter of great urgency.

Another area greatly in need of strengthening is the Materials Protection, Control & Accounting of weapons-useable materials in addition to that pertaining to nuclear weapons themselves. Extensive collaborative efforts among Russia, the United States, and some European countries have made considerable progress in this area but a great deal remains to be done. The inventories in Russia are very large and after the end of the Soviet Union the standards of guarding these facilities have deteriorated. I do not have time to discuss these issues in further detail here; however the primary problem remains that awareness of inadequacy of the safeguards must be broadened throughout the world community.

This issue is part of a general problem: while arms control agreements exist, the question what to do if and when violations of such agreements are uncovered does not have a general answer. Remedial action depends greatly upon a united political will of the international community to proceed. Resolution of this issue is of particular urgency in respect to the world's effort in stemming the proliferation of nuclear weapons.

But even if the IAEA authority is strengthened, how do we prevent parties from withdrawing from the NPT and the associated controls if a nation is persuaded that nuclear weapons are a necessary tool in its armory? Can the U.N. Security Council have the will and the tools to object to such withdrawal on the basis that this constitutes a “threat to the peace”? The United States is in a weakened position to urge such objection, having itself used the withdrawal clause of the Anti-Ballistic Missile Treaty to leave that Treaty without demonstrating the required persuasive case. Does the “Proliferation Bargain” implied in the NPT offer enough incentives to preserve and even augment adherence? Is it reasonable to offer compensation to countries for joining the NPT or to adhere to it in critical situations?

These are vexing questions indeed, but today they must be answered on a case by case basis as they do arise. Ultimately a nuclear non-proliferation regime cannot endure unless all nations in the world are persuaded that their national security is served better without nuclear arms than by possessing them. Nuclear weapons cannot be un-invented. But preventing their proliferation to further nation-states or even sub-national groups is a critical test as to whether Society can control the fruits of Science for the good of mankind while preventing their destructive potential.