

SEPTEMBER 11 AND THE NEED FOR INTERNATIONAL NUCLEAR AGREEMENTS

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The “War on Terrorism?”

What is the impact of the events of September 11 and the subsequent “war on terrorism” on nuclear issues? The “war on terrorism” is a handy political moniker for what the United States must learn to do in response to changes that have actually been taking place over several years. Some of the US responses to date have been wise. Some need a new look. Perhaps most important, in some areas, the United States and other countries have not responded and may be at a loss to respond, given the constraints on their policies. Some of these lacking responses provide the most important items on the post September 11 security agenda. In what follows, I will give one view of what these are and what to do about them.

I begin with nuclear terrorism, particularly the possibility of using nuclear weapons for terrorist purposes. The next section addresses the related issue of nuclear proliferation to state and non-state actors. The events of September 11 have given a new twist to that issue. There is a relationship between the possibility of nuclear weapons getting into terrorists’ hands and the problems in Iraq, South and Central Asia, and North Korea. The following sections deals with an item that is no longer high on the US political agenda but which is tied to proliferation and terrorism and has a greater long-range potential for causing trouble, the incipient nuclear rivalries around the world. In closing, I suggest some elements of a desirable nuclear posture to deal with some of the problems outlined.

Nuclear Terrorism

That terrorists could avail themselves of the tools our globalized world puts at the disposal of those with money and connections has been a concern in the governments of developed countries for some time now. That these tools might include weapons of mass destruction has been an explicit focus of that concern. In the United States, William Perry and Ashton Carter, respectively Secretary and Assistant Secretary of Defense in the previous

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administration devoted much effort to preventing what they call grand terrorism¹, using weapons of mass destruction.

There are several kinds of nuclear terrorism with different relative risk and prevention and protection measures. In increasing order of damage potential and probably decreasing order of likelihood, the main tools of nuclear terrorism considered are radioactivity dispersal devices, involving the explosive dispersal of radioactive substances in common medical and industrial uses, other means of unlawfully exposing the public to radiation, attacks on nuclear reactors or spent fuel sites, and finally nuclear explosions. All of these have been the subject of tighter controls and more widespread detection efforts, but there is a good deal that can be done yet that would be feasible technically and economically, though often difficult politically.

Considered most likely but least damaging are radioactive dispersal devices (RDD's or dirty bombs). These are ordinary explosives laced with radioactive material. Most of the casualties would be due to blast and fire. The radioactivity would be mainly deposited within the building that is destroyed. The buildings and ground where the explosion occurred would have to be decontaminated, and, if there is fallout, so would a larger downwind area. All of this has been done before, in connection with radiation accidents, but it would take time and money. Public panic is sometimes predicted, but experience shows the public does not panic easily, especially if information and leadership are available. Media discussion of this possibility at least in the United States has improved considerably.²

It would not be the easiest thing in the world for a terrorist to get hold of enough nuclear material for a dirty bomb or to put it in a suitable form for delivery. True, there are thousands of radioactive sources for medical, home and industrial uses all around the world. But most of the medical sources are low-level, or decay rapidly, or, as is the case for large cobalt sources, are encased in machinery that is very difficult to move. The high-intensity sources used to inspect welds in ships and pipelines are solidly encased in shielding material, and can be very dangerous to anyone handling them the wrong way.

Still, better control measures are needed. Some of these dangerous sources have been "orphaned", that is, lost to the accounting system, where one exists. They could be used by terrorists, though with considerable and fairly dangerous adjustments. And even in Western countries, where all radioactive sources strong enough to do damage are inventoried and under some degree of control, theft, especially by insiders, is still possible.

Nuclear power plants are already tough targets by usual norms, but usual norms are not applied to them, and security measures are not uniformly strong. The plants and their spent fuel sites vary in hardness. Quick fixes such as air defenses, which are expensive and of marginal utility, have been put into place and should be replaced with more consistent

1 Ashton B. Carter and William J. Perry, *Preventive Defense. A New Security Strategy for America* (Brookings Institution Press, Washington, D.C. 1999), Chapter 5.

2 The author and others at CISAC Stanford have recently sponsored workshops involving media and local first responders, and issued publications on this subject. In the course of this work, it became clear that much more information was needed by media and public, but also that a growing number of media articles were factually accurate and rational in tone.

and sustainable measures. In the United States, there is a tug of war among the NRC, the industry, and their critics in Congress. Some of it is inevitable but some of it points to continuing problems.³ Nuclear power is not likely to be abandoned short of a successful attack and I don't believe a successful attack on these facilities is likely, but some fixes are needed. In addition, research reactors have not been held to the same standards of security as nuclear power plants. They contain far less radioactivity, but they are often located in cities and an attack on one of them, while not disastrous in terms of lives, would generate renewed opposition to all nuclear sites. Some, in addition, have not been reached by the US RERTR program that aims at recovering and replacing all HEU, and thereby pose a danger of theft of a nuclear weapon material.⁴

It should be noted that many conventional power plants need to be better secured. Many are located in or near cities, several cluster sites exist that group together coal-burning plants and major electrical transmission equipment, and they are not secured to anywhere near the standard met by nuclear plants even though a successful attack on them could cause major casualties and financial loss. They are not however our topic today, except insofar as a thorough look at all major targets for terrorist attacks should be taken and may make nuclear power look comparatively better than it does now.

Possible nuclear weapon terrorism, putatively the least likely and certainly the most damaging kind of nuclear terrorism, has been addressed mainly through the Nunn-Lugar and other programs for securing and where possible destroying⁵ the materials to make nuclear explosives, programs that also date back to previous administrations. Securing the materials essential to build nuclear weapons is the best handle on minimizing the chances of the worst kind of nuclear terrorism. It still does not receive appropriate funding or priority in the United States and it receives even less elsewhere. Recently a meeting of the G-7/8 decided to put \$10 B over 10 years into these programs, but at the present time the money is far from being made available.

Beyond this, for both radioactive materials and nuclear weapons fissile materials, transportation is a key area for control. Every major country "depends on an infrastructure that spans the globe".⁶ Commercial tools exist today to track and control international container traffic by ship, air, and truck, and pilot programs are underway at a few major world ports to test these tools and help design an overall system. The cost would be a small tax, less than one tenth of one percent on the six trillion dollars or so worth of world container traffic, without taking into account the benefits to be derived from better accounting and protection of goods shipped, benefits that are estimated to be so significant that private shippers and some ports have begun to put some of the steps into practice. The system must be affordable and practicable in a variety of different countries. It must be designed so it does not degrade catastrophically, tested under actual conditions, and then

3 For critics' view see *Upgrading Physical Protection at Nuclear Facilities to Address New Threats* by Edwin S. Lyman, Nuclear Control Institute, MIT Security Studies Seminar, April 18, 2002.

4 See: *Could Terrorists or Thieves Get Weapons Usable Material from Research Reactors and Facilities?* George Bunn, Fritz Steinhausler and Lyudmila Ziatseva, Center for International Security and Cooperation, Institute for International Studies, Stanford University, Encina Hall, Stanford, CA 94305 and *Progress of the Rertr Program in 2001*, Armando Travelli, Technology Development Division, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, Illinois 60439-4841 - USA.

5 Through dilution in the case of HEU, via burning in commercial reactors or burying in a permanent waste disposal site in the case of plutonium.

6 Stephen E. Flynn, "America the Vulnerable", *Foreign Affairs*, (January/February 2002), Volume 81, Number 1, pp. 60-75.

monitored during operation and changed as needed, particularly as it may involve multiple access to large databases. There are pitfalls and risks of introducing new vulnerabilities in this process. International agreements, both in the private and the government sectors, as well as changes in business and labor practices are required. Reaching agreement on these is likely to be the most difficult and time-consuming part of the task.

Nuclear Proliferation

The foregoing leaves out of account the motivations for grand terrorism and in particular nuclear terrorism. Again one must make a distinction between terrorism involving the dispersal in some way of radioactive material and terrorism involving detonation of a nuclear weapon. The former can probably be done by small organized groups, but the level of damage is limited, though the political impact if preparations are judged inadequate could be severe. As to the latter, one cannot say categorically that nuclear weapon terrorism is impossible without the support of a government, but it is surely far more difficult and unlikely without such support. Dissuading governments from acquiring nuclear weapons, materials, or technologies through supply constraints is increasingly difficult. One need only look at the successes of North Korea, South Africa, and Pakistan, and the near-success of Iraq despite close watching and strong discouragement, to see evidence of this trend. Supply constraints remain important, both as discouraging “bumps on the road” and as sources of intelligence information, but, given that thirty to forty countries could acquire nuclear weapons without much effort, preventing nuclear proliferation is mainly a question of affecting the demand side, i.e., motivation.

Unfortunately, while signals are mixed as usual, and the non-proliferation regime still holds in the main, it would be difficult to argue that incentives for acquiring nuclear weapons or improving nuclear forces have diminished in the past few years. In the growing, troubled regions of the world, which center on Asia, there is both more uncertainty and more capability. Threats have become more regional and harder to meet. In East Asia, the United States still guarantees South Korean and Japanese security against Russia and China, but neither now threatens these countries. Rather, the problem centers about the future relative strengths of the regional actors and how much hedging will be required. The US administration is no longer putting its weight behind the Perry two-track policy in Korea, a policy that offered some hope of resolving that particular nuclear issue, and the US government currently may in fact be out of time and attention. For that matter, none of the local governments involved has much time or political space to offer leadership toward any kind of cooperative security.

In South Asia, the actors are living from day to day and no outside power could guarantee security even if one were willing. It is unlikely that solving either Kashmir or Afghanistan problems, if that were possible, would resolve the contradiction of divided and marginally capable governments holding weapons of mass destruction. In West Asia or the Middle East, the US dual containment policy against Iraq and Iran, with its necessary base of support in Saudi Arabia, has been eroded by both domestic and international development, and nothing is coming along to take its place. Perhaps nothing can right now, the time is not ripe. This does not relieve the governments of the countries involved however from the need to hedge against a future that promises little hope of lasting security or meaningful security guarantees.

It is likely that acquiring nuclear weapons would do nothing to alleviate these insecurities and may make them worse, but neither the United States nor other countries is providing either the words or the deeds that might make a convincing case to the actors involved. A believable framework for extending the nuclear non-proliferation regime so as to make it effective despite regional insecurities is lacking and no one is clearly working on it.

The detailed measures against nuclear terrorism noted in the previous section are needed but they will amount to sticking fingers in the dike if meanwhile the number of countries where nuclear weapon materials are available and where terrorist organizations are not well controlled increases. Holding governments responsible for the activities of terrorists in their countries, which in fact means also holding the people of the countries at risk, will not suffice where the governments' sway does not reach or the governments are divided. Nor will the United States, alone or in coalitions of the willing, be able to police all the unsettled, nuclear-capable regions of the world.

Recent events have brought to light more clearly than before the existence of a network of indigenous suppliers and refiners of missile and nuclear technologies. In the most recent instance, cooperation among North Korea, Pakistan, Iran, and probably individuals and firms in Russia, if not the Russian government, is leading to improved potential for nuclear-tipped missiles in those countries. These same recent events also demonstrate a lively awareness of the constraints on US power on the part of the countries which the US government has announced it would sooner or later target for regime change. At present, the US is unnecessarily isolated in dealing with these problems. The electorates in its traditional democratic allies are averse to foreign wars, particularly without UN sanction. Russia seems to be the US new-found partner, but Russia has strategic objectives that will in several cases conflict with those of the US, if not now, in the longer term.

Something better is needed. The "something better" will have to be founded on the one generally accepted basis for international agreement in this area, the NPT and its associated regime. Unfortunately, at present, the United States, with its refusal to ratify the CTBT, moving backward from the START 3 agreement, and re-emphasizing tactical nuclear weapons could be considered in violation of its obligations under the NPT. At the same time, the United States has been the most muscular proponent of the NPT where it judged it in its interests. If that part of the international community interested in and capable of taming the nuclear danger is to move forward, some way must be found to square that circle.

Ironically, while this US administration has spurned the UN, it may wind up strengthening it. The muscular US stance toward Iraq, so far short of war, has caused the UNSC to do what it should have done in 1998, namely enforce its own resolutions. At this writing, IAEA inspections have resumed and are effective. The revitalized UNSC backed by US and UK force may yet force Iraqi compliance with its resolutions. All this may vanish if there is war, but if not, it could begin to establish a more effective pattern of enforcement of the NPT.

Nuclear Rivalries

Rivalries among nuclear or nuclear-capable powers seemed to wane when the Cold War ended but have now resumed in a more complicated way than before. The US-Russian/Soviet rivalry, heretofore more about influence than territory, is currently

dormant, but NATO expansion, especially if it goes further, and US military arrangements with former Soviet republics ensure that if it resumes it will have a territorial and alliance component it has not had since the sixties. The US-China rivalry currently exists more in prospect and in the minds of certain elites in both countries than in actuality: China has so far refused to step up to any nuclear arms race, perhaps seeing that such a race would be a poor tool of influence now and a waste of money. In addition, the large and expanding business cooperation between the United States and China, both direct and indirect, introduce a cooperative element in the relationship that was never present in the US-Soviet rivalry. But, as discussed above, other nuclear rivalries have emerged or are in prospect, South Asia and the Middle East being the two main locales.

The United States has been ambivalent with respect to nuclear rivalries and the threat they may pose, attempting on the one hand to dampen the South Asian rivalry and to prevent the emergence of nuclear rivalries in the Middle East, while on the other hand, in the latest nuclear posture statement, apparently bringing tactical nuclear weapons back into the forefront of regional war planning and deterrence, a step not calculated to reassure possible opponents that they have little to gain from going nuclear. It should be noted, while cataloging US sins, that, if the United States has been ambivalent, the European Union has been largely passive in these matters, sometimes following US leads, sometimes, as with the United Kingdom in South Asia and Iran, actively taking the lead, but more often than not limiting itself to vague general support with little added in the way of either power of the purse or military power.

In this section, I focus on what is sometimes considered the three-cornered strategic competition among the United States, Russia, and China. The present administration is tilting toward Russia, both out of current political needs and because Russia currently seems weaker than it potentially is, at least in my view. The administration considers itself in a situation of strategic rivalry with China, based mainly on ideological positions for domestic political consumption, backed by what seem to me to be shaky geopolitical assessments. I believe strategic rivalry between the United States and China exists but will fall short of posing serious military threats, unless the United States exacerbates it, for two reasons. One is the orientation of Chinese security interests to the continent of Asia and to the West, while the orientation of US security interests, though worldwide, must concentrate on control of intercontinental sea, air, and space lanes. I don't think the recent US arrangements in Central Asia will change these priorities for long. At present, there is no land boundary between China and the United States corresponding in salience or real importance to the Cold War boundaries in Europe and Korea. Nor has China been run by anyone like Stalin in respect to foreign policy.

The second reason is that this rivalry is not like the former US-Soviet rivalry in another respect, that of economic and ideological containment. The nature of Chinese growth and expansion backed since 1980 by Chinese government policy has moved China away from economic and ideological isolation from the rest of the world. China is an expansive trading state, with commercial and personal ties the world over, and a central commitment to maintaining these ties if it is, not just to prosper, but to maintain its political integrity. Economic containment of the Soviet Union was successful because the Soviet Union cooperated. Stalin and his successors, to maintain their rule, laid down an autarchic economic posture that discouraged commerce and travel to the West as much or more than

the West discouraged it. China has gone the other way, with the consequence that it is now Communist in name only. Containment of China is feasible militarily along the land-water boundary that now roughly exists (with the exception of Taiwan), but economic containment of China by the United States is not possible, nor will it be supported in the United States unless a major provocation is somehow engineered. Rather, President Clinton had it right: whether they like it or not, and they don't very much, the United States and China are bound to be strategic partners in most of the endeavors necessary for peace and prosperity, from trade to the environment.

Nevertheless, at present, owing in part to the needs of military bureaucracies, in part to mutual mistrust based on ideology and history, US-China rivalry exists. September 11 has muted the administration's anti-China rhetoric but has not given China a breathing spell. The United States has accelerated an already ongoing program of military commitments to central Asian dictatorships, thereby broadening to that region an approach that is proving increasingly fragile in the Near East and weakening China's "Shanghai Group" approach to creating a common economic and security interest group in Central Asia with itself as the central figure. China's view of that enlargement is predictably defensive, and Russia's, if one goes beyond Mr. Putin's current diplomacy to the rest of Russia's security establishment, is also quite reserved. Both may hope the US involvement is temporary or ultimately unsuccessful, but both may fear otherwise. Even with the Taliban gone, oil and gas pipelines will still run there. Meanwhile, US decisions to shift nuclear targeting and future force requirements to deal with a prospective war in Asia and to deploy a national BMD system have been if anything reinforced since September 11.

These decisions may lead the Chinese government to move nuclear modernization to a higher level of priority than heretofore, and to increase the planned force level. An aspect of this possible development that has not been emphasized concerns the form that modernization, in particular a survivable second-strike nuclear weapon force, may take in China, and eventually in any other country that feels itself threatened by the United States.

The United States has considered that quiet submarines are the most practical and effective way to obtain force survivability, with alert aircraft and mobile or moveable land-based missiles as very distant competitors. Fixed land-based missiles have been considered vulnerable to accurate systems and useful only as complements to other legs of the Triad and in a launch-on-warning mode. The Soviet Union competed with the United States more or less across the board. Russia has found it too expensive to do so, and has an increasingly vulnerable, first strike force, survivable only with launch-on- (imperfect) warning.

China and any other country facing the dilemma of survivability against a possible US attack have, I believe, even fewer options. Submarines and aircraft must look to them like chancy, expensive gambles against US naval, air, and space assets that are likely to be superior for the foreseeable future. Quiet small diesel submarines may offer some possibility of survival if they can get out of port unobserved, a threat to which the US Navy has made it clear it is devoting considerable attention. Land-mobile systems offer a possibility, but the Chinese road and bridge system, while developing fast, is still and will for some decades remain thin, with much of it not up to the task of reliably supporting the size of truck required for an erector-launcher of suitable size. Moving missiles among a larger set of launchers hidden in warehouses makes sense theoretically, but runs into some of the same practical limitations and is subject to intelligence failures. The United States rejected those approaches as too complex, fragile, and politically difficult thirty years ago.

Political difficulties are different in China but they would make such a deployment difficult or impossible in a number of provinces, and the technical complexity and fragility would remain.

Faced with these arguments, it is perhaps likely that a fraction of any Chinese missile force would be based in what must be considered by the Chinese and other governments as the relatively well understood and inexpensive option of fixed basing or mobile missiles that spend most of their time in garages. Those would be vulnerable to a US strike, nuclear or perhaps conventional. That vulnerability in turn may lead the Chinese to rely for deterrence on some form of launch on warning option, another relatively well understood (technically) and inexpensive option.⁷ Such an option could fit in with space development plans. It would not have to be very good to be a net detriment to US security.

Elements of a Suggested Nuclear Posture

Throughout the foregoing discussion, one strand may be noticed: today's nuclear dangers are even less amenable to unilateral cure or to cure by temporary coalitions than was the case when the institutions to deal with those dangers were first put in place thirty years ago. Nuclear arms races, nuclear proliferation especially to regimes with a history of aggression, and nuclear terrorism cannot be tackled without the aid of viable, practicable, politically sustainable international institutions. We have a start on those, although some steps backward have been taken recently. In any case, the situation has changed in several relevant ways in the past thirty years, and changes are needed. In what follows, I suggest some directions for such changes. First, however, it may be useful to recapitulate briefly some of the more relevant changes.

First, the United States has coupled an assertive and expansive military and foreign policy with a backing away from international instruments of nuclear weapons control. Its erstwhile Russian adversary found it necessary to accept the loss, not only of the buffer states it has traditionally wanted, but also of the non-Russian part of the Soviet Union and of much of the old Russian empire before that. China, as noted, is explicitly identified by the US government as a future threat to US central interests despite a generally non-aggressive posture. The United States has established new military presence in Central Europe, the Middle East, and Central Asia and continues to give its highest military priority to offensive forces. Thus, the lines of demarcation between regions of central national interest, once clear and agreed, have become fuzzy and contentious at the same time as nuclear arms control measures have been weakened.

Second, as noted, nuclear rivalries and insecurities have become regional, as states with unresolved territorial claims, in conflict with each other, have either obtained or could soon obtain, nuclear weapons. Some of those states are internally unstable as well as externally threatened. In most cases, they are not separated from their adversaries by vast distances, but rather have common borders with them. Unlike the contestants of the Cold War, in some of these cases, the territories being contested are seen as vital by both sides.

7 The PRC has neither early-warning satellites nor early-warning radars, at least for detecting ballistic missiles. It is a major gap and one could imagine how during a crisis or even a terrorist attack which involved a large explosion, there might be a temptation to strike back at a presumed, rather than confirmed, aggressor.

Three, there is a possibility, so far as we know as yet unrealized, that sub-national groups may get one or more nuclear weapons, possibly out of the decay of the very large Soviet nuclear establishment, possibly with the complicity of states supporting terrorism, possibly from elsewhere.

To help meet these dangers, the present and largely accepted international arms control institutions should be brought up to date and broadened in at least the following three respects.

- *Strategic arms control measures between the United States and Russia should be extended in three directions: to include tactical and reserve weapons, to include precautions for securing weapons and materials, and to include cooperative provisions for shared tactical warning. Further, the measures should be so crafted and presented that they lay the base for broader international treaties, accession to which, with suitable adaptations, should be open to all nuclear powers, de jure and de facto. Finally, the verification provisions that were a hard-earned feature of the SALT and START treaties, but which are absent from the SORT treaty, should be re-instated.⁸ If more states come under this legal international framework, those verification measures will be even more badly needed.*
- *The NWS⁹ should strengthen both carrots and sticks under the NPT and its associated regime. Together with the EU and Japan, they should put more money into the IAEA and other organizations for accounting and control, and develop more specific, consistently applied, and currently meaningful security guarantees, consistent with the UN Charter, to states that observe that charter and observe their NPT obligations. If non-proliferation and, more importantly, non-use of nuclear weapons are to continue, a security framework that supports states that help in this effort must exist regardless (within limits) of internal governance. A distinction must be made between states like Iran and Cuba that the United States does not like but which have neither proliferated nor attacked any other state, and states like Iraq. As is perhaps obvious, the stance recommended here is incompatible with the use of military force to install more acceptable regimes, except in clear cases of violations of UN or NPT obligations. In those cases, the stance recommended would reinforce vigorous multilateral action. It may also be argued that strengthening the non-proliferation regime is not consistent with the first recommendation, to include de facto nuclear states which are not members of the NPR in verified limitations and agreed safety and security measures. This may be true from a legal point of view, but practically the measures suggested would make a nuclear force more expensive, subject to more intrusive international obligations, and less of a potential tool of aggression than is the case now.*
- *The test-bed programs tasked with examining options for an international control regime to secure international trade against nuclear and other WMD terrorism mentioned earlier should receive explicit political and financial backing from the major trading states. The actual design of a control regime cannot be specified until the test-bed programs are much further along. Indeed, it may not be desirable to have a single regime design dictated from the*

8 For similar and more extended views, see *Beyond the Moscow Treaty*, Testimony of John P. Holdren for the Committee on Foreign Relations, US Senate, Hearings on Treaty on Strategic Offensive Reductions, September 12, 2002.

9 NWS: nuclear weapons states under the NPT, namely the five permanent members of the UN Security Council, China, France, Russia, the UK and the US.

top. The contribution of the G-8 or other governmental group would be to follow the technical progress and present options for the legal international framework needed to enable an effective control regime. It is an open question to what extent existing international organizations would be able to take over some or the entire burden. The G-8 in particular must begin to lay the groundwork with the US Congress for a lasting international security system, including the funds to make it happen.

In summary, international regimes to control nuclear weapons are essential if the nuclear menace is to remain more or less tamed. Far from hampering US actions, only such agreements will allow the United States to continue in a role of leadership in this area. The reason is simple: the United States cannot do the job alone, and it stands to lose more than any other country if the job is not done. Nor can the prevention of nuclear terrorism be separated from efforts at non-proliferation, or those efforts separated from efforts at limiting or preventing arms races and securing nuclear arsenals.