PROLIFERATION IN THE 1990s

ROMA, 29-30/X/1992

IAI, ASG (ASPEN US), ESG

PROLIFERATION IN THE 1990s
Istituto affari internazionali
Aspen Strategy Group (Aspen Institute US)
European Strategy Group
Roma, 28-30/X/1992

a. Programma e lista dei partecipanti
1. "Weapons proliferation and arms control in the Middle East"/ Geoffrey Kemp
2. "Proliferation issues and the former Soviet Union"/ Trevor Taylor
3. "Stemming nuclear proliferation in South and East Asia: differentiation and activism"/ Leonard S. Spector
4. "Proliferation and the new world order"/ Christoph Carle
5. "Multilateral, bilateral and unilateral responses to nuclear weapons proliferation"/ Cesare Merlini
6. "Multilateral, bilateral and unilateral responses to nuclear weapons proliferation"/ Joachim Krause
7. "Proliferation in the 1990s: the case of chemical and biological weapons"/ Elisa D. Harris
8. "The Missile Technology Control Regime and some issues related to technology transfer"/ Ronald Mason

(a)

IAI-ASG/ESG Meeting
Rome, 29-30 October, 1992

"Proliferation in the 1990s"

29 October, Thursday: **Threshold States and Flashpoints**

9.45: Opening

10:00: Session 1: **Middle East**
Paperwriter: Geoffrey Kemp, Carnegie Endowment for International Peace

11:30: Coffee-break

11:45: Session 2: **USSR's Successor States**
Paperwriter: Trevor Taylor, Royal Institute for International Affairs

13:15: Lunch

14:45: Session 3: **South and East Asia**
Paperwriter: Leonard Spector, Carnegie Endowment for International Peace

16:00: Coffee-break

16:15: Session 4: **Proliferation and the New World Order**
Paperwriter: Cristoph Carle, Institut Français des Relations Internationales

17:30: End of the session

30 October, Friday: **Multilateral, Bilateral and Unilateral Responses**

10:00: Session 5: **Nuclear Proliferation**
Paperwriters: Cesare Merlini, Istituto Affari Internazionali and Joachim Krause, Stiftung Wissenschaft und Politik

11:30: Coffee-break

11:45: Session 6: **Chemical Proliferation**
Paperwriter: Leonard Spector, Carnegie Endowment for International Peace (he will present Elisa Harris' paper)

13:15: Lunch

14:30: Session 7: **Missile Proliferation**
Paperwriter: Sir Ronald Mason, Chairman, R. & R. M. Limited

15:30: Coffee-break

15:45: Session 8: **Policy Recommendations**
Chair: Laurence Martin, European Straegy Group and
Joseph Nye, Aspen Strategy Group

17.00. End of the Conference

IAI-ASG/ESG Meeting
Rome, 29-30 October, 1992

"Proliferation in the 1990s"

AMERICAN PARTICIPANTS

Kenneth DAM	Professor, University of Chicago Law School
Arnold HORELICK	Senior Corporate Fellow, Rand Corporation
Geoffrey KEMP	Senior Associate, Carnegie Endowment for International Peace
Joseph NYE	Director, Center for international Affairs, Harvard University
David ROWE	Executive Director, Aspen Strategy Group and Research Fellow, Harward University
Leonard SPECTOR	Senior Associate, Carnegie Endowment for International Peace

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Joachim KRAUSE	Stiftung Wissenschaft und Politik (SWP)
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Andzrej PODRAZA	ESG/WEU Fellow
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Cesare MERLINI	President, Istituto Affari Internazionali (IAI)
Alessandro POLITI	Istituto Affari Internazionali (IAI)
Stefano SILVESTRI	Vicepresident, Istituto Affari Internazionali (IAI)
Alberto TAVANI	Office of the Prime Minister

(1)

DRAFT

WEAPONS PROLIFERATION AND ARMS CONTROL IN THE MIDDLE EAST

Geoffrey Kemp

The Aspen Institute Conference on

"Proliferation in the 1990s"

October 28-30, 1992

Rome, Italy

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Weapons Proliferation and Arms Control in the Middle East

Geoffrey Kemp

I. Introduction

The purpose of this paper is to discuss the dynamics of proliferation in the Middle East. The focus is upon the political, strategic and economic imperatives of the region that, on the one hand, fuel the arms race, and, on the other hand, strengthen the case for arms control. The paper does not discuss, in any detail, the prospects for establishing global arms control regimes in the Middle East since these issues are covered in other presentations at this conference.

The Gulf War highlighted the dangers of the proliferation of advanced conventional munitions and weapons of mass destruction to the Middle East. The war, and the conflicts that preceded it, including the Iran-Iraq war and the war in Afghanistan, demonstrated the ability of Middle East arms to project power over far greater distances than in the past. Iraq's ability to target Tel Aviv and Haifa with Scud missiles is the most obvious, although not the most significant example of these capabilities. Saudi Arabia and Israel have SSMs with much longer ranges in their inventories. Equally significant from a strategic perspective, is the increased sophistication of combat aircraft

in the region, with greater capacity to project power over long distances using in-flight refueling and long-range stand-off weapons. Most dangerous, though, are the prospects for further nuclear proliferation in combination with long-range delivery systems.

At the other end of the scale are the great improvements in artillery and rocket systems that can reach targets up to 100 kilometers away. This has particular relevance to the security relationship between Israel, Syria, and Jordan. All three countries are subjected to what can be termed the 'sixty kilometer rule.' Jerusalem, Tel Aviv, Haifa, Amman, and Damascus are all within 60 kilometers of the Israeli-Syrian-Jordanian borders. Modern multiple rocket launch systems (MRLS) have ranges in excess of 60 kilometers, and these are increasing. They are highly mobile, relatively cheap, and can be fired in large numbers over a very short time period. Saturation bombardment of rear echelon regions and population centers without the use of aircraft is now possible. In the future, new generations of cruise missiles will be able to hit targets perhaps over 1000 kilometers away.

Introducing such technology into a highly unstable region with unresolved conflicts can only exacerbate existing tensions and is more likely to lead to an escalating arms race. The result will be to increase the possibility of preemptive war rather than

the evolution of a stable condition of mutual deterrence, as was achieved in Europe. Thus, while it might be theoretically possible to envision a stable balance of terror in the Middle East, particularly if the key antagonists achieved a nuclear or advanced conventional capability at the same time, the empirical evidence suggestS very uneven playing fields. One country already possesses a formidable nuclear force -- Israel -- while others possess very significant chemical and missile capabilities. A continuing arms race is unlikely to lead to a situation of parity or even mutual equivalence in capabilities. The asymmetrical nature of the pace of the military build up itself becomes a source of instability.

Furthermore, different cultural attitudes of the major contestants in the Middle East suggest that, in extremis, the use of weapons of mass destruction might be contemplated more readily than in many other regions of the world. While there can be no proof of such an assertion, it is not unreasonable to believe that Ayatollah Khomeini or Muammar Qadaffi might, under certain circumstances, have been tempted to use nuclear weapons either against the West or Israel or, in the case of Khomeini, against Iraq. One can only speculate about what Saddam Hussein would have done during the Gulf Crisis if he had had a nuclear weapon. Might this have deterred the Western forces from massive military intervention to rescue Kuwait or alternatively, would Saddam have been prepared to use a weapon against Israel or his Arab

neighbors? There is also fear expressed routinely in the Muslim world that as long as Israel is the sole possessor of nuclear weapons, there remains the possibility that a maverick Israeli leader -- an Arik Sharon, for instance -- might under certain circumstances be tempted to flaunt Israel's nuclear monopoly, perhaps to the point of threatening to use it.

Another reason for concern is the special vulnerability of most Middle East countries to attack by advanced conventional munitions or weapons of mass destruction. As Desert Storm demonstrated, it took very few smart munitions to cripple Iraq's utility system. The Israeli economy was paralyzed by nightly attacks from obsolete Iraqi Scud missiles. Israeli high-tech business lost millions of dollars because factories were closed and workers were sitting in basements wearing gas masks. If a few inefficient Scuds can cause such a disruption, more modern missiles in larger numbers could cause untold economic damage to Israel's valuable infrastructure, even if armed with conventional warheads. Imagine what F-117 Stealth bombers could do to Middle East oil fields and infrastructure if used by a hostile power. Oil production, oil loading/unloading facilities and key fresh water production supplies, could be quickly destroyed in a confrontation with smart munitions.

In most Middle East countries the general population and elites are concentrated in one, or at the most two, highly

vulnerable cities. Egypt, while a large country, has all its power structure in Cairo. Israel's tiny size suggest that one nuclear weapon on Tel Aviv would be a catastrophe that would threaten the existence of the Jewish state. Syria, Iraq, Saudi Arabia and Iran are all vulnerable to one, or at the most two, nuclear strikes. While the use of a nuclear weapon would be apocalyptic anywhere in the world, it could be argued that other regions like South or East Asia have more resilience and redundancy in terms of size and population; they could still function after one or two nuclear exchanges. North America and the former Soviet Union also have a more disparate demographic distribution. Europe would be the closest analogy to the Middle East, together with regions in Africa and Latin America.

Thus, every country in the Middle East has reason for concern about the current trends in weapons proliferation. While economic and political constraints may hold down the speed with which weapons of mass destruction can be obtained, a highly armed Middle East with unresolved conflicts will be more dangerous ten years from now than at any time in the recent past.

The Gulf War also reemphasized the large divide between the rich and poor Mideast states and the divisive impact this has on regional antagonisms. Saudi Arabia, Kuwait and the smaller Gulf states have vast oil riches that permit a variety of spending plans. They have been able to support costly domestic policies in

areas like education and health care while still purchasing large quantities of military hardware. Though their economies suffered during the Gulf War, they have been able to acquire large amounts of weaponry -- but not the most advanced types -- since the end of the conflict. Their cash flow has been more restricted than before the war, but a combination of financial reserves, continuing oil revenue and loans will permit continued weapons purchases.

This existing economic order was reinforced by several post-war policies and events. Poorer countries lost millions in remittances when hundreds of thousands of expatriate workers left or were expelled from Kuwait, Saudi Arabia and Iraq. In addition, wealthy Arab supporters of the allied coalition cut or eliminated aid for countries they perceived as pro-Iraq, such as Yemen and Jordan. With flat oil prices, a quick and massive revenue infusion is also not likely, even for the wealthier states. Given the disparity in wealth, the resentment that has come to divide rich Arabs from poor ones will continue.[1]

Two different forms of economic assistance to the region are the only other viable equalizer for states that lack accumulated wealth and oil. Israel and Egypt rely heavily on U.S. funds for economic development and military purchases. In the past few years, they have received annually over three and two billion dollars respectively. Billions of dollars of Egyptian debt were

forgiven as a reward for Gulf War support. Other states that do not receive grants and loans still may be given access to certain categories of U.S. military technology. However due to U.S. budget problems, even these concessional programs may soon be cut.

As Israelis have noted, poorer countries could be left behind in the arms race. For example, any major cutback in U.S. military aid would require a change in the Israeli military alignment, have a significant impact on Israel's security, and force Israel to look for alternative sources of weapons.[2] On one side of this financial and technological divide stand Yemen, Jordan and Iraq without the ability to acquire the desired weaponry and military technology. On the other side, Saudi Arabia, Kuwait and the Gulf States stand with U.S.-assisted Egypt and Israel and continue to buy large quantities of arms. With two billion dollars in Gulf War rewards, Syria has placed itself in the latter category, at least for the moment.[3]

It is not surprising, then, that arms control has surfaced as a key goal for the post-Gulf War, post-Cold War Middle East. The immediate objective of Middle East arms control -- to assure that Iraq never again assembles such a large and dangerous arsenal -- should not distract from the other concerns. These include: major rearmament in Saudi Arabia; military upgrading and modernization in Egypt, Israel, Turkey, and Syria; the continuing

chemical weapons programs of Syria and Libya; the sophisticated nuclear weapons and missile programs in Israel, and in neighboring India and Pakistan, as well as the nuclear ambitions of Iran and Libya; Iran's potential military renaissance; and the certainty that large quantities of military equipment made surplus as a result of conventional arms reductions in Europe will find their way to the Middle East.

In an effort to limit the dangers of the regional arms race, President Bush launched new Middle East arms control initatives in a speech at the U.S. Air Force Academy in Colorado on May 29th 1991. The key elements of the plan include: a proposal to freeze and eventually ban the purchase, production, and testing of surface-to-surface missiles (SSMs); a global ban on chemical and biological weapons; an effort by the key suppliers to identify the most dangerous conventional weapons in the region and to curb their sales (suppliers would also inform each other of major sales); and a verifiable ban on the production and acquisition of weapons-usable enriched uranium and plutonium.[4] So far the Bush arms control plan has made little progress. The five permanent members of the U.N. Security Council -- also the five principal weapons suppliers -- have met several times to discuss mutual restraints on conventional arms sales to the Middle East. At the same time major new arms sales to the region by all of the key suppliers have been announced.

So far the only positive development on specific arms control relates to progress on chemical weapons. The draft Chemical Weapons Convention which has been negotiated for over 20 years at the Conference on Disarmament in Geneva has now been sent to the United Nations General Assembly for signature and ratification. It is expected that most countries in the Middle East will sign though the Arabs may not ratify until some linkage with Israel's nuclear weapons are forthcoming.

II. The Importance of Arab-Israeli Peace Talks

The problems of Middle East proliferation and arms control are inextricably linked to the on-going peace negotiations between Israel, Syria, Lebanon, Jordan and the Palestinians. If this process were to collapse, the dangers of proliferation would be magnified and the prospects for arms control greatly diminished. Sustaining the peace process must therefore be a priority for all concerned about putting limits on and controlling the arms race.

The breakthrough in the current Middle East peace process, which began with the Madrid conference in November 1991, can be explained for three reasons. First, the end of the Cold War removed the Soviet Union as an active player in the Middle East. In fact, the Soviet Union and subsequently Russia have supported all American peace efforts for the past two years. Second, the

defeat of Iraq in the Gulf War removed a key player in the Arab military challenge to Israel. Third, the concern within much of the Arab world and Israel with their economic futures has forced them to adopt a more realistic approach to cooperation. Without conflict resolution, the prospects for economic growth are diminished and social and political problems greatly increased.

- The Peace Process and Security

While most Arab governments are supportive of the peace process, there are different opinions within the Arab world as to how to handle the problem of Israel's security and its formidable weapons programs. Israel insists, with strong American backing, that if it is to agree to hand back further territory -- it will need very strong guarantees in the security arena. It will not be possible for Israel to withdraw from areas of the Golan Heights and West Bank unless these guarantees are ironclad and are backed up with a strong Israeli residual military capability. Israel believes it has to have an ultimate deterrent - a nuclear weapon - as the ultimate insurance against a reunited Arab or Muslim front, that by the year 2000, could outnumber it in almost every category of conventional weaponry as well as finance and population.

In contrast, the key Arab countries, most notably Egypt and Syria regard any effort to endow Israel with permanent military

superiority as inequitable and a source of continued tension, even if the more divisive territorial issues have been resolved. According to this point of view, Israel must commit itself to be an equal partner in the Middle East. Israel should not be given special treatment and should not be allowed a permanent "qualitative edge" against a hypothetical Arab "worst" case threat. Thus, from this Arab perspective, arms control must proceed in parallel to the peace process. Israel cannot expect to be given a "green light" to retain its nuclear capabilities while all other countries, including the Gulf countries, are being pressured to either get rid of their weapons, including chemical weapons, and promise never, under any circumstances, to import or build them.

However, to complicate matters, not all Arabs feel so strongly about the Arab arms control agenda (i.e. reigning in Israel's nuclear capability). The Palestinians and Jordanians, for instance, while publicly acknowledging the asymmetry of Israel's nuclear capability, are far more concerned about progress toward a territorial solution. They realize that their priority is to get Israel to evacuate areas of the West Bank and to remove the military occupation so that they can get on with the job of building a Palestinian entity or even a Palestinian state. From their point of view, any residual force that Israel needs to retain <u>within its old borders</u> that make it feel secure enough to give up territory, is acceptable. Anyway, the

Palestinians argue, there is nothing they can do about Israel's military might. It is a fact of life which they have long resigned themselves to.

There are therefore different priorities within the Arab world as to what role arms control should play in the peace process. It must be said, however, that while Syria and Egypt will continue to insist on a linkage between Israel's qualitative edge and the peace process, if a breakthrough were to occur in negotiations on either the Golan Heights or with the Palestinians on the West Bank, the territorial issue will take precedent over all other agenda items. In short, when the chips are down, major arms control initiatives or weapons limitations (i.e. limitations on Israel's nuclear weapons) will have to be deferred until the problem of borders have been settled. This does not mean that no action is possible in the interim. Some have suggested that Israel take unilateral steps to put a cap on its nuclear capabilities. However, this is a very contentious issue. Others argue that unilateral actions by Israel will not be enough to satisfy the Arabs and will open the floodgates for criticisms since it would mean an explicit notice that Israel does possess nuclear weapons. While everyone knows this, the fact that there has been no formal Israeli nuclear policy has kept the bomb in the mythical "basement."

The dilemma is that arms control and the peace process are

intimately linked. The Israelis', for instance, counter Arab claims about Israel's superiority by pointing to the massive conventional potential of the Arab world. Hence all sides have an interest, ultimately, in force reduction agreements and limitations on weapons of mass destruction. The question concerns timing and linkage. In the multilateral meetings on arms control and regional security that have taken place between Israel and the Arabs, the most that is anticipated is that some limited confidence-building measures might be discussed between the parties prior to a breakthrough in the peace process. These confidence-building measures could include private meetings to discuss military doctrine, joint participation in exercises to witness confidence-building in action in Europe and possibly agreements on search and rescue contingencies in event of accidents, and possible cooperation to prevent terrorism.

The philosophical problem is that the Arabs wish to use confidence-building measures to persuade the Israelis to demonstrate that they intend to live in the region as an equal partner, not as the dominant military partner. The Israelis, on the other hand, want to use confidence-building measures to establish closer bilateral ties with individual Arab countries in order to solicit de facto recognition for their legitimacy in the region.

Aside from the philosophical and practical problems of the

linkage between arms control and the peace process, there are other very specific questions about Israel's nuclear weapons program that have to be addressed. While Israel maintains a nuclear arsenal and a highly sophisticated weapons program, little has changed in the last year. Some Israeli officials have begun to view nuclear weapons in a new strategic light, but the core technological components of the program have remained the same.[5] The Israelis probably have 75-100 nuclear weapons, though some suggest that the true total is closer to 300.[6]

What is new and important is the realization that Israel can probably no longer assure its survival by unilateral means. This awesome conclusion is already being discussed by the senior military establishment. In the weeks preceding the Israeli election, past and present members of the Israeli military publicly aired feelings of uncertainty and concern about the Middle East arms race and the possibility that the Arab states may acquire weapons of mass destruction. On June 15, the commander of the Israeli Air Force, Major General Herzl Bodinger, explained that "if countries in the region -- like Iran, Libya, and other countries -- will have nuclear weapons, this can endanger the whole area." Earlier on June 8, Chief of Military Intelligence General Uri Sagi said that Iran's nuclear project "might cause us to be concerned about our existence and basic security." Some have suggested that these trends may force Israel to turn to the U.S. for assistance in stopping regional

proliferation. In his commentary on the Syrian military and Arab nuclear programs, columnist Ze'ev Schiff noted that "the American presence in the region constitutes a clear stabilizing factor." Furthermore, *Ha'aretz* cited Israeli defense sources and reported that Israel, the U.S. and others are already attempting to halt nuclear assistance to Iran and Libya by Western companies. In terms of the peace process, the nuclear threat also appears noteworthy. In his opening speech to the Knesset, Prime Minister Yitzhak Rabin said that "this [new, nuclear] reality requires us to give additional thought to the urgent need to terminate the Arab-Israeli conflict and to attain peace with our neighbors."[7]

While nearly all Israelis and many Americans accept that the Israeli nuclear weapon is the ultimate deterrent, whose development is justified, it has also had the impact of increasing the appetite within the Arab world to develop nuclear weapons, chemical arsenals and to purchase surface-to-surface missiles. Thus, the Arabs link their own weapons of mass destruction to the existence of Israel's. Israel on the other hand, links its nuclear weapons to the conventional capabilities of a potential united Arab front.

The problem is a particularly vexing one for the United States. Successive U.S. administrations since John Kennedy have fudged the issue of Israel's nuclear weapons. There have been no concerted diplomatic efforts to put a cap on it; instead there

has been benign neglect. Now, however, the problem has become more visible and it may be increasingly difficult to keep this issue buried in the opaqueness of the basement. One reason concerns the nuclear activities in the Gulf. If the United States and its cohorts wish to assure the world community that Iran and Iraq will never have nuclear weapons, they must convince China and Russia, North Korea or even Pakistan and India never to cooperate with these countries on their nuclear weapons program. However, it is unrealistic to expect these homilies to be taken seriously without any action to reign in the Israeli program.

Yet, as the previous discussion has pointed out, attempts to tamper with Israel's nuclear deterrent prior to progress in the peace process are doomed since no Israeli government can accept such a linkage at this point in time. Perhaps there would be a way out if there were some established nuclear umbrella that the United States could provide to Israel to allow it to ultimately get rid of its own nuclear program. (For instance, in the extreme case, if an Arab country or Iran were to cheat on some nuclear non-proliferation regime, the United States would guarantee Israel's security.) But very few Israelis could ever accept such a guarantee. One nuclear weapon detonated in Israel would be a catastrophe beyond all bounds given its small size and dense population. There is no expectation in Israel that the United States can or would be prepared to offer such a nuclear guarantee. The most the Israelis seem willing to talk about is

that at some point, in the distant future, after generations of peace between themselves and the Arabs and the Islamic world, a nuclear weapons free zone might be established. But this would have to follow a period of not just peace but an integration of the economies to the point where war is unimaginable, as say between the countries of West Europe or the United States and Canada.

The problem is such a world is a long way off and the time-frame for discussing the Iraqi or the Iranian nuclear weapons program is much shorter. Hence, it would seem that at some point prior to a fully-fledged peace process, there will be a political confrontation over the respective nuclear programs of Israel, Iraq and Iran with the Arabs divided on what to do about them.

III. The Persian Gulf Problem

• Iraq's Military Potential

The situation in the Persian Gulf remains very unstable. Iraq is a crippled but potentially dangerous power. Irrespective of whether Saddam Hussein survives, the fact that Iraq was humiliated in the Gulf War, has no real access to the sea and yet controls some of the world's most valuable oil reserves suggests that a reassertion of a strong Iraq with redentist claims is inevitable, unless the United Nations continues to keep sanctions

on the country indefinitely or, alternatively, Iraq is partitioned into smaller entities, some of which may be "absorbed" by neighbors.

Currently Iraqi rearmament is prevented by the U.N. embargo and the strict controls on its weapons of mass destruction and their means of delivery laid down by U.N. Security Council Resolution 687. In early September 1992, U.N. inspectors concluded the intensive phase of their investigation of the Iraqi nuclear program and declared that Iraq was virtually free of all aspects of a weapons program. Maurizio Zifferero, leader of the IAEA's Iraqi inspection team, said that Iraq's nuclear program was "at zero." He added that "at present, there is no such thing as an ongoing Iraqi nuclear program." These comments were the culmination of a long inspection and destruction process that was part of the cease fire terms of the Gulf War. The IAEA recognized that Iraqi scientists still possessed the "experience and the know-how" to restart a program.[8] Also, the IAEA will continue to monitor Iraq, including testing Iraqi water for traces of radiation. They warned that they were not issuing a clean bill of health for Iraq.[9]

Some non-proliferation figures rejected the IAEA conclusions. Former U.N. inspector David Kay charged that Iraq still has hidden nuclear facilities; he predicted that Iraq will quickly restart its program with the departure of IAEA

inspectors.[10] At an August press conference, a few weeks before Zifferero's announcement, Major Karen Jansen, also a U.N. inspector in Iraq, said that Iraq had one remaining secret program. It is unclear both whether she was referring to a part of the nuclear program and whether this last secret piece was detected and destroyed in the final weeks of inspections.[11]

There is no U.N resolution to prevent Iraq from rearming with conventional weaponry once sanctions have been lifted. Given its huge oil resources and therefore access to hard currency, Iraq could reembark on major rearmament, including a new nuclear and missile program over the next decade if and when it complies with the terms of the current United Nations resolution.

This is unlikely to happen so long as Saddam is in power. But once he leaves, it will be more difficult for the United States and other allies to hold Iraq down indefinitely. Indeed, there are many in the Arab world who regard the subjugation of Iraq as counterproductive, particularly in view of the growing power of Iran and the still unresolved problem of Israel and its nuclear weapons. In sum, Iraq's nuclear appetite may still exist and it has the resource base to ultimately to resume its activities in this field absent tighter controls than currently exists in the world technology market.

- Iranian Rearmament

Iran's weapons program pose a different set of problems. Because the international intelligence community underestimated Iraq's nuclear potential prior to Desert Storm, a more aggressive approach is inevitable in connection with reports that Iran has also embarked on a long-term policy to build nuclear weapons. Iran occupies a key strategic region of the Middle East. With the breakup of the Soviet Union, Iran's geography has assumed even greater importance. Iran has been blessed with good luck in the past two or three years while so much attention has been paid to Saddam Hussein. However, the hope that a more moderate Iran would emerge following the victory of President Rafsanjani in the recent elections has not materialized.

Iran remains in a belligerent mood due in part to its horrendous domestic problems caused by high population growth, the destruction of infrastructure during an eight-year war with Iraq and mismanagement, corruption and graft. In foreign policy, Iran is flexing its muscles to witness the recent decision to annex the islands of Abu Musu and the Tumbs and its willingness to bomb Mujahedeen opposition bases in Iraq. Iran is also pursuing a very activist policy in Central Asia with the purpose of establishing good economic ties and offering to provide an outlet to the sea. How successful Iran will be depends very much on its ability to work with foreign companies to bring in

investment money. At the moment, this remains unlikely. Iran supports radical movements in Sudan and Egypt, continues to provide arms and money to Hezbollah in Lebanon, continues to deny Israel's right to exist and continues to oppose the peace process. It also continues to defy world opinion by keeping a death sentence on Salman Rushdie. Iranian foreign and security policy both reflect traditional Iranian nationalism -- in some respects what the Iranians say about their security is similar to what the Shah said -- yet is overlaid with sprinkling of the revolutionary zeal of Khomeini. Iran is rearming with conventional forces purchased from Russia, China and Eastern Europe.

Iran's rearmament program needs to be examined objectively. While the purchase of conventional weapons to replace those lost in the Iran-Iraq war is legitimate, acquisitions of sophisticated Russian submarines and strike aircraft and Chinese and North Korean surface to surface missiles represent an escalation of the Gulf arms race. Most serious, though, is the evidence that Iran had embarked on a long term program to build nuclear weapons at a time when its economy is weak, its population growing and its neighbors, in different ways, threatening. One does not have to endorse extremist views of Iran to accept that <u>any</u> authoritarian leadership in Iran might covet the oil riches of the Arab Gulf. It was precisely this threat that led to the West's tilt towards Iraq in the 1980s only to find that it was Saddam Hussein himself

who needed the money.

What to do about Iran and its nuclear capabilities remains one of the most difficult proliferation issues in the region. While continuing to deny anything but peaceful motives, Iran is gathering nuclear technology from a number of sources. A four-day September visit by President Hashemi Rafsanjani to China included a Chinese pledge to build the first Iranian nuclear power (300 megawatt) plant. China is already building a small nuclear research reactor in Isfahan, Iran.[12] Other sources reported that the Chinese-Iranian agreement called for "no less than four nuclear power stations and one center for advanced nuclear research."[13] Russia sold Iran two 440 megawatt nuclear reactors in the same month.[14] In both cases, the participants claim that they will adhere to the Nuclear Non-Proliferation Treaty. When Iranian foreign minister Ali Akbar Velayati visited Germany in July, he urged the Germans to help finish building the nuclear power plant at Bushehr.[15] Foreign diplomats in Iran report that Iranian representatives are secretly trying to buy nuclear technology including fuses and computers; they are also allegedly seeking nuclear scientists.[16]

In the midst of this Iranian buying program, Iranian officials deny that any nuclear weapons program exists. Velayati, who called for an end to all nuclear arms by the year 2000 at the U.N. Disarmament Conference,[17] responded to charges that Iran has

military motives: "We categorically deny these accusations." He said Iran is open to international inspectors and cited the February 1992 International Atomic Energy Agency (IAEA) inspection.[18] Iran's Atomic Energy Organization announced that "Iran believes that all these weapons should be annihilated and to have a region free of nuclear arms."[19] Iran repeatedly denies having a nuclear weapons program.

Iranian leaders like to point to the February 1992 IAEA inspection that found Iranian activity consistent with a peaceful nuclear program. After a seven-day visit in which they inspected calutron equipment at Isfahan, small-scale uranium mining at Saghand, and four other sites, the inspectors "were able to conclude that the activities being carried out there were entirely in accord with the declared purpose of the facilities." Western observers were highly skeptical of this conclusion and remain wary of Iran in the nuclear sphere. The IAEA itself noted that the conclusions are limited to the sites they visited.[20]

Sporadic reports, often associated with areas of the former Soviet Union, allege that Iran has attempted to buy finished nuclear bombs or the services of nuclear scientists. In July, the Sunday Times (London) reported that a nuclear scientist from Kazakhstan reached Iran via Israel.[21] Other sources charged that Kazakhstan sold nuclear bombs to Iran, a charge also denied.[22]

- Rearming the Arab Gulf

The third element of the Gulf proliferation problem concerns the rearamament of the Arab Gulf states who were part of the allied coalition during the war. Inevitably these governments are nervous in view of their huge miscalculation of Saddam Hussein's intentions. They are suspicious of both Iran and Iraq and have no confidence that their Arab brothers, Syria and Egypt are willing or capable of protecting them. They see no option but to rely on American military power to guarantee their survival. Since it is very much in American and western interests to defend the Gulf there is, likewise, no option for the United States but to strengthen its military potential in the region.

This brings up the contentious issue of U.S. arms sales to the Arabs. The Bush administration has decided to sell more aircraft, tanks and missiles to the GCC countries because these countries can pay hard cash for them, because they could be useful to U.S. military forces in event of another Gulf war, because Europe will sell them if the U.S. does not. It is highly unlikely the U.S. will sell really advanced weapons such as F-117s, Tomahawk or ATACMS. However it will sell Patriot missiles and will provide Israel with new, very sophiticated technologies as "compensation" for the Arab sales.

Unfortunately, these decisions to sell additional arms to

Egypt, Israel, Saudi Arabia and the Gulf states has made it difficult to persuade other major weapons supplier to show restraint on arms sales to the region. At this time, any U.S. demarché to Russia over its own arms sales to Iran -- including submarines -- falls on deaf ears. The Russians say, "what laws are we breaking and how does this differ from what you are doing yourselves?"

The difference, of course, is that the United States regards Iran as a maverick country capable of upsetting the peace process. Russia, on the other hand, regards Iran as a source of money and a powerful country on its southern flanks which has assumed new importance in view of the challenges Russia faces around its new borders. Russian foreign policy, in the wake of the breakup of the Soviet Union, has a very different set of priorities to American foreign policy; herein lies a real potential for disagreement and possibly, even conflict, in the future. Similarly, it is very difficult to imagine the Chinese agreeing to restrict conventional arms sales to the Middle East so long as they can make money doing so.

IV. Realistic Policy Options

Given this complicated and messy backdrop of strategic, political and economic motivation, what should be the priorities to control Middle East proliferation?[23]

1) Although there are many proliferation issues in the Middle East to worry about, the threat of nuclear proliferation is the most important. However, it is difficult to separate the nuclear component from the broader strategic issues discussed above. Nevertheless, a way must be found to insure that neither Iraq nor Iran build or buy the bomb. It is difficult to imagine this being done without including China, Russia and possibly the Indian subcontinent in any agreement. They, in turn, will insist that some efforts be made to curb Israel's nuclear program. However, as has been consistently stressed throughout this paper, this raises very serious problems for the peace process. To manage the problem the United States must engage in a high level, confidential discussion with Israel about the problem of weapons of mass destruction. Israelis, in their heart of hearts, know that in the long-run there is nothing they can do to prevent nuclear proliferation in the Middle East unless the United States is fully engaged. To be sure, covert programs to destroy Iranian or Iraqi capabilities are possible. But ultimately the United States will have to persuade Israel to put constraints on its own capability. The timing and the nature of those constraints is of critical importance and the issue should not be pushed too strongly <u>at this time</u>. However, it is a subject

that can no longer be swept under the carpet. A more open debate on weapons of mass destruction in the Middle East is essential if the chemical weapons convention is to be signed and ratified by the countries in the region, if missile restraint regimes are to be effective, and if nuclear proliferation is to be stopped.

2) It is unrealistic to expect any useful discussions of these issues in the formal multilateral arms control meetings currently underway as part of the peace process. Pushing Israel too hard on nuclear weapons while demanding that it be more flexible on giving up land for peace would be counterproductive. But to say nothing about this program, or engage in empty semantics, is equally counterproductive. If Washington expects the Arab states to be serious about arms control, Israel's nuclear program cannot be open-ended. To be able to counter their own domestic criticism, and to address other arms control issues such as a chemical weapons ban and a freeze on surface-to-surface missiles, the Arab states must be able to show that a sincere effort is underway to limit Israel's nuclear program. This will have little impact on radical Muslim states uninterested in peace with Israel or arms control, but it will make it much easier to isolate

them if Israel is a party to talks on weapons restrictions.[24]

3) It is equally unrealistic to expect the Arab states and Iran to formally forgo missile rearmament in the absence of a broader agreement. It is true that for two years missile sales to the Middle East have been restricted thanks to the Missile Technology Control Regime. However, this regime is inherently discriminatory and therefore regarded by many as unfair. If chemical weapons are the poor man's nuclear bomb, missiles, such as the Scud, are the poor man's combat aircraft. The Arabs object to efforts to curtail their missile programs while doing little to curtail Israel's own indigenous missile capability -- in fact, the U.S. supports the Israel ATBM program, Arrow -- and, equally important, its sophisticated combat air power.

4) Concerning the broader threats of weapons proliferation, the focus must be in the Gulf. There are several alternative methods to deal with the potential threat of Iranian military power. Ideally one should hope for a more democratic, pro Western regime in Teheran that was willing and eager resolve regional conflicts peacefully, desist from exporting revolution,

and cooperate in regional arms control initiatives including nuclear weapons free zones and strict adherence to international arms control regimes. However, in the absence of such behavior the two most likely options are either a regional balance of power or isolation and sanctions against Iran by the international community.

5) The balance of power option cannot work unless the United States plays the role of balancer. This requires an open-ended military commitment to the security of the Gulf. In this regard, the U.S. and Russia must establish some basic ground rules for activity in the Gulf, including understanding about arms sales and proliferation. Russia and China should be offered a deal; the United States, while worried about continued conventional arms sales to Iran and other radical countries, is far more concerned about nuclear and missile proliferation. Therefore, if Russia and China desist from any nuclear cooperation with Iraq and Iran and adhere to MTCR rules, Washington will be prepared to reach a *modus vivendi* on other arms sales. This is far from an ideal arrangement but it is practical and realistic at this time.

6) As long as the United States continues to have strategic interests in the Middle East, particularly

access to oil, and is committed to the security of Israel and several key Arab countries, American military power, whether in the form of a direct or distant presence or military assistance and sales to allies, will be a key ingredient of U.S. policy. The only way to reduce the military component of American policy would be to change the policy priorities. There is no indication that either the Bush administration, or the Clinton democrats, or a majority in Congress seeks such a change. For this reason, arms sales and military assistance will continue. Furthermore, as long as Washington is intent on pursuing a regional peace process through diplomacy, the security needs of all parties will be essential factors of any settlement.

7) Over time,the best way to achieve arms limitations is to develop a sound security structure for the region and to orchestrate political negotiations between the regional antagonists. Assuring Iraq's compliance with U.N. Security Council Resolution 687, preventing an Iranian nuclear program and brokering a serious Arab-Israeli peace process are the three keys to regional stability and serious arms control initiatives.

8) Until there has been progress in these priority areas, it would be unwise to advocate more far-reaching

schemes to freeze, or stop, transfers of major conventional weapons systems to the region. So long as conventional arms sales are seen as good business, proposals for more inclusive arms moratoria might undermine opportunities to deal with the most dangerous proliferation problems.

Notes:

1. "A New Arab Order," *Economist*, September 28, 1991, p. 5 of survey section.

2. "'Any' Aid Cuts To Have 'Very Significant Impact," *IDF Radio*, June 15, 1992 in FBIS-NES-92-115, June 15, 1992, p. 29.

3. For country by country analysis of the post-war Middle East economies, see Amy Kaslow and Scott B. MacDonald, "Middle Eastern Economies after the Gulf War," *Middle East Insight*, March-April, 1992, Volume 8, Number 4, pp. 56-59; and Yahya Sadowski, "Sandstorm with a Silver Lining: Prospects for Arms Control in the Arab World," *Brookings Review*, Summer, 1992, pp. 7-11. (See pp. 43-52 for more details and critique of Sadowski's thesis).

4. See the Fact Sheet on Middle East Arms Control Initiative, May 29, 1991, White House Office of the Press Secretary.

5. A recent article by Geoffrey Aronson places Israeli nuclear weapons in the context of the Gulf War and the impending nuclearization of the Middle East. Aronson argues that this is the central issue of the U.S.-Israeli relationship. He wonders what Israel can expect from U.S. non-proliferation policy in the Middle East and whether the U.S. will confront Israel over Israeli nuclear weapons. Geoffrey Aronson, "Hidden Agenda: US-Israeli Relations and the Nuclear Question," *The Middle East Journal*, Volume 46, Number 4, Autumn 1992, pp. 617-630.

6. Nuclear Non-Proliferation Project at the Carnegie Endowment for International Peace, "Nuclear Proliferation Status Report," July, 1992, p. 3.

7. "Bodinger -- U.S. "Not Doing Enough'," *Qol Yisra'el*, June 15, 1992 in FBIS-NES-92-116, June 16, 1992, p. 16; "Intelligence Official on Iran, 'Arafat Allegation," *IDF Radio*, June 8, 1992 in FBIS-NES-92-111, June 9, 1992, p. 34; "U.S. Help Needed for

Attacks on Nuclear Targets," *Ha'aretz*, June 16, 1992, p. A1 in FBIS-NES-92-117, June 17, 1992, p. 23. "Efforts To Halt Iranian Nuclear Program Cited," *Ha'aretz*, June 11, 1992, p. 5 in FBIS-NES-92-114, June 12, 1992, p. 29; and "Rabin Addresses Knesset," *Israel Television Network*, July 13, 1992 in FBIS-NES-92-135, July 14, 1992, p. 25.

8. "Iraq Unable to Make Bomb," *Washington Post*, September 5, 1992, p.A30.

9. Caryle Murphy, "Long-term Monitoring Seen for Iraq," *Washington Post*, September 8, 1992; and John H. Cushman Jr., "Iraq Accepts Radiation Tests of Water," *New York Times*, September 8, 1992, p. A8.

10. "Ex-UN Inspector Says Iraq Has Nuclear Reactor," *AFP*, September 11, 1992 in FBIS-NES, September 11, 1992, p. 23.

11. Some observers thought Jansen might have been referring to SCUD missiles. Stephanie Grace, "U.N. Notes Secret Iraq Arms Effort," *Los Angeles Times*, August 20, 1992.

12. Yvonne Preston, "Rafsanjani China visit raises N-arms fears," *London Financial Times*, September 10, 1992, p. 6; and Elaine Sciolino, "China Will Build A-Plant for Iran," *New York Times*, September 11, 1992, p. A6.

13. Amir Tahiri, "China Signs Agreement To Supply Iran With Military, Nuclear Agreement, *Al-Sharq Al-Awsat* (London), September 11, 1992 and retitled "China to Supply Military, Nuclear Equipment," FBIS-NES, September 16, 1992, p. 46.

14. Bob Hepburn, "Gulf states fear Iran is the new bully," *Toronto Star*, September 29, 1992, p. 2. Reza Amrollahi, President of the Atomic Energy Organization of Iran and Vice-President of the Islamic Republic, stated at a press briefing that Iran would purchase two VVER-440-213 type nuclear power plant units from Russia and two Westinghouse-type reactors designed and manufactured by China. Amrollahi noted that general agreements, not specific contracts, had been signed with both countries. "Amrollahi on Nuclear Free Zone," *IRNA*, September 23, 1992 in FBIS-NES, September 25, 1992, p. 38

15. "Government Seeks German Nuclear Cooperation," *Voice of the Islamic Republic of Iran*, July 17, 1992 in JPRS-TND, July 22, 1992, p. 19; and "Completion Urged," *IRNA*, August 1, 1992 in JPRS-TND, August 5, 1992, pp. 8-9. The contract between Iran and a German company was signed in 1976 before the fall of the Shah.

16. Elaine Sciolino, "China Will Build A-Plant for Iran," *New York Times*, September 11, 1992, p. A6.

17. "Iran Seeks End to Nuclear Arms," *Current News Early Bird*, June 19, 1992.

18. "Denies Attempts to Produce Bomb," *Voice of the Islamic Republic of Iran*, June 21, 1992 in FBIS-NES, June 22, 1992, p. 48.

19. "IAEO Refutes Israel's Nuclear Potential Charges, " *IRNA*, June 21, 1992 in FBIS-NES, June 25, 1992, p. 51.

20. Michael Z. Wise, "Atomic Team Reports on Iran Probe," *Washington Post*, February 15, 1992, p. A29-A30.

21. "Hiring of Kazakh Nuclear Scientist Alleged," *Keyhan* (London), July 30, 1992 in FBIS-NES, August 11, 1992, p. 57. The report was denied by the Atomic Energy Agency of Kazakhstan; see "Officials Deny Nuclear Links With Iran," *IRNA*, July 25, 1992 in FBIS-SOV, July 27, 1992, p. 59.

22. "Minister Denies Selling Nuclear Bombs to Iran," *Russian Television Network*, August 26, 1992 in FBIS-SOV, August 27, 1992, p. 62; and Rowland Evans and Robert Novak, "Nuclear Warheads for Iran?," *Washington Post*, October 12, 1992, p. A23.

23. For more details on the linkage between U.S. policy options and global arms control regimes that affect the Middle East see Geoffrey Kemp, *The Control of the Middle East Arms Race*, (Washington, D.C.: Carnegie Endowment for International Peace, 1991).

24. See James Leonard, "Steps Toward a Middle East Free of Nuclear Weapons," *Arms Control Today*, April 1991.

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Proliferation issues and the Former Soviet Union

by

Trevor Taylor

Introduction

The primary proliferation concerns about the former Soviet Union (FSU) are based on two related but separate developments.

One is that the break-up of the Soviet empire left several states with elements of defence industrial capability and four states rather than one with nuclear weapons on their territory. The four, Ukraine, Byelorus and Kazakhstan (UBK), along with Russia, were founder members of the Commonwealth of Independent States (CIS) which came into being in December 1991 as the Soviet Union collapsed. The West has accepted Russia as the successor state of the Soviet Union as far as Security Council membership and nuclear weapons are concerned. Hence proliferation problems are defined as those involving the spread of nuclear weapon possession to states other than Russia.

The other is that Moscow has abandoned its superpower role in the world, indeed centralised control may be lost over Russia itself within the next few years. The uncertain political status and structure of Russia, indeed of all the successor states of the former Soviet Union, have international implications for proliferation.

This paper begins by noting formal developments, and then considers proliferation isssues within the former Soviet Union. It next looks at the wider, international implications of the collapse of the Soviet empire. Since nuclear issues are most prominent and problematic, attention is focused on them, but reference is made also to other non-conventional weapons (chemical and biological weapons and ballistic missiles). The paper concludes with some suggestions for Western policy.

Sources of reassurance

Superficial reading of developments since 1991 in what will be called here the former Soviet Union (FSU) provides considerable reassurance about proliferation issues.

Some central facts are that, in the autumn of 1991 Presidents Bush and Gorbachev agreed

- to destroy all their nuclear artillery shells and short range nuclear surface to surface missiles, a total of around 5,000 warheads for the USSR;

- to destroy all their nuclear land mines, of whose number the International Institute of Strategic Studies had no estimate[1]. The USSR would store some of its 2,700 nuclear-tipped anti-aircraft missiles and destroy the rest[2].

- to store all their naval nuclear systems except SLBMs. Including bombs deployed with naval aviation units, the USSR was thought to have some 3,400 such warheads.

In brief, it was agreed to remove all tactical nuclear weapons (except air-launched weapons) from service, a process in which the first step was to get them all back to Russia. Although there was some disruption of the process by President Kravchuk, who protested for a few weeks that Russia was not destroying the tactical nuclear systems which it removed from Ukraine, tactical nuclear

[1]. IISS, The Military Balance: 1992-3, Brassey's, London, 1992, p.222.

[2]. The West had already decided to get rid of its Nike anti-aircraft missiles with nuclear warheads.

systems had been removed from Kazakhstan and Byelorus by 28 April 1992 and from the Ukraine by 5 May. Tactical systems from other former Soviet Republics had been withdrawn well before that date[3].

On the strategic nuclear front, four former Soviet republics have forces deployed on their soil, Russia plus Ukraine, Byelorus and Kazakhstan (UBK). According to IISS data, the forces involved are laid out in Table 1.

[3]. The Military Balance op.cit., p.223.

Table 1: CIS Strategic Nuclear Forces outside Russia

	Ukraine	Byelorus	Kazakhstan
SS.18 Site(s)			104 Derzhavinsk & Zhangiz-Tobe
SS.19 Site(s)	130 Pervomaysk & Khmel'Nitskiy		
SS.24 Site(s)	46 Pervomayski		
SS.25 Site(s)		c.80 Lida & Mozyr	
TU.95H6/H16 Bear Site	22 Uzin		40 Semipalatinsk
TU.160 Blackjack Site	20 Priluki		

The cuts involved in the START Treaty signed in July 1991 did not necessitate the destruction of those weapons based outside Russia, although the USSR was obliged to destroy half its total of 354 SS.18s. However, in June 1992 Presidents Bush and Yeltsin agreed on two further stages of strategic arms cuts. By the end of the second stage, among other changes, all MIRVed ICBMs would be abandoned. The SS.18s, 19s and 24s each have multiple warheads and would have to disappear from the Russian/CIS arsenal. However, this agreement had not been turned into a legal commitment by

the autumn of 1992. Byelorus expects its mobile SS.25s to be destroyed and there is widespread expectation that strategic nuclear aircraft will be withdrawn to Russia and/or destroyed[4].

On 23 May 1992 Ukraine, Byelorus and Kazakhstan (UBK) signed with Russia and the US a Protocol to the START Treaty under which they agreed to take on the obligations of the USSR. UBK had said that they did not want to be nuclear weapon states, and they agreed that all nuclear forces would be removed from their territory within seven years. They also agreed that they would sign the NPT as non-nuclear weapon states in the shortest possible time. President Kravchuk of the Ukraine has asserted the value of a nuclear-free zone in the Black Sea region.[5]

In the chemical weapons area, "all facilities for the storage and production of chemical weapons are situated on the territory of the Russian Federation"[6] and Russia has been involved in negotiation the Chemical Weapons Convention. Destroying Russian chemical weapons stocks will take time and money (the US is providing $25 million in aid, but Moscow wants more), and could be environmentally dangerous. About 40,000 tons are involved and destruction will not begin until the end of 1993 at the earliest.[7] However, the immediate proliferation dangers seem small, although they could increase if Russia or any other CIS republic becomes a significant exporter of dual-use chemical plants.

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[4]. The Military Balance: 1992-3, op.cit., p.226.

[5]. "Kravchuk Urges Nuke Pullout" Defense News 11-17 May 1992.

[6]. Agreement between the Commonwealth of Independent States on Chemical Weapons, 15 May 1992, Text published in Military News Bulletin (from the Russian Novosti Information Agency and the Intervoeninform Agency) No.5, May 1992.

[7]. "Russia Wants Early Chemical Demolition Start", Defense News 10-16 August 1992.

Russia has also a monopoly of CIS biological weapons capability in the CIS. While some work was carried on into the summer of 1992, Moscow agreed in September to allow extensive inspections of Russian facilities to show that biological weapons had been abandoned[8].

However, these sources of reassurance must not hide potential and real problems, the first of which are concerned with possible nuclear proliferation within the former Soviet Union.

UBK as potential nuclear powers

The first reflects the consideration that there are three new states which have strategic nuclear weapons on their territory which they could perhaps take under their control.

It is clearly premature to describe any or all of UBK as nuclear states. For many years the US deployed nuclear weapons in allied countries in Europe including Germany, sometimes under two-key systems, and yet those allies were not considered as nuclear powers. Yet the CIS position is inherently ambiguous since the START protocol defined the centralised strategic command of the CIS under General Shaposhnikov as in charge of the forces. Once Russia decided in the spring of 1992 to establish its own armed forces, as did some other republics including the Ukraine[9] , the CIS command was clearly moving towards a position where its only responsibilities would be in the nuclear area. In the autumn of 1992 Russia proposed a simplification of the situation by claiming jurisdiction over all missiles and General Shaposhnikov himself said he was ready to hand over the missiles to Russia since "you cannot leave such terrible weapons under the control of anything other than a specific nation state".[10] Byelorus is understood to have accepted the proposal.

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[8]. "US Fears Moscow Still Makes Germ Weapons", International Herald Tribune, 1 September 1992. "Bacteriological Weapons Charges" from Izvestiya FBIS-SOV-92-170, 1 September 1992, p.2; and "Russian Germ-Weapon Plan" International herald Tribune 15 September 1992.

[9]. "Yeltsin gives up on CIS joint force" The Guardian 17 March 1992; "Yeltsin Creates Army, Dealing Commonwealth a Blow" International Herald Tribune 8 May 1992..

[10]. Shaposhnikov quoted in "Missiles row sours CIS summit" The Financial Times 9 October 1992.

Kazakhstan would prefer the CIS command to continue but it has never pressed for a rapid removal of the systems on its soil. At one stage President Nazarbayev spoke of the missiles being there for 15 years and Kazakhstan agreed formally to accede to the NPT as a non-nuclear state only in May 1992.[11] There are some suggestions that it has concerns about a threat from China and even the Muslim world[12] and a belief that even foreign nuclear forces on its soil might serve as a deterrent to a possible aggressor. Unlike Ukraine and Byelorus, Kazakhstan joined other Asian republics in signing a collective security pact with Russia in May 1992.[13]

In Ukraine, the position is most complex and still evolving. A 1990 parliamentary Declaration on State Sovereignty had asserted Ukraine's neutrality intentions and its refusal to accept, produce or receive nuclear weapons. Official studies conducted in the autumn of 1991 looked for nuclear weapons options which would prevent any successor to the Soviet Union emerging but which would not exacerbate inter-republic disputes. The preferred option emerged as transferring all nuclear forces to Russia, preferably for destruction. When the first CIS agreements were negotiated in Minsk in December 1991, "Ukraine did not demonstrate any nuclear ambitions".[14] There is strong anti-nuclear sentiment among the population. Yet President Kravchuk is also under pressure from nationalists, including the "Rukh" movement, "to renege on his obligation or at least to sell more dearly his agreement to abolish all nuclear weapons".[15] During 1992 he clearly wanted to obtain a technical/operational rather than merely political veto power over the use of weapons on his territory. In September 1992 he claimed to possess the codes which the Commander of the 43rd

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[11]. Trust and Verify, Bulletin of the Verfication Technology Information Centre, London, No.28, May 1992.

[12]. See, for instance, "Kazakhstan Looks For Security Guarantees" Defense News 22-8 June 1992; and Zagorski, op.cit., p.32.

[13]. "6 of Commonwealth Republics Sign Security Pact" International Herald Tribune 16 May 1992.

[14]. Andrei Zagorsky, "Post-Soviet Nuclear Proliferation Risks", Security Dialogue, Vol.23, No.3, September 1992, p.29.

[15]. Sergei A.Karaganov, Russia: the new foreign policy and security agenda", London Defence Studies 12, Centre for Defence Studies, June 1992, p.12. Zagorski, op.cit., p.30, claims that Ukrainian Defence Ministry officials are keenest on Ukraine having nuclear weapons status, while the Foreign Ministry is more moderate.

Missile Army would need to fire the missiles on Ukrainian soil[16]. It is not clear if he meant the codes which the Commander would need to authorize firing or those physically needed for the weapons' use, the keys to the technological locks.

Although Ukraine sees the CIS essentially as a structure to arrange the orderly break-up of the Soviet empire, and not a permanent body, it appreciates the CIS role as the controller of strategic missiles. In response to Russia's proposal to take over all strategic weapons, President Kravchuk observed that "We like what we've got....Ukraine today has the right to block the launch of nuclear weapons from its territory but is not claiming the right to press the button"[17]. President Kravchuk has reportedly said that, if Russia tried to replace the CIS command with a Russian national command, he will take all its nuclear weapons out of action.[18] There are problems even with weapons to be destroyed, with Ukraine saying it wants destruction to take place on Ukrainian soil, whereas Russia wants the missiles moved to Russia for dismantlement and destruction.

Clearly, a further step would be for Ukraine to gain the capacity to fire the missiles itself, which would involve it seizing control from the Russian forces currently in charge. For Ukraine or any other republic to have positive rather than merely a veto power over the missiles, they would need to have access to all firing codes and to be able to target the missiles.

Fear about UBK's evolving intentions is enhanced by the fact that it will not be legally necessary to destroy the missiles on their territory until 2002/3, depending on when the START Treaty comes into force, although politically they have indicated that they would like to be free of nuclear weapons within seven years[19]. In such periods, relations between Russia and its neighbouring

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[16]. "Kravchuk claims veto over missiles", The Daily Telegraph 24 September 1992.

[17]. Ibid

[18]. Ibid.

[19]. Ukraine has said it will be free of nuclear weapons by the end of 1994. However, this seems unlikely to occur, in part because of the difficulty of moving missiles.

republics could deteriorate sharply, although Russia and Byelorus appear not to have major sources of conflict.

Russia and the Ukraine have specific causes to quarrel, particularly over the Russian minority in the Ukraine, Russian claims to the Crimea and ownership of the Black Sea fleet. This latter issue has apparently been shelved for perhaps five years but the ships may still have had nuclear weapons on board as late as May 1992[20]. Tensions have eased over Ukraine's early wish, now abandoned, to create an army of 400,000, and over Ukraine's pressure in early 1992 for Russian officers on Ukrainian territory to take an oath of loyalty to Kiev. Economically Russia and the Ukraine were highly interdependent but in the new situation Ukraine is the more vulnerable. It has an abundance of redundant defence plants and heavy industry and, as a Ukrainian economic official put it, "They can last a year without our food, but Russia can halt Ukrainian industry in a day"[21]. The economic dimension of Ukraine-Russian relations provides extensive scope for both conflict and cooperation.

Politically, the Ukrainian government may be tempted to extreme nationalist positions should popular living standards continue to deteriorate, given that "acutely conscious that their culture and identity were suppressed for centuries by the Russian imperial yoke, many Ukrainians justifiably look at Moscow today with fear and repugnance"[22]. The Ukrainian government's clear temptation is to define its people's identity in terms of hostility to Russia. For Russians, Kiev having been the principal city of the first Russian state, it is hard to regard the Ukraine as a separate, sovereign state.

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[20]. Kravchuk Urges Nuke Pullout Defense news 11-17 May 1992.

[21]. E.Baramikov, quoted in "Kiev gripped in Russian stranglehold", The Financial Times 23 July 1992.

[22]. J.B.K.Lough, Russia and Ukraine after the Commonwealth, Royal Military Academy Sandhurst, Soviet Studies Research centre, April 1992, p.3.

Russian-Kazakh relations appear less difficult, although the Russian minority in Kazakhstan is living in a largely Muslim country, a potentially sensitive issue. In general, as international relations within the former Soviet empire develop, there is clearly no guarantee, or even expectation, that a new security community will be formed where the threat and use of force plays no part in inter-state affairs. There is also a chance that one or more of UBK will be tempted to see nuclear weapons as a useful source of bargaining power and protection.

Should one of them become an overt nuclear power, there is obviously the chance that other potential nuclear powers in the international system will be persuaded that it is worth joining the nuclear weapons world. While no state goes nuclear lightly, it seems reasonable that such a decision will be easier to take the more states there are already with nuclear weapons deployed. A Ukrainian nuclear force could have an impact in North Korea, in Iran and even in Brazil.

However, it must also be asked whether silo-based ICBMs, with their demands for maintenance, their satellite-related targetting demands, and their vulnerability, would be militarily-appealing systems for any of the new former Soviet republics other than Russia. The most likely scenario is one in which Ukraine and Kazakhstan delay as long as possible the removal of ICBMs from their territory so as to gain bargaining power with both Russia and the West on other issues. However, the seriousness of the situation should be noted, with it being unclear whether UBK's joining the NPT regime will precede or follow the START Treaty' ratification. Russia has said it will not allow START to come into force until UBK have joined the Non-Proliferation Treaty regime and Russian arms cuts could well be contingent upon Ukraine's denuclearisation[23]. START has also not yet been ratified by UBK or the US. Some in the US are reluctant to ratify START until UBK have joined the non-proliferation regime[24].

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[23]. Sergei Karaganov, Russia: the new foreign policy and security agenda, London Defence Studies 12, Centre for Defence Studies, London, June 1992, p.14.

[24] "START Hits Another Snag" Defense News 29 June - 5 July 1992.

Proliferation and the collapse of the former Soviet Union

A second and much broader set of possibilities stems from the proliferation possibilities arising from the USSR's disappearance as a superpower and the limitations of governmental control in the FSU.

Russia, along with other successor republics of the USSR, has seen its national product drop since the late 1980s and feels acutely its poverty and need for foreign exchange. Exports of manufactured goods including weapons are an appealing source of hard currency earnings. While Russia and the Ukraine, the chief states involved, are unlikely to sell non-conventional weapon technology deliberately as state policy, and Russia is being drawn to participate in the Missile Technology Control Regime[25], the summer's sale of Russian civil space rocket technology to India[26] indicates that there may well be differences between Russia and the West as to what is regarded as "reasonable behaviour". Bringing former Soviet republics nearer to the Cocom machine may help[27], but only if there is effective export control machinery within the Republics (see below) and if Western states themselves can agree on reasonable controls for dual-use technology.

Moving to an assumption that Russian government control may have lost some effectiveness, an obvious possibility is that tactical nuclear warheads might already have been misappropriated and moved outside the FSU. The West never knew precisely how many tactical nuclear weapons the USSR had deployed, let alone built, and it must rely on Moscow's assurances that all indeed are in safe storage in Russia. Since the number of such warheads probably runs into five figures[28], and since Russia has clearly lost the capability to supervise all its conventional weapons, there must be

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[25]. In May 1990 the USSR said it would observe the spirit and guidelines of the MTCR.

[26]. "Indian Deal With Russia Brings U.S. Reproaches", Defense News 11-17 June 1992; "Rocket row ban on India, Russia" The Financial Times 12 May 1992.

[27]. "Ex-Soviet states invited to join new Cocom body" The Financial Times 3 June 1992.

[28]. One Western press report said that there are about 8,800 nuclear artillery shells, mines and short range surface to surface missiles. There are also 3,400 naval nuclear weapons and 2,800 warheads for surface-to-air missiles: "NATO confident that tactical Soviet missiles are in Russia", The Independent 29 May 1992.

grounds for some Western concern, although leading Western figures have expressed confidence in Russian controls[29].

A related possibility is that fissile material from either dismantled strategic or tactical military weapons might be stolen. The disarmament programmes announced so far involve several tons of plutonium and enriched uranium going into safe storage[30]. Maintaining its security in a safe condition will be no straightforward task, although the danger of proliferation might be less than that of environmental damage. Weapons dismantlement is taking place in secret with Russia only reluctantly agreeing to a common committee with Ukraine to oversee the process[31]. In addition, militarily useful materials from civil power stations must be protected. Some leakage may already be occurring: in October 1992 Bavarian police seized 2.2 kilos of highly enriched uranium, feared to be weapons-grade material smuggled from Russia[32]. Western companies are exploring taking enriched uranium from Russian weapons and converting it into low-enriched fuel for use in power stations.[33]

Protecting deployed weapons, assembled weapons awaiting dismantlement/destruction and fissile material would become much more problematic should serious civil conflict break out within Russia itself. As the Harvard 1991 study on proliferation from the USSR pointed out, many control arrangements over nuclear weapons are procedural rather than physical. They would not survive

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[29]. US Secretary of Defense Cheney and NATO Secretary General were quoted in "Soviet missiles 'are in Russia'" International Herald Tribune 29 May 1992. However the US Senate Foreign Relations Committee is concerned and asked the Bush Administration to negotiate verification arrangements to cover warhead numbers in the FSU, see"Keeping an Eye on Warheads", International Herald Tribune, 4 July 1992.

[30]. The US expert Ashton Carter has spoken of 100,000 kilograms of plutonium and 500,000 kilograms of enriched uranium, see "The Fate of Nuclear weapons in the Former Soviet Union" Carnegie Quarterly Vol.37 Nos.1-2, Winter/Spring 1992, p.7.

[31]. "Concern remains over the Soviet nuclear legacy" Jane's Defence Weekly 27 June 1992.

[32]. "Explosive find" The Independent 17 October 1992.

[33]. "Nuclear weapons to be turned into fuel", The Financial Times 23 July 1992.

breakdowns in authority[34]. Internal conflict in Russia could be generated by separatist groups asserting what they regard as their ethnic rights, or by dissatisfied groups of citizens disillusioned with the economic and political plight of the country.

A widely discussed proliferation possibility is that former Soviet nuclear scientists and engineers, without a capacity to earn a living at home even in the civil sector, will sell their services to other countries. While there were as many as 100,000 workers devoted to Soviet nuclear weapon programmes, there are perhaps about 10,000-15,000 with "highly secret information" and 2,000-3,000 with "paramount knowledge of the most sophisticated technologies".[35] The West has taken this problem seriously, and the establishment of the International Science & Technology Centre in Moscow reflects in part a desire to find alternative sources of employment for nuclear scientists in the fields of environmental clean-up, radiation monitoring and improving the safety of nuclear reactors. The West is financing a similar centre in the Ukraine.

In non-defence areas such as sports coaching experts are already working overseas in numbers. In the conventional weapons field, as many as 1,500 aerospace experts may become involved in China building up the aircraft industry, albeit with Russian Government permission[36]. Should conditions continue to deteriorate in Russia and the Ukraine, it is hard to believe that engineers will not be tempted to sell their skills where they can, especially if the alternative is impoverishment in an isolated and specialised defence city. Nevertheless, many Russian authorities insist that there is no problem, not least because the people who work on nuclear weapons in the

[34]. The report of November 1991, Soviet Nuclear Fission: Control of the Nuclear arsenal in a Disintegrating Soviet Union, by a Harvard based study group of Kurt Campbell, Ashton Carter, Steve Miller and Charles Zraket, was digested in "The Fate of Nuclear Weapons in the Former Soviet Union" Carnegie Quarterly Vol.37, Nos. 1,2, Winter/Spring 1992, pp.1-7.

[35]. V.Michailov, former head of the Soviet military nuclear programme, cited in "The Scientists Have a Home" The International Herald Tribune 11 June 1992.

[36] "China seeks to build Mig-31", Aviation Week & Space Technology, 5 October 1992, p.27.

FSU are "patriots and responsible people" who would not relish living in a developing country such as Libya, "where living conditions are of a quite specific kind"[37].

Table 2: The Distribution of Defence Industry in the Former Soviet Union

	% of R&D facilities	% of production facilties	% of total facilities	Electronics sector only: % of total facilities
Russia	84	72	75	65
Ukraine	9	17	15	17
Byelorus	1	3	3	6
Baltics	na	na	3	6
Other repubs.	na	na	5	7

Source: Julian Cooper: The Soviet Defence Industry: Conversion & Reform, London, Pinter, 1991, p.21 (percentages have been rounded to nearest whole number).

However, not all Soviet non-conventional defence facilities are based in Russia and experts in other republics could come under severe pressure to earn a living with new employers. Kazakhstan has several important test sites, including nuclear test facilities, and a nuclear materials processing

[37]. The two quotations are from Russian Energy Minister V.Mihkaylov and S.Belkovskiy respectively, in David Mendeloff, "Russian Views on 'Brain Drain' of Former-Soviet Nuclear Scientists", Soviet Defense Notes, Center for International Studies, MIT, Cambridge Mass, Vol.4, No.2, May 1992.

plant[38]. Presumably those facilities have staff with difficulties. Table 2 shows that most former Soviet defence industrial installations were located in Russia and the Ukraine, although electronic installations were rather more diffused, presumably because of the availability of skilled female labour in particular locations.[39] The most important republic after Russia as far as non-conventional weapons are concerned is Ukraine with its extensive missile building capability[40]. Its Prime Minister Leonid Kruchma appointed in October 1992 had a career as a manager of a massive missile plant. However, Ukraine is less well-endowed with R&D facilties as compared with manufacturing (see Table 2) and its Military-Industrial Complex Minister, Viktor Antonov, has said that Ukraine wants to introduce a 10-year defence industry conversion programme, since defence orders have dropped drastically and the number of people employed in the defence sector has dropped from a million to 200,000[41].

Any former Soviet nuclear engineers who do seek to work overseas may well find it helpful to take with them specialised equipment, materials and designs. It is after all the detailed engineering which is problematic in nuclear weapons manufacture, rather than the general principles which lie behind a nuclear explosion. As a result of "civil" nuclear cooperation with developing countries including Libya, the old Soviet Union trained many foreign scientists in nuclear technology.

A specific problem here is that the old Soviet machinery for the control of dual-use technology has broken down and is only in the process of being replaced in all the separate republics of the FSU. Russia is currently developing the lists which control the export of a range of defence-related technologies. It has been argued that, as foreign exchange becomes ever more sought, and as privatisation and the development of para-state bodies proceed in Russia and perhaps elsewhere,

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[38]. Julian Cooper, Soviet Defence Industry: Conversion and Reform, London, Pinter/RIIA, 1991, p.23 and 28.

[39]. Cooper, op.cit., p.21.

[40]. Ukraine builds two commercial rockets, the Cyclone and the Zenit.

[41]. "Ukraine seeks industrial aid", Aviation Week & Space Technology, 5 October 1992, p.61.

the pressures for a relaxed system of export controls will increase[42]. The signs are that a coherent, effective system of export controls will not develop across the CIS for some time[43].

Former Soviet nuclear (and missile) engineers could, of course, only find employment abroad in states which both seek nuclear weapons while lacking their own materials, skills and equipment. This raises the question of whether the collapse of the Soviet Union as a super power will leave more states wanting nuclear weapons, because they have lost their main external backer. Certainly North Korea must feel more vulnerable, especially with China also building relations with South Korea. So might several states in the Middle East including Syria and even Egypt. There is credibility to the argument that Iraq was drawn particularly to nuclear weapons when the USSR proved an unreliable friend at the beginning of the Iraq-Iran War in 1980.

What should the West do?

The West has no means of ensuring that none of these contingencies will occur, but it can do much to reduce their likelihood.

First, the West must make clear to UKB that no substantial economic aid will be forthcoming if the former Soviet republics are perceived to be delaying giving up the nuclear forces on their territory. The West decided as the Soviet Union broke up that Russia should be the single nuclear successor to the USSR. This decision needs to be emphasised, perhaps regularly. On the other hand, aid measures to discourage proliferation must be built on. The Nunn-Lugar Amendment to the Soviet Nuclear Reduction Act of 1991, which inter alia, authorised the Pentagon to spend $400 million in the FSU to build weapons destruction facilities, to clean up Soviet nuclear pollution, to facilitate the safe transport and storage of nuclear weapons and materials, and to provide humanitarian aid, should be seen as not the last word, but as a difficult beginning (agreement on how to spend the

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[42]. Zagorski, op.cit., pp.34ff, notes the CHETEK Corporation offering to supply peaceful nuclear explosions to eliminate chemical or toxic weapons stocks, the offer of nuclear reactors on a Moscow commodity exchange, and the Russian sale of satellite engine technology to India.

[43]. On the arms export issue, see Vitaly Vitebsky, "Arms business put in order", Military News Bulletin (Novosti), No.5, May 1992.

money has been elusive). The populations of specialised isolated, nuclear-weapon cities will need particular help.

Second, since a major problem could develop from Ukrainian and Russian poverty (and it seems likely that the economic situation in Ukraine will become more and more desperate), the West must address seriously what could be done to move defence-oriented factories in those states to civil manufacture. More attention should perhaps be paid to Chinese experience with the conversion of defence plants[44]. Also it is clear that Russia and other republics will become a bigger proliferation problem should they descend into civil war. The fundamental principle that economic progress will help with the management of multiple (intra-state and inter-state) problems in the FSU is worth emphasising. One of the benefits of successful economic aid to the former Soviet republics should be that defence assets, both intellectual and material, will be less likely to find their way into nuclear mischief elsewhere.

Third, it must not be overlooked that it is a much bigger Western interest that nuclear proliferation be avoided than that the former Soviet Union massively cuts back on its conventional arms exports. The West should not put such extensive pressure on Russia and perhaps Ukraine about conventional arms sales that their governments feel disinclined to cooperate on nuclear proliferation issues. There are already sentiments in Russia that the West is seeking to weaken it further by preventing its exports. In the export control area, one suggestion is that the CSCE be used as a framework in which common standards of controls could be agreed and implemented.[45] Certainly, if CIS states do not have effective export control regimes, it will be harder for the West to export dual-use technology to them, for fear they will re-export it to an undesired destination.

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[44]. For an account of Chinese success with defence industrial conversion between 1978 and 1988, see Paul Humes Folta, From Swords to Plowshares: Defense Industry Reform in the PRC, Boulder, Colorado, Westview, 1992.

[45]. Zagorski, op.cit., p.38.

Fourth, while in many ways international relations among Russia, UKB and other former Soviet Republics are beyond the influence of the West, the West can nonetheless support certain principles, relevant to a variety of situations, which would make conflict less likely, particularly between Russia and the Ukraine. It is, for instance, vital that the West sticks in Yugoslavia to its view that borders cannot be changed by force and that ethnic cleansing cannot be accepted. The price of this stance may well be protracted conflict in the former Yugoslavia, but we have no interest in Russians in the Ukraine feeling either that they can be forced from their homes with impunity, or that borders can be forcibly changed by reference to the principle of national self-determination. In general, a major role for the CSCE, for future arms control negotiations and for the NACC will be to shape relations within Eastern Europe as a whole, including in the former Soviet Union, in a cooperative framework. If such relations can be established, and we are not doomed yet to having power politics rule relations within the former Soviet empire, nuclear weapons will further lose attraction.

Finally, everything should be done to make the 1995 NPT review conference a success. The present moratorium on tests by Western powers (as well as Russia) should be sustained, as a signal that nuclear weapons are seen by even the states possessing them as a less needed element in national security. While total nuclear disarmament is clearly impossible, measures which reduce the structural role of nuclear weapons in world politics are of value. While nuclear weapons are still actively deployed, Western powers should commit themselves never to using them first in a conflict[46], and should reinforce the reassurances given in the Security Council in 1968 that non-nuclear states would not be threatened by nuclear states. The developments in the former Soviet Union should not distract us from reminder that the wider world will not accept that nuclear forces are indefinitely good for some states and indefinitely forbidden to others.

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[46]. Britain and France's disinclination to accept such a posture is apparent from the speeches made by UK Defence Minister Malcolm Rifkind and French Prime Minister Pierre Beregevoy at the Paris symposium on "A New Strategic Debate" on 30 September and 1 October 1992.

Have UBK ratified the START Treaty yet?

(3)

DRAFT

STEMMING NUCLEAR PROLIFERATION IN SOUTH AND EAST ASIA:

DIFFERENTIATION AND ACTIVISM

by

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The Aspen Institute Conference on

"Proliferation in the 1990s"

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DRAFT

Stemming Nuclear Proliferation in South and East Asia:

Differentiation and Activism

In late 1992, the spread of nuclear weapons in South and East Asia remained a salient feature of the international security landscape, despite a number of important developments that appeared to have tempered the pace of proliferation in some cases. Leaving aside China, a declared nuclear-weapon-state since 1964, the weapons-relevant nuclear activities in countries from Pakistan to North Korea covered a surprisingly wide spectrum of undeclared nuclear-

weapons programs and latent nuclear-weapon options.[1] U.S. and international efforts to address the dangers posed by such programs have been equally varied, but new, carefully differentiated, initiatives are needed to make further progress in several key cases.

This paper will first examine the status of nuclear programs in India, Pakistan, North Korea, South Korea, and Japan;[2] this

[1] Inasmuch as this paper is focused on emergent nuclear threats, China's domestic nuclear-weapons program will not be discussed here. China's past contributions to nuclear-weapon programs in Pakistan and India and its diplomatic initiatives to reduce regional nuclear tensions are noted in the text.

It should also be noted that Chinese nuclear transfers to the Middle East are a growing source of concern. These have included the sale of a nuclear research reactor with military potential to Algeria; the sale to Syria of a small reactor, which, though, militarily inconsequential, marks Syria's first step toward building a nuclear infrastructure; and sales to Iran of nuclear research equipment and the pending sale of a nuclear power reactor, which the United States has opposed.

China is also said to have assisted the North Korean Scud missile program by providing key components. See Testimony of Rear Admiral Thomas A. Brooks, Director of Naval Intelligence, before the Subcommittee on Seapower, Strategic, and Critical Materials of the Armed Services Committee, U.S. House of Representatives, February 22, 1989 (hereafter, "Brooks 1989 Testimony"); William Safire, "Those Chinese Missiles," New York Times, February 23, 1989; Louise Lief, "Will Baghdad Get the Bomb?" U.S. News and World Report, April 9, 1990, p. 34; Seth Carus and Joseph S. Bermudez, Jr., "The North Korean 'Scud B' Programme," JANE's Soviet Intelligence Review (April 1989): 177.

[2] Taiwan has from time to time figured as a potential nuclear proliferation concern, but its nuclear ambitions appear quiescent today. In 1987 a controversy arose involving the reported defection to the United States of a Taiwanese nuclear specialist who was said to have disclosed to Washington nuclear-weapons-related activities that were allegedly taking place at Taiwan's Institute of Nuclear Energy Research at Lung Tan. The details of Taiwan's alleged improprieties have never been disclosed. In 1976, after a similar episode, Taiwan had pledged not to engage in research concerning the separation of plutonium. The 1987 incident

order reflects, in rough terms, the overall nuclear-weapon capabilities of these countries today, taking both technical and political factors into account. In brief, India is thought capable of deploying approximately 50 atomic bombs on short notice; Pakistan could probably deploy 10 to 15 similar weapons in a crisis; North Korea appears to be a number of years from developing its first device and may be pursuing a nuclear-weapons program in secret; South Korea would also need a number of years for a first device, but seems to have laid aside its past interest in acquiring such weapons; and Japan could probably build a sizeable nuclear arsenal within a year, but such a development appears highly unlikely, given the country's long-standing and still firm commitment to nuclear disarmament.

As discussed in the second part of this paper, diplomatic efforts to constrain these varying threats have enjoyed increasing success in East Asia during the past year, as North Korea agreed to allow International Atomic Energy Agency (IAEA) inspection of its nuclear installations. In South Asia, a measure of success was also achieved as Pakistan agreed to freeze -- but not roll back -- its undeclared nuclear-weapons effort; India, however, remained intransigent in its refusal to accept any meaningful restraints on its nuclear-weapons related activities.

I. Capabilities and Intentions

apparently involved a breach of this understanding. See, Stephen Engelberg and Michael Gordon, "Taipei Halts Work on Secret Plant to Make Nuclear bomb Ingredient," New York Times, March 23, 1988.

India

Since its 1974 nuclear test, India has not conducted additional nuclear tests or deployed nuclear forces. It has, however, greatly expanded its nuclear-weapon capabilities through the construction of a series of major nuclear installations, a program that received consistent support despite repeated changes in the country's leadership.[3] Notwithstanding strong pressure from the United States, India, which is not a party to the Nuclear Non-Proliferation Treaty (NPT), refused to place these installations under International Atomic Energy Agency (IAEA) safeguards, thus keeping them free of legal constraints that might limit their use for nuclear weapons.[4] These facilities, which remain outside the

[3] India has had five prime ministers since 1980: Indira Gandhi (1980-1984), her son, Rajiv Gandhi (1984-1989), Vishwanath Pratap Singh (1989-1990), Chandra Shekhar (1990-1991), and P. V. Narasimha Rao (1991-present). Indira Gandhi had served a previous term as prime minister between 1966 and 1977, and had ordered the 1974 test.

[4] The 1970 NPT divides the countries of the world into two categories: "nuclear-weapon states" (those that had detonated a nuclear explosive before 1967, that is, the United States, the Soviet Union -- now Russia, Great Britain, France, and China) and "non-nuclear-weapon states" (those that had not). Non-nuclear-weapon-state parties pledge not to manufacture or receive nuclear explosives and agree to accept inspections by the Vienna-based IAEA on all their nuclear installations. The weapon-states are permitted to retain their nuclear arsenals and are exempted from IAEA inspections but are bound to negotiate in good faith towards nuclear disarmament.

As of October 1992, the NPT had 146 non-nuclear-weapon-state parties and, with the adhesion of China to the treaty in March 1992, and that of France three months later, all five declared nuclear-weapon states were parties to the accord.

IAEA system today and form the backbone of India's nuclear weapons potential, include a number of nuclear power plants (Madras I and II, and Narora I and II, and Kakrapar I); the Dhruva research reactor at the Bhabha Atomic Research Center (B.A.R.C.) near Bombay; a refurbished plutonium separation plant at B.A.R.C.; and the Tarapur reprocessing plant. In addition, plutonium from the Canadian-supplied Cirus reactor, which produced the plutonium used for India's 1974 nuclear test device, is potentially available for nuclear weapons.[5]

Taken together, these installations are theoretically capable of producing enough plutonium annually for more than forty nuclear weapons, although all have experienced operating difficulties, which, Indian officials claim, have greatly reduced their output. India has acknowledged that it is extracting plutonium produced in its unsafeguarded reactors and has announced a program to separate several tons of the material by the next century, potentially sufficient for hundreds of nuclear weapons, to serve as fuel for

Algeria (which hinted in January 1992 that it might join the treaty), India, Israel, and Pakistan remain the only major regional states that reject as a matter of principle the comprehensive non-proliferation restraints embodied in pact.

[5] Under its agreement with Canada, India is precluded from using the facility or plutonium produced in it for non-peaceful purposes, but there is no mechanism for monitoring the use of the unsafeguarded facility.

India is building an additional unsafeguarded reprocessing plant at Kalpakkam, which is also the site of the Fast Breeder Test Reactor, a plutonium-fueled reactor which will ultimately produce more plutonium than it consumes.

advanced "breeder" reactors.[6] But in 1992, the head of the Indian Atomic Energy Commission, Dr. P. K. Iyengar, stated that outside observers had greatly exaggerated the country's plutonium inventory. In line with this assertion, U.S. officials reportedly believe India possesses less than 300 kilograms of the material and therefore probably could manufacture fewer than 60 nuclear devices.[7]

India announced in 1986 that it has mastered the uranium enrichment process, which could ultimately enable it to produce weapons-grade uranium.[8] In 1992, Iyengar revealed that India had built a pilot-scale enrichment plant, apparently at Mysore, a facility whose existence Indian officials had previously denied.[9] There have been no published reports that India has produced

[6] Steven R. Weisman, "India's Nuclear Energy Policy Raises New Doubts on Arms," New York Times, May 7, 1988.

[7] Mark Albright and Mark Hibbs, "India's Silent Bomb," Bulletin of the Atomic Scientists (September 1992): 27; Mark Hibbs, "Indian Pu Production Overstated, No Pit Production, Iyengar Says," Nucleonics Week, April 9, 1992, p. 6.
Iyengar also insisted that India had not fabricated any additional nuclear weapon cores, or "pits," beyond the one it built for the 1974 nuclear test. It is difficult to imagine that India has not taken this step, however, now that it appears Pakistan did so in early 1990, as discussed below. Hibbs, "Indian Pu Production," op. cit.

[8] "Official: India Has Nuclear Weapon Capability," United Press International, AM cycle, November 4, 1986; Ivan Fera and Kannan Srinivasan, "Keeping the Nuclear Option Open: What It Really Means," Economic and Political Weekly, December 6, 1986, p. 2119. Enriched uranium is also used as fuel for nuclear-powered submarines.

[9] Mark Hibbs, "Second Indian Enrichment Facility Using Centrifuges is Operational," Nucleonics Week, March 26, 1992, p. 9.

weapons-grade enriched uranium; thus for the moment, it appears that the country's nuclear-weapons capability remains tied to the production of plutonium.

India is also undertaking projects relevant to the production of thermonuclear or "hydrogen" bombs,[10] and it has been widely speculated that if Pakistan tested an atomic bomb, India might respond with the test of a thermonuclear device to demonstrate its continuing lead in the field.

It is not known whether India has actually built nuclear weapons or their components in the past but, in light of Pakistan's apparent acquisition of readily deployable nuclear arms (discussed below), it is hard to imagine that India has not also prepared assembled or unassembled nuclear weapons. Given the scale of India's nuclear facilities and their past operating histories, by late 1992, India could easily have obtained the essentials for 50 nuclear weapons with yields comparable to that of the Nagasaki device (i.e., 20 kilotons).

An additional component of India's long-term nuclear potential is its development of two nuclear-capable ballistic missiles, the short-range (180-mile) Prithvi, which is nearing deployment, and the intermediate-range (1,500-mile) Agni, which had its second test in 1992. India has stated that both systems will be armed with conventional warheads, but it must be assumed that the Agni, at

[10] Testimony of William Webster, Director of Central Intelligence, Hearings on Missile and Nuclear Proliferation, Committee on Governmental Affairs, U. S. Senate, May 18, 1989; Department of Atomic Energy, Annual Report 1988-1989 (Bombay: Government of India, 1989), p. 3.3.

least, will carry a nuclear payload, since no state has ever developed a ballistic missile as complex and expensive as the Agni to carry conventional ordnance.[11] Moreover, given India's oft-repeated concerns about the nuclear threat posed by Pakistan and China, it is hard to imagine that India would deploy the missile without the nuclear warheads presumably necessary to deter its nuclear-armed adversaries. Recently India has claimed that it does not intend to deploy the Agni, at all, and that the system is only a "technology demonstrator." If India ultimately followed this approach, it would parallel the tack it has taken with respect to nuclear-weapons.[12] Meanwhile, India possesses a variety of advanced fighter-bombers that could easily reach targets throughout Pakistan, as well as near-by targets in China.

India's nuclear posture has remained virtually unchanged for more than a decade. On the one hand, New Delhi has resisted the temptation to become a declared nuclear power, despite evidence of

[11] Given the Agni's range, it appears that India is developing the system as a counter to China's nuclear arsenal, although the missile would also have utility against Pakistan.

[12] The United States imposed sanctions against the Indian Space Research Organization and the Russian space agency, Glavkosmos, on May 11, 1992, after it appeared that the two would carry through with plans to transfer a Russian cryogenic rocket engine and related technology to India. Washington considered the sale to violate the rules of the Missile Technology Control Regime; U.S. law imposes sanctions on both sellers and purchasers in such instances, prohibiting them from receiving U.S. missile-related exports and from participating in contracts with U.S. government agencies. Although the engine was to be used in an Indian space launch vehicle, Washington feared that it might ultimately contribute to India's missile capabilities. India has previously adapted other space launch engines to military purposes. See Jon B. Wolfsthal, "U.S. Imposes Penalties Over Russian-Indian Rocket Deal," Arms Control Today (May 1992): 18.

Pakistan's dramatic nuclear advances that have led to repeated calls from Indian hawks for India to adopt an overt nuclear-weapons-state status. On the other hand, India continues to reject the NPT -- which Pakistan has stated it will join if India does -- on the grounds that the treaty's exemption of the five declared nuclear states from mandatory non-proliferation controls is discriminatory. Citing a perceived nuclear threat from China and unwilling to treat Pakistan as an equal, India has maintained its refusal to engage in bilateral non-proliferation talks with Islamabad. At the same time, New Delhi continues to oppose five-power nuclear talks, which would include China, Russia, and the United States, that have been proposed by Pakistan to address these concerns.

New Delhi's sole concession to the growing dangers of nuclear confrontation on the Subcontinent has been its readiness, in the wake of the Indo-Pakistani war scare of early 1990, to engage in a series of confidence-building measures with Islamabad. These have included an agreement not to attack each other's nuclear installations, the establishment of a military-to-military hotline, an agreement to provide advance notification of major military exercises; agreed arrangements to deal with inadvertent cross-border military overflights; and an agreement (which lacks verification mechanisms) prohibiting both states from using or producing chemical weapons.

The concerns underlying India reluctance to engage in nuclear talks are not without substance. In particular, the dissolution

of the Soviet Union has deprived New Delhi of a reliable strategic ally to balance China. It would also probably leave India without friends at a five-power conference table. Moreover, continuing tensions with Pakistan over Kashmir and Punjab, where India insists Pakistan is supporting increasingly violent separatist movements, make a nuclear break-through politically difficult. Nonetheless, as discussed below, India is becoming increasingly isolated in its refusal to engage in nuclear arms control discussions with its neighbors.

Pakistan

As of late 1992, Pakistan probably possessed the weapons-grade nuclear material and the key components for 10-15 atomic bombs, which would have yields comparable to the device used on Nagasaki and could be deployed quickly in a crisis for delivery by aircraft.[13] Published reports have quoted U.S. officials as stating

[13] Author's estimate, based on the assumption of the production of enough weapons-grade uranium for "several" nuclear devices annually between 1986 and late 1988 and between early 1990 and late 1991, when production of such material is said to have ceased. See U.S. Department of State, "Memorandum for Dr. Kissinger; Subject: Official Visit of Pakistan prime Minister Mohammad Khan Junejo: Background and Talking Points," July 18, 1986, SECRET/SENSITIVE; released under the Freedom of Information Act to the National Security Archive. The National Security Archive is a private research organization based in Washington, D.C. See also, see David Albright and Mark Hibbs, "Pakistan's Bomb: Out of the Closet," Bulletin of the Atomic Scientists (July/August 1992) 38; Hedrick Smith, "A Bomb Ticks in Pakistan," New York Times Magazine, March 6, 1988, p. 38 (suggesting a higher estimate). The possible availability of a quantity of weapons-grade uranium supplied by China would enlarge this potential arsenal somewhat.

that the Pakistani weapons weigh 400 pounds, use approximately 15 kilograms of weapons-grade uranium, and are based on the design of the device China detonated in its fourth nuclear test, a missile warhead with a yield of 20-25 kilotons.[14] According to Pakistani declarations that have been confirmed by U.S. officials, sometime in 1991, Pakistan froze the further production of weapons-grade nuclear materials and the manufacture of key nuclear-weapon components.[15]

Pakistan is not a party to the Non-Proliferation Treaty. It has stated that it is prepared to join the treaty or accept other non-proliferation measures if India does so but, as noted above, India has rejected these proposals and Pakistan's offer for five-power talks.

As discussed below, the continuing suspension of U.S. economic and military aid because of President Bush's inability to certify since late 1990 that Pakistan did "not possess a nuclear explosive device," as required by the U.S. Foreign Assistance Act, has left little question that Pakistan possesses the essentials for at least one nuclear weapon.

[14] Leslie H.Gelb, "Pakistan Links Peril U.S.-China Nuclear Pact," New York Times, June 22, 1984; Leslie H. Gelb, "Peking Said to Balk at Nuclear Pledges," New York Times, June 23, 1984; Simon Henderson, "Why Pakistan May Not Need to Test a Nuclear Device," Financial Times, August 14, 1984; Gary Milhollin and Gerard White, Bombs From Beijing (Washington, D.C.: Wisconsin Arms Control Project, 1991), p. 2.

[15] Interviews with knowledgeable U.S. officials, spring and summer 1992; R. Jeffrey Smith, "Pakistan Can Build One Nuclear Device, Foreign Official Says," Washington Post, February 7, 1992; "Khan Notes Freeze on Program," Karachi AMN, February 9, 1992, translated in JPRS-TND, April 3, 1992, p. 6; Gene Kramer, "U.S.-Pakistan," Associated Press, February 10, 1992; Rauf Siddiqi, Ann MacLachlan, "No `Direct Progress' in Talks, But Pakistan, U.S. Continue Effort," Nucleonics Week, February 20, 1992, p. 15; Ali Sarwar Naqvi, "Don't Blame Pakistan," Washington Post, July 16, 1992.

The key nuclear installation supporting Pakistan's nuclear weapons effort is a uranium-enrichment plant at Kahuta, which has been able to produce weapons-grade uranium since 1986 and is not subject to IAEA inspection. Pakistan has apparently built a second enrichment plant at Golra, which may be limited to research and development work.[16] The country also possesses facilities for extracting plutonium from spent reactor fuel, but since all of Pakistan's spent fuel is subject to IAEA inspection that would also apply to any separated plutonium, Pakistan is not known to have separated significant quantities of the latter, leaving its nuclear-weapons program dependent on enriched uranium.

In 1990, evidence emerged that Islamabad had taken important steps to acquire the ability to produce tritium, used in boosted atomic weapons and in some types of "initiators," a key component of all nuclear explosives.[17] To support this effort, Pakistan had

[16] Simon Henderson, "Pakistan Builds Second Plant to Enrich Uranium," Financial Times, December 11, 1987; Neil R. Lewis, "Reports of Pakistan Uranium Plant Weighed," New York Times, January 10, 1988; "Pakistan Denies New Enrichment Plant," Nuclear Engineering International (February 1988): 7; "Second Indian Enrichment Facility Using Centrifuges Is Operational," Nucleonics Week, March 26, 1992; "India and Pakistan Fail to Include New SWU Plants on Exchanged Lists," Nuclear Fuel, March 30, 1992.

[17] Mark Hibbs, "Illegal Export Charges May Spur Tighter German Export Controls," Nucleonics Week, January 5, 1989; Mark Hibbs, "German Firms Exported Tritium Purification Plant to Pakistan," Nuclear Fuel, February 6, 1989; "Germans Sell Nuke Equipment to Pakistan," News India, March 3, 1989; Mark Hibbs, "U.S. Repeatedly Warned Germany on Nuclear Exports to Pakistan," Nuclear Fuel, March 6, 1989; Mark Hibbs, "German Firm's Exports Raise Concern About Pakistan's Nuclear Capabilities," Nuclear Fuel, March 6, 1989; John J. Fialka and Thomas F. O'Boyle, "West German Firms Admit Supplying Nuclear-Weapons Material to Pakistan," Wall Street Journal, April 21, 1989; Mark Hibbs, "Prosecutors Link Tritium Plant to Pakistan Weapons Program," Nuclear Fuel, May 1, 1989; "NTG Nuclear

apparently begun construction of an unsafeguarded 50-megawatt (thermal) research reactor.[18] Such a facility could also be used to produce plutonium sufficient for between one and two nuclear weapons annually.

The United States has effectively confirmed Pakistan's possession of quickly deployable nuclear arms. Because of Pakistani nuclear advances earlier in 1990, in October of that year, the United States terminated aid and military sales to Pakistan after President George Bush failed to certify that the country did "not possess a nuclear explosive device;" the finding is required annually under a 1985 U.S. law, known as the Pressler Amendment, as a condition for the provision of U.S. aid and military sales to Pakistan.[19] Presidents Bush and Reagan had made the non-possession certification in each of the four preceding years. As of mid-1992, the U.S. aid cut-off was continuing, with Washington insisting that Pakistan not only freeze its nuclear program but also destroy any existing nuclear-weapon cores so as to restore the program to its 1989 status. (The Soviet withdrawal from Afghanistan in February 1989 had reduced Pakistan's importance

Proliferation Case," Der Spiegel, November 6, 1989, translated in JPRS-TND, November 29, 1989, p. 35.

[18] See preceding note.

[19] Foreign Assistance Act of 1961, section 620E(e). The complete finding that the President must make is that "Pakistan does not possess a nuclear explosive device and that the proposed United States assistance program will reduce significantly the risk that Pakistan will possess a nuclear explosive device." The latter portion of the finding has not proven controversial on the assumption that it is easily satisfied.

as a strategic U.S. partner in the region, easing the way for Bush's aid cut-off -- a step the Reagan Administration had refrained from taking during the Afghan War, despite Islamabad's repeated violations of pledges it had given to halt its nuclear advances.)

Although Pakistan is not known to have conducted any nuclear tests, it is thought to have received a proven nuclear-weapon design from China, its long-time ally, which would increase its confidence in the reliability of an untested nuclear arsenal.[20]

Currently, Pakistan does not possess any nuclear-capable surface-to-surface missiles. In the mid-1980s, with Chinese assistance, Pakistan launched a program to develop two short-range nuclear-capable ballistic missiles, the Hatf-I and Hatf-II, with ranges of 50 miles and 186 miles, respectively. Although both missiles were test fired in 1989, the program is apparently advancing slowly and neither system has been deployed. Pakistan has sought to purchase a similar system, known as the M-11, from China but was not believed to have acquired any of these missiles as of mid-1992. (In early 1992, China agreed to accept the export control standards of the Missile Technology Control Regime and advised the United States that it interpreted these guidelines as

[20] See note 14. It has also been alleged that in conjunction with providing the nuclear weapon design, China transferred to Pakistan sufficient weapons-grade uranium for two nuclear devices. Interviews with U.S. officials, Washington, D.C., summer 1992; see also, ibid.; "Pakistan's Atomic Bomb," Foreign Report, January 12, 1989, p. 1. U.S. officials contacted by other researchers in 1991 discounted the claim, however. See Hibbs and Albright, "Pakistan's Bomb," see note 13.

precluding transfers of the M-11.)[21] Pakistan also possesses a variety of nuclear-capable fighter-bomber aircraft, including the U.S.-supplied F-16. This is currently the most sophisticated warplane in the Pakistani air force, and the one Pakistan would presumably wish to use to deliver nuclear ordnance. The United States has prohibited the use of the aircraft for this purpose, however, and apparently monitors the F-16s it has supplied to Pakistan to ensure that they are not modified to carry nuclear arms.[22]

Like that of India, Pakistan's declared nuclear posture has remained largely constant for many years notwithstanding changes in the country's leadership.[23] Although Pakistani officials have hinted from time to time that the country's nuclear program is being pursued for military purposes, Pakistan has generally

[21] Bill Gertz and Warren Strobel, "U.S. Set to Drop Sanctions If China Obeys Missile Pact," Washington Times, January 30, 1992.

[22] See "Opening Statement of Senator Richard Lugar," Hearings on the Implementation of the Pressler Amendment, Committee on Foreign Relations, U.S. Senate, July 30, 1992; but see, "Notes from some hearings," Arms Sales Monitor No. 11-12, 102nd Congress, January-February, 1992, suggesting that Pakistan remains interested in using the F-16 for nuclear delivery.

[23] Since 1980, Pakistan has had four sets of leaders. From 1977 to 1985, the country was a military dictatorship led by President Zia ul-Haq; thereafter a limited non-party parliamentary democracy was introduced, under which Zia remained president and his close ally, Muhammed Khan Junejo, served as Prime Minister (1985-1988). Since Zia's death in 1988, Ghulam Ishaq Khan has served as the country's president, effectively sharing power with a freely elected prime minister and the Army Chief of Staff. Benazir Bhutto served as prime minister from 1988 to 1990, when she was succeeded by Nawaz Sharif. General Mirza Aslam Beg was chief of staff from Zia's death until the summer of 1991, when he was succeeded by General Asif Nawaz.

maintained that its nuclear program is entirely peaceful. In early 1992, it appeared that the Pakistani government might be abandoning its policy of ambiguity in favor of overt nuclear-weapon-state status. In a February 6 interview with the Washington Post, Pakistani Foreign Secretary Shahryar Khan stated that his country possessed "elements which if put together would become a [nuclear] device," including potential weapon cores fashioned from weapons-grade uranium.[24] Subsequent clarifications by Khan and other Pakistani spokesmen disavowed this claim, insisting he had been misquoted.[25] (In the February 6 interview, Khan also announced that Pakistan had frozen its nuclear program.)

Unlike India, however, Pakistan has deliberately altered the pace of its nuclear program at different times to adapt to changing strategic and political developments. Until the death of president Zia ul-Haq in August 1988, Pakistan's efforts to acquire nuclear arms was pursued aggressively. This program provided the essentials for Pakistan's first nuclear weapon in 1986, or possibly earlier in the decade, if it indeed received weapons-grade uranium from China, as has been alleged; thereafter Zia steadily enlarged

[24] Smith, "Pakistan Can Build One Nuclear Device" (see note 15); "Khan Notes Freeze on Program" (see note 15) (citing a similar statement by Khan on the BBC); Paul Lewis, "Pakistan Tells of Its A-Bomb Capacity," New York Times, February 8, 1992.

[25] "Khan Nuclear Program Not for Weapons," Islamabad Radio Pakistan Network, 1500 GMT February 8, 1992, translated in FBIS-NES, February 10, 1992, p. 55; "Spokesman Clarifies Nuclear Policy," Islamabad Radio Pakistan Network, 1500 GMT February 9, 1992, "Possession of Nuclear Device Denied," Islamabad Radio Pakistan Network, 0800 GMT, February 9, 1992, both translated in FBIS-NES, February 11, 1992, p. 54.

the country's stockpile of weapons-grade uranium, effectively expanding its de facto nuclear arsenal.

In late 1988, however, Benazir Bhutto, critically dependent on aid from Washington to maintain her political base at home, ceased the production of weapons-grade uranium in an apparent bid to ease U.S. concerns about Pakistan's nuclear intentions. Production was restarted in early 1990, however, apparently at the insistence of President Ghulam Ishaq Khan and Army Chief of Staff Mirza Aslam Beg, to respond to the imminent threat of war with India, a crisis triggered by escalating tensions over Kashmir. Pakistan at this time apparently fabricated for the first time all of the necessary nuclear components for nuclear arms. It was this resurgence of the nuclear program that led to the termination of U.S. economic and military aid in October 1990.[26]

[26] The Bush Administration interpreted the cutoff provisions of the Pressler Amendment generously, however, permitting almost a half a billion dollars in ecomomic assistance already "in the pipeline" to be disbursed and continuing to issue export licenses for commercial (non-government-to-government) sales of military spare parts to maintain Pakistan's existing U.S. weapon systems. In addition, Washington did not press other aid donors to curtail assistance and, in fact, "generally supported large amounts of aid international aid to Pakistan by various donor countries." See "U.S. Does Not Accept India's Claim on Kashmir: Oakley," News (Islamabad), August 28, 1991. The fact that the Bush Administration was continuing to license of commercial arms sales to Pakistan was not widely known in Congress and, when publicized in early 1992, proved controversial, since a number of lawmakers, including the provision's chief sponsor, Senator Larry Pressler, had interpreted the Pressler Amendment's prohibitions as extending to such sales. See Murray Waas and Douglas Frantz, "Despite Ban, U.S. Arms are Sold to Pakistan, Los Angeles Times, March 6, 1992; Steven Greenhouse, "Senator Seek Full Cutoff of Arms to Pakistan," New York Times, March 8, 1992; David Hoffman, "Sales to Pakistan Survive in U.S. Policy Rift," Washington Post, April 14, 1992; John Glenn, "This Country Encouraged the Spread of Nuclear Weapons," Washington Post, June 24, 1992; Hearings on the Pressler Amendment

With the election of Nawaz Sharif as prime minister in late 1990 and Beg's retirement in August of the following year, Pakistan ceased production of weapons-grade materials, and took other steps that effectively froze its nuclear-weapons program. The freeze was continuing at the end of 1992. The change roughly coincided with Sharif's offer to India of five-power talks on nuclear issues, indicating that although Pakistan maintained the essentials of a small nuclear force, it had adopted a new policy of restraint in its overall nuclear orientation.

This history suggests that U.S. diplomacy, including the termination of aid, has had an important impact in influencing Pakistan to slow its nuclear advances, even if it has not achieved all U.S. non-proliferation objectives.

North Korea

American diplomacy has also been instrumental in curbing North Korea's bid for nuclear arms. The latter's nuclear potential has been a profound concern for the United States because of North Korea President Kim Il Sung's historical propensity for violence against the South Korea, support for international terrorism, and readiness to sell advanced weaponry to other radical states. As of late 1992, it appeared that North Korea did not have the ability to manufacture nuclear weapons and had not produced significant

quantities of weapons-grade nuclear materials. A number of doubts remained concerning these conclusions, however.

The most important declared elements of North Korea's nuclear infrastructure that might contribute to a nuclear weapons program are located at the Yongbyon nuclear complex, which houses a 5-megawatt (electric) reactor that has been operating at Yongbyon since 1986 and a partially completed plutonium-separation facility.[27] The 5-megawatt reactor is capable of producing enough plutonium in its spent fuel for one or possibly two nuclear weapons annually. In addition, the North is building a 50-megawatt (electric) reactor at this site and a 200-megawatt electric power reactor at Taechon.[28]

Unlike India and Pakistan, North Korea is a party to the NPT. After joining the treaty in 1985, however, North Korea refused for more than six years to sign the comprehensive IAEA inspection agreement required by the accord. In the interim, it built the 5-megawatt reactor and partially finished the plutonium separation plant at Yongbyon, installations that U.S. Director of Central Intelligence Robert Gates believed would enable it to manufacture nuclear weapons "soon or possibly very soon." [29] North Korea sought

[27] "IAEA Director General Completes Official Visit to the Democratic People's Republic of Korea," IAEA Press Release, May 15, 1992; Ann MacLachlan "North Korea Files Initial Report With IAEA; Declares Reprocessing Facility," Nucleonics Week, May 7, 1992.

[28] Ibid.

[29] Testimony of Robert Gates, Director of Central Intelligence, before the Committee on Armed Services, U.S. House of Representatives, March 27, 1992 (hereinafter "Gates March 1992

to excuse its non-compliance with the NPT's inspection requirements by arguing that it remained under a nuclear threat from U.S. nuclear weapons based in South Korea.

In September 1991, President George Bush announced that, as a global policy, the United States would withdraw all of its groung- and sea-launched tactical nuclear weapons from service, and in December 1991 South Korean President Roh Tae Woo declared that there were no nuclear weapons in his country (implying that any U.S. air-launched there systems had also been removed). These developments, together with increasing international pressure on North Korea to restrain its nuclear activities and the country's growing isolation after the collapse of the Soviet Union, led to a major shift in its nuclear stance.

In December 1991, North Korea signed a joint declaration with South Korea on the denuclearization of the Korean Peninsula.[30] In the declaration, both parties agreed not to manufacture or receive nuclear weapons and not to build plutonium separation or uranium enrichment plants, i.e., facilities able to produce weapons-grade nuclear materials. Both also agreed to implement bilateral inspections to verify these undertakings. In April 1992, North Korea finally ratified its IAEA safeguards agreement, and, in May, IAEA inspections began in the North. By late 1992, the IAEA had inspected all of the installations noted above and a number of

Testimony").

[30] "Two Koreas Agree on Nuclear Ban, But Not on Method of Inspections," New York Times, January 1, 1992.

others declared by Pyongyang. In addition, the agency had visited a number of locations not listed by the North, in order to probe for possible clandestine nuclear activities.

Washington had observed the externally complete reprocessing facility at Yongbyon by reconnaissance satellite, and, prior to the commencement of IAEA inspections, feared that the installation might be nearing the point of operation, after which it might quickly produce significant quantities of plutonium.[31] It also assumed that the 5-megawatt reactor had produced significant quantities of plutonium-bearing spent fuel that could be processed in the plutonium separation facility.[32]

After a May 10-14, 1992, visit to the plutonium separation installation, however, International Atomic Energy Agency Director General Hans Blix indicated that the plutonium facility was far from complete, with only forty percent of its equipment installed, a finding that eased U.S. concerns about the plant.[33] At the same time, Blix rejected the North's characterization that the facility was a mere radio-chemistry laboratory, stating that if completed, it would be considered a full-fledged plutonium separation plant

[31] Gates March 1992 Testimony.

[32] Interviews with U.S. officials, Washington, D.C, spring and summer 1992; Gary Milhollin, "North Korea's Bomb," New York Times, June 4, 1992; Gerald F. Seib, "U.S. Analysts Worry North Korea May Be Hiding Nuclear Potential," Wall Street Journal, June 11, 1992.

[33] Don Oberdorfer, "N. Korea is Far From A-Bomb, Video Indicates," Washington Post, June 4, 1992.

by international standards.[34] If so, the North-South nuclear agreement would presumably bar the completion of the facility. The North, however, has stated that it intends to continue work on the installation.[35]

The North also revealed that it had extracted plutonium on an experimental basis from spent fuel irradiated in a small Soviet-supplied research reactor at Yongbyon that had been under IAEA inspection for many years. Pyongyang admitted that it had not informed the agency about the activity and had thus violated its agreement with the IAEA covering the installation.[36] Although the North claimed that the amount of plutonium involved was extremely small, the episode underscored concerns about North Korean compliance with its non-proliferation undertakings and its interest in pursuing plutonium separation.

Questions also remain about the operating history of the 5-megawatt reactor at Yongbyon. The North claims that although the reactor was completed in 1986, it is still using its initial load of fuel and has not discharged any plutonium-bearing spent fuel.[37] Some U.S. intelligence analysts, however, believe that a substantial quantity of spent fuel may, in fact, have been produced

[34] "IAEA Chief Says North Has Unfinished Nuclear," UPI, May 18, 1992.

[35] Lim Yun-suk, "S. Korea Accuses N. Korea of Violating Nuclear Pact," Reuter, June 12, 1992.

[36] Mark Hibbs, "North Korea Thought to Have Separated Pu in the 1970s with Soviet Help," Nucleonics Week, June 22, 1992, p. 15.

[37] Interviews with North Korean officials, Pyongyang, April 1992; U.S. and IAEA officials, Washington, D.C., May-July 1992.

during the interim. They fear the North is hiding the material so that it may continue its quest for nuclear arms covertly. They also speculate that since, originally, the plutonium separation plant was apparently sized to be able to handle the spent fuel from both the 5-megawatt and 50-megawatt reactors, the existing plant, though only partially complete, might be able to process all of the spent fuel from the smaller reactor -- if the material exists.[38] This would enable North Korea to obtain the wherewithal for a number of nuclear weapons rapidly. Although North Korea has provided the IAEA with operating records of the 5-megawatt reactor which are consistent with Pyongyang's claim that the unit has used the same load of fuel in its core since it came on-line, the agency will not be able to verify this until 1993, when the material is scheduled to be removed and can be sampled.[39] Thus important questions about North Korea's compliance with its IAEA obligations remain.[40]

In the meantime, implementation of North-South inspections has been stalled because of disputes about the modalities of such monitoring. South Korea, backed by the United States and Japan,

[38] Interviews with U.S. officials, fall 1992; see also, note 31.

[39] Interviews with U.S. and IAEA officials, Washington, D.C., May-July 1992.

[40] It remains possible that the North has built and operated facilities other than those it has declared to the IAEA, but US officials have indicated that all facilities they are aware of have been disclosed to the agency and are therefore coming under IAEA inspection. Personal interviews with U.S. officials.

is currently demanding that North Korea accept a fixed number of such inspections annually, on a reciprocal basis with the South. The North has objected because this would entail granting access to its military bases. Without such wide ranging inspections, however, it is difficult to see how the North could gain confidence that U.S. nuclear weapons had been removed from South Korea. Washington and Seoul have agreed that U.S. and South Korean bases would be open to inspection under the arrangement.

The IAEA has recently reactivated its authority to conduct "special" inspections at suspected undeclared nuclear sites in non-nuclear-weapon-state parties to the NPT, and the North has declared that the agency can have access to any location in the country, whether or not declared on the North's nuclear inventory. Nonetheless, South Korea, Japan, and the United States consider IAEA monitoring to be inadequate in the case of North Korea, given their fears of deception by Pyongyang and the limitations of the IAEA's special inspection authority.[41] Such IAEA inspections can be undertaken, for example, only after credible evidence of a safeguards violation has been presented, which will make such inspections highly unusual and create a political "threshold" to their use; moreover, there will be considerable delays between the time of a request for a special inspection and the arrival of IAEA inspectors on-site, allowing efforts to cover up evidence of prohibited activities.

[41] "Atomic Report Cast Doubt on CIA Korea Fears," Reuter, June 14, 1992.

Because of its deep-seated suspicions about Pyongyang's nuclear aspirations, Washington has linked improved relations with the North's acceptance of such inspections and has persuaded South Korea, Japan, and the European Community to adopt a similar approach.[42] Following this strategy, South Korea has held back from implementing economic and communications agreements signed with the North in December 1991, until an understanding on bilateral nuclear inspections is reached. Japan is similarly withholding diplomatic recognition of the North and potentially generous amounts of desperately needed financial aid until such arrangements are in place. China, which dealt its erstwhile North Korean ally a grievous blow by recognizing South Korea in August 1992, has also been pushing Pyongyang to resolve the matter, as has Russia, another former patron, which has also recognized Seoul and whose termination of subsidized fuel and military equipment sales to the North have gravely weakened its economy.

Adding to concerns about North Korea's nuclear capabilities is the fact that it is able to manufacture Scud-B missiles, capable of carrying nuclear warheads to a range of 300 kilometers. The North has also apparently produced a missile known as the Scud-C, with a range of possibly 600 kilometers.[43] Pyongyang is also

[42] "EC Links DPRK Ties to Nuclear Inspections," Seoul KBS-1 Radio Network, June 10, 1992, translated in FBIS-EAS, June 10, 1992, p. 15.

[43] "DPRK Said Developing Improved Scud Missile," Kyodo, September 20, 1991, in JPRS-TND, October 29, 1991, p. 7. The North's possession of such missiles -- which may be armed with chemical, as well as conventional, warheads -- and the ease of its using such systems to target Seoul has contributed to the

believed to be developing a 1,000-kilometer range system, known as the Nodong 1, which would have the potential to reach Japan.[44] Pyongyang has exported both systems to radical states in the Middle East, the former to Iran and the latter to Syria.[45] These transactions have raised concerns that it might also be prepared to export nuclear wares to these states.

In the fall of 1992, South Korean President Roh Tae Woo was quoted as stating that the information unearthed by the IAEA about the North's nuclear program and the continued monitoring by the

reluctance of South Korea and the United States to undertake military action to destroy key North Korean nuclear installations. Nonetheless, twice during 1991, South Korea's Defense Minister Lee Jong Koo raised the possibility that his government might consider military action to destroy key nuclear installations in North Korea. See David E. Sanger, "Furor in Seoul Over North's Atom Plant," New York Times, April 16, 1991. See also, "North Korea's Potential Analyzed," Choson Ilbo, April 1, 1991, translated in JPRS-TND, April 23, 1991, p. 6.

[44] "North 'World's Seventh Biggest' Arms Exporter," Yonhap, 0902 GMT, June 26, 1991, translated in JPRS-TND, July 24, 1991, p. 8; "North Korea Ready to Begin Flight Testing New Ballistic Missile," Aerospace Daily, March 16, 1992, p. 425; "Japan's Defence Chief Warns of N. Korean Missiles," Reuters, June 25, 1992.

[45] R. Jeffrey Smith, "U.S. Orders North Korea to Stop Scud Shipment," Washington Post, February 22, 1992; "Testimony of Richard Clarke, Assistant Secretary of State for Politico-Military Affairs," Hearings on Arms Trade and Proliferation, before the Subcommittee on the Middle East, Committee on Foreign Relations, U.S. Senate, [April-May], 1992. [Arms Sales Monitor March-April 1992] In 1987, North Korea is said to have concluded an agreement with Iran worth $500 million, which included Iran's purchase of 100 North Korean-produced Scud-B missiles; approximately $400 million was to be used, at least in part, to build a missile production facility in Iran and, possibly, to support North Korean efforts to produce an improved Scud. Bermudez and Carus, "North Korean `Scud B' Programme" (see note __) Regarding sales to Syria, see Joseph S. Bermudez, "Syria's Acquisition of North Korean Scuds," Jane's Intelligence Review (June 1991): 249.

agency had eased somewhat his concerns about its nuclear program.[46] The comment suggested that South Korea might reduce its pressure for bilateral nuclear inspections and no longer make them a precondition to other commercial and political openings to the North. Within days, however, in an apparent attempt to shore up support for a strong, unified stance on the issue of bilateral inspections, U.S. Secretary of Defense Dick Cheney reaffirmed U.S. concerns about the North's nuclear program, declaring

> I can simply say . . . as we've said before, that we have good reason to believe that the North Koreans are aggressively seeking to develop nuclear weapons. Obviously, a lot of that information relies upon intelligence, and I'm not at liberty to talk in detail about how we collect that information. But it has been [of] sufficient quality so that we are persuaded that they have been embarked upon a course of action that would lead to the development of nuclear weapons.[47]

Cheney's comment suggested that any relaxation of South Korea's stance on the matter would probably be deferred, at least until after the country's upcoming presidential elections bring a new leader into office in February 1993.[48]

South Korea and Japan

[46] Nayan Chanda, "Atomic Ambivalence," Far Eastern Economic Review, October 1, 1992, p. 8.

[47] Statement of Secretary of Defense Dick Cheney at the conclusion of the 24th Annual Republic of Korea-United States security consultative meeting, October 8, 1992.

[48] Ineligible to succeed himself, Roh is not running. The two leading candidates, Kim Yong Sam and Kim Dae Yong have sought improved ties to the North in the past.

Although there is little reason for concern that either of these states is embarked on a quest for nuclear weapons, several points about their nuclear programs and strategic environments are worth noting.

With nine nuclear power reactors in operation and five under construction, South Korea produces forty-seven percent of its electricity from this source and ranks ninth in the world in nuclear energy output. Although the program appears to be entirely peaceful today, in the 1970s, Seoul initiated a secret effort to develop nuclear weapons.[49] The South Korean nuclear weapons effort centered on the acquisition of a plutonium separation plant from France, which Seoul sought to justify as a legitimate component of its peaceful nuclear energy program. At the time, it was widely assumed that future shortages of uranium would require the use of plutonium as a civilian nuclear fuel in standard nuclear power reactors and ultimately lead to the wide-scale deployment of advanced, plutonium-fueled breeder reactors that would produce more plutonium than they used. Washington was concerned because the French facility, though it would have been subject to International Atomic Energy Agency inspection, would have provided Seoul with a stockpile of weapons-usable plutonium that it could have transformed rapidly into nuclear arms in a crisis if it chose to

[49] The initiative was apparently a response to the North's unprecedented expansion of its conventional military forces at the time, its continuing program of destabilization and violence against Seoul, and the reduction of the U.S. security presence throughout Asia at the close of the Vietnam War. See Leonard S. Spector with Jacqueline R. Smith, Nuclear Ambitions (Boulder, Colo.,: Westview Publishing Co., 1990).

abrogate its pledges to the IAEA. At the time, South Korea was not a party to the NPT.

U.S. diplomatic pressure and renewed security commitments, however, led Seoul to join the treaty in 1975 and to abandon its bid for nuclear arms well before the effort reached fruition.[50] In 1976, with U.S. encouragement, France canceled the planned facility sale, and, in this context, Seoul also assured Washington that it would not pursue plutonium separation in its domestic nuclear program. Within several years, the global down-turn in the use of nuclear power and the discovery of extensive new uranium resources led to a glut of uranium on world markets that removed any economic basis for using far more expensive plutonium as a civilian nuclear fuel.

During the late 1980s, as concerns mounted about the North's apparently unchecked development of a weapons-related nuclear infrastructure, senior officers in the South Korean military reportedly sought to reopen the question of the country's developing nuclear weapons by presenting the country's defense minister with a report, known as the "XXX Plan," discussing the need for South Korea to develop nuclear arms.[51] The initiative was

[50] Subcommittee on International Organizations, Committee on International Relations, U.S. House of Representatives, Investigation of Korean-American Relations, 95th Cong., 2nd Sess., 1978, p. 80; Robert Gillette, "U.S. Squelched Apparent S. Korea A-Bomb Drive," Los Angeles Times, November 4, 1978.

[51] "Article Reveals Secret Plan on Capability, Policy," Seoul Wolgan Choson, October 1991, pp 222-237, translated in JPRS, October 29, 1991, p.14.

apparently rebuffed by President Roh, however. Nonetheless, it revealed an important strand of South Korean opinion.

The perspective was indirectly echoed by a number of prominent civilian nuclear specialists and military researchers, who during the same period, began to lobby for the removal of restrictions on domestic plutonium separation activities, arguing -- without addressing the poor economics of the technology -- that the ban improperly infringed the country's right to exploit the most advanced aspects of civilian nuclear energy.[52] In conjunction with this resurgence of interest in plutonium, South Korea initiated negotiations with Canada on a complex arrangement under which Seoul would ship spent fuel from a Canadian-supplied reactor to Canada where it was to be processed into plutonium-rich fresh fuel that would then be returned to South Korea for re-use in the Canadian-supplied unit. The arrangement made little sense economically, but would have provided the South considerable technical data and experience relevant to plutonium separation. After Washington intervened, Canada ended discussions on the matter.[53]

[52] Ibid.; interviews, Seoul, April 1992.

[53] For discussion of a more recent nuclear fuel cycle alternative with similar overtones, see "Rick Doust "Canadian-Korean Partnership Works a Tandem Fuel Cycle," Nuclear Engineering International (April 1992), p. 36.

More recently, Seoul has entered into a wide-ranging nuclear cooperation agreement with Great Britain that some fear might lead to the separation of plutonium from South Korean spent fuel in the U.K. and its return to South Korea. Mark Hibbs, "British-Korea Agreement Will Allow Reprocessing at BNFL," Nuclear Fuel, December 9, 1991, p. 14. U.S. officials believe it unlikely, however, Britain would agree to such a plan. Interviews, winter 1991-1992, Washington, D.C.

Despite these hawkish rumblings, President Roh Tae Woo formally pledged on November 8, 1991, that South Korea would not possess nuclear fuel reprocessing or enrichment facilities.[54] This ban was subsequently codified in the December 1991 North-South agreement on denuclearizing the Korean Peninsula. With concerns about the North's nuclear program now somewhat reduced after the commencement of IAEA inspections, interest in plutonium, and in the acquisition of nuclear weapons more generally, appears to have subsided for the moment. Renewed anxieties about the North's nuclear program or about Japanese remilitarization, an extremely sensitive issue in South Korea, could reverse this trend, however. Some have also suggested that should the Peninsula be reunified under Southern leadership later in this decade, as appears increasingly plausible, the new Korean state might consider developing nuclear weapons to ensure its continued autonomy in a region dominated by three giant powers, China, Japan, and Russia.

Turning to Japan, finally, one factor cited by South Koreans who want to pursue plutonium-use as the leading edge of civilian nuclear technology is Japan's ambitious program to produce and use the material. The Japanese program, which is under comprehensive IAEA inspection because of Japan's adherence to the NPT, is currently centered: around the Tokai-mura pilot plutonium separation plant, which has been operating since the late 1970s; the commercial-scale Rokkasho-mura plutonium separation plant, to

[54] "South Korean President Pledges to Go Nuclear Free," Nuke Info Tokyo, November-December 1991, p. 10.

be completed after the turn of the century; the extraction of plutonium from Japanese spent fuel in France and Great Britain, under contracts dating back to the late 1970s; and a number of plutonium-using reactors, including the Monju prototype breeder reactor and the Fugen advanced thermal reactor.[55] At the end of 1992, Japan was arranging for a controversial one-ton sea shipment of plutonium from France, under special security and safety arrangements, which critics charged were insufficient to address the dangers such a shipment entailed.[56] Separation of plutonium from Japanese spent fuel in Great Britain was scheduled to begin shortly, with the imminent start-up of the THORP (Thermal Oxide Reprocessing Plant) plutonium separation plant at Sellafield. Japan has stated that it will not repatriate more plutonium from either country than is needed for specific projects and will, therefore, not maintain a substantial domestic stockpile of the material.[57]

Japan's extensive plutonium-use program is standing increasingly alone, as other advanced states that had pursued this technology, in particular France, Germany, and Great Britain, are reducing their commitments to it because of poor economics, serious

[55] For a detailed review of Japan's plutonium-use program, see William Walker and Franz Berkhout, "Japan's Plutonium -- and Europe's," Arms Control Today (September 1992): 3.

[56] Hiroyuki Kishino, "No Fear. The Plutonium Is Safe," New York Times, October 27, 1992.

[57] Interviews, Tokyo, April and October 1992.

technical problems, and domestic political opposition. The United States abandoned the technology in the early 1980s.

The dismantling of Soviet and American nuclear arms, moreover, is introducing new factors that are likely to make the technology even less attractive. On the one hand, hundreds of tons of weapons-grade uranium from the Soviet nuclear arsenal are to be diluted into low-enriched uranium and sold as fuel for conventional reactors. The sudden availability of massive new quantities of low-enriched-uranium nuclear reactor fuel is expected to maintain the already low price of this material on the currently glutted international market, making far more expensive plutonium increasingly unattractive as a substitute fuel. Secondly, tons of plutonium will also be removed from the Soviet -- now Russian -- military nuclear program. No obvious solution has been found to make the material militarily harmless, and it is therefore posing a serious disposal challenge. The material will probably have to be stored under tight security indefinitely. In this context, the existence of plutonium is being increasingly perceived as a security and environmental problem, raising obvious questions about the wisdom of producing more of the material in the civilian nuclear sector.

Supporters of the Japanese plutonium-use program no longer argue that it will be cost-effective and some agree that the material is not needed for energy security reasons, given

opportunities to stockpile low-enriched uranium.[58] The argument most frequently heard to support the program is that it will have a substantial, if currently undefinable, pay-off in the long run, of the kind that other seemingly uneconomic Japanese high-technology investments have ultimately enjoyed.[59]

Japan's persistence in pursuing the plutonium in this environment has led some observers in both North and South Korea to question whether Tokyo, which also has developed a powerful space launch capability, is not seeking to develop a nuclear weapons option. While there is little reason to believe that this is the underlying purpose of the Japanese program, the acquisition of substantial quantities of plutonium will nonetheless provide such a capability, and, although there appears to be very little support in Japan for the development of nuclear arms today, this could change if the regional security environment became more threatening. The acquisition of a nuclear capability by a unified Korea or the withdrawal of the United States from the region are

[58] To create such a stockpile, Japan might either purchase low-enriched uranium on the international market or produce it at home.

The country is building a commercial-scale uranium enrichment facility at Ningyo Pass, that will be able to supply substantial quantities of low-enriched uranium fuel using imported natural uranium. This indigenous capability will further reduce the need for plutonium as an alternative fuel. Although the reliance on external sources of natural uranium means that the domestic enrichment program does not provide complete autarky, the same is true with respect to plutonium, given the involvement of France and Great Britain. Indeed, for this reason, the head of the Japanese plutonium-use program refers to plutonium as a "quasi-domestic" fuel. (Interviews, Tokyo, October 1992).

[59] Interviews, Tokyo, April and October 1992.

two factors that could well lead to Japan's reconsideration of its nuclear posture.

II. Non-Proliferation Diplomacy

The foregoing reviews of nuclear programs in South and East Asia reveal the great diversity of circumstances under which non-proliferation policy must be pursued in these regions. Indeed, for the near term, at least, even the basic objectives of this policy must be differentiated.

In South Asia, it is probably unrealistic to think of true non-proliferation -- the elimination of nuclear-weapon capabilities -- as an immediate goal. A better target would be working to freeze the status quo by persuading India to reciprocate the freeze already implemented by Pakistan, while simultaneously encouraging both states to implement additional confidence-building measures and work toward resolving sources of mutual tension, particularly Kashmir. In North Asia, however, true non-proliferation is still achievable, and considerable progress appears to have been made toward this end. Here the key is to solidify gains already made, through active IAEA inspections that probe beyond North Korea's declared nuclear sites and through implementation of North-South bilateral inspections that will greatly add to nuclear transparency and, on a broader plane, help to break down barriers between the two Koreas. Success in North Korea may very well be the key to

ensuring the continued non-nuclear status of South Korea and of Japan.

The particular strategies for achieving these varied purposes share a number of common elements, even if these must be applied and calibrated according to the circumstances of each particular case. First, the continued vitality of the IAEA and the NPT are crucial in both cases. In South Asia, they comprise a critically important normative prism for focusing international pressure on the two South Asian states. Indeed, at the present time, only India, Israel, and Pakistan, apart from the nuclear powers, possess nuclear facilities that are not inspected by the IAEA, and because of this deviant behavior, the advanced industrialized nuclear supplier countries are subjecting all three states to economic sanctions by banning significant nuclear transfers to them.[60] In

[60] It should be noted that although neither India nor Pakistan has accepted IAEA inspections on all of their nuclear installations, as would be required by the NPT, both have accepted such inspections on particular facilities. In the case of Pakistan, this restriction has been instrumental in foreclosing the plutonium route to nuclear arms, as noted in the text at note 15.

In India, several nuclear power reactors are under IAEA inspection, preventing the spent fuel from these facilities from being used for nuclear arms. In 1993, expiration of the U.S.-India bilateral agreement covering the U.S.-supplied Tarapur reactors is likely to trigger a serious controversy in this regard, since India has claimed in the past that it is obligated to place the reactors and their spent fuel under IAEA monitoring only as long as the agreement is in force. In 1982, Washington ceased supplying fuel for the reactors, as required under U.S. law, because of India's refusal to place all of its nuclear installations under IAEA inspection. Thereafter, France supplied the Tarapur units. France announced in 1992, however, that it would ban future exports to states that refuse such "full-scope" safeguards, and all of the other industrialized nuclear supplier countries have adopted a similar rule. This might mean that India

North Korea, of course, the impact of the IAEA and the NPT is more direct, and they remain essential tools for ensuring that Pyongyang does not militarize its nuclear activities.[61]

Secondly, the withholding of official development aid and military assistance is a strategy that is being effectively applied in both South and East Asia. As noted earlier, the termination of U.S. aid under the Pressler Amendment appears to have contributed significantly to Pakistan's decision to freeze its nuclear-weapons program, even if it has not rolled back that program to the point of complying with the U.S. law. Similarly, economic pressure from many quarters on North Korea may well have been the decisive factor that led it to accept IAEA inspections and sign the historic December 1991 agreements with the South.

At the present time, India has escaped such economic pressure and continues to spurn significant restraints on its nuclear affairs. Although the United States does not provide significant amounts of bilateral aid to India, New Delhi is highly dependent on aid flows from the international financial institutions and from

would have to shut down the Tarapur reactors, whose electrical output it sorely needs. To avert this outcome, India may engage in a form of blackmail, by threatening to remove the spent fuel from the reactors from
IAEA inspection, which would leave it free to use the material's plutonium content for nuclear arms. As another option India may attempt to fuel the units with indigenously produced "mixed oxide fuel," i.e., fuel made from plutonium and natural uranium oxides.

[61] Strict enforcement of nuclear export control laws is an important element of the NPT regime. In the past, India and Pakistan have relied heavily on clandestinely imported nuclear technology, equipment, and materials to support their nuclear weapon efforts, and North Korea also appears to have done so, albeit to a lesser degree.

the multilateral Aid India Consortium, in which the United States, the EC, and Japan are significant participants. Japan and Germany have each declared that they intend to link development aid to recipients' non-proliferation credentials, but to date they have not reduced aid to India (or Pakistan) on this ground -- and, indeed, Japan recently increased aid to New Delhi to reward it for adopting a number of important economic reforms. At a time when the major powers and virtually every other emerging nuclear state are taking important steps to restrain their nuclear programs, India has become increasingly isolated in its refusal to take any meaningful steps in this direction. This potential vulnerability suggests that the time is ripe for the United States and its allies to increase economic pressure on New Delhi to obtain additional restraints on its nuclear activities.[62]

China could also play a useful role by taking steps to reduce Indian concerns about its nuclear deployments, for example, by making clear that its nuclear forces were not targeted against India and clarifying that its pledge not to use nuclear arms against a non-nuclear state continue to extend to that country.

[62] The United States has improved ties with India over the past several years, as Indo-Soviet links deteriorated, supplanting the former Soviet Union as India's foremost trading partner and, in May 1992, taking the unusual step of engaging in a small naval exercise with the Indian Navy. The imposition of sanctions against the Indian Space Research Organization, was an irritant to relations, however. American non-proliferation policy vis-à-vis New Delhi was summed up by Ambassador William Clark a June 19 interview, when he stated: "The United States would prefer India to sign the NPT. India does not. But between the two, there are lots of options." See "India, U.S. Discuss Nuclear Weapons," Reuters, June 19, 1992.

In addition, there must be no question that Chinese aid to Pakistan's nuclear weapons program has ceased. Apart from fanning anxieties in New Delhi, such assistance would amount to a violation of the NPT, which China signed in early 1992.

The actions of the nuclear powers to restrain their own nuclear capabilities can also play a valuable role in pursuing non-proliferation goals in South and East Asia. The September 1991 U.S. decision to withdraw its ground- and sea-launched tactical nuclear weapons from service appears to have been an important factor leading to North Korea's reexamination of its nuclear stance and has also partially assuaged India's stated concerns about the presence of nuclear weapons in its vicinity. In a related area, if the current nuclear testing moratoria adopted by France, Russia, and the United States solidify into a global nuclear test ban, this would not only improve the atmosphere for non-proliferation discussions throughout Asia but would also serve as an important constraint on the development by India and Pakistan of thermonuclear arms and, to a lesser degree nuclear warheads for missiles. Similarly, a freeze by all the nuclear powers on the production of plutonium and weapons-grade uranium, building on the partial freeze the United States and Russia have adopted, could be invaluable in shoring up the commitments of North and South Korea to abjure such technologies and could provide a powerful base for pressuring India to follow suit, as Pakistan has already. A decision by the United States and Russia to place at least some

stocks of military plutonium and weapons-grade uranium under IAEA monitoring would also set a valuable example.

Japan's continued support for civilian plutonium-use programs, unfortunately, runs counter to such a initiative and to the growing international trend to view plutonium as a burdensome remnant of the Cold War. A quiet initiative by Washington to discourage further major additions to Japan's program, such as completion of the Rokkashi-mura plant, would be timely. (Washington might also open talks with Great Britain and France about their plans for expanding civilian plutonium production activities.)

Finally, carefully formulated bilateral and multilateral diplomacy is crucial to achieving non-proliferation goals in these two regions. The United States has done a masterful job of persuading a range of states to apply ecomomic and diplomatic pressure on North Korea, with apparently positive results. American efforts of this kind have been more cautious in South Asia and would benefit from increased participation by U.S. allies in encouraging India to sit at a five-party nuclear conference table and in moving it towards a freeze of its nuclear program.

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In sum, nuclear proliferation in South and East Asia continues to pose serious dangers, but progress is being made, particularly in the latter region. Although both India and Pakistan have crossed the nuclear-weapons threshold, Pakistan's freezing of its nuclear-weapon program suggests that states that have passed this point can, indeed, be induced to accept restraints, even when their security environment remains highly threatening. Energetic and

innovative non-proliferation diplomacy has repeatedly brought results in the past and additional opportunities lie ahead.

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"Proliferation and the New World Order"

by

Christophe Carle

It has become broadly accepted in policy discourse and analytical comment alike that weapons proliferation constitutes a foremost challenge to international security after the Cold War. The relationship between "proliferation" and a "new world order" would appear to be plainly obvious, starting from the most intuitive semantic level. The idea of "proliferation", with its nefarious biological connotations, stands in grim contrast with the grandly inspiring sweep of a "new world" safely cradled in the cocoon of "order".

Much as all and sundry profess the wish to avoid a new North-South divide, the "new world" is a thing of the North, originating as it did from the collapse of Soviet communism, whereas the horizontal proliferation of weapons is incubated and erupts in the South. Although proliferation within the former Soviet Union has also been an issue for some recent concern, the North-South dimension is the focus of this paper.

The nature of the challenge presented by proliferaiton and the ways and means of dealing with it remain subject to debate. This paper proposes to examine the extent to which non-proliferation tools devised in a cold-war context may or may not be appropriate in a post-bipolar world. It suggests that the answer depends largely on the type of order which is aspired to, and that substantial adjustments may be needed to the policies and implements of the past. Proceeding in part one from a survey of the main causes for concern and issues of contention which seem to point to a North-South deadlock, part two suggests that the dividing issues may not be fundamentally intractable, and offers some constitutive elements of achieving a new bargain on non-proliferation, with particular reference

to the issue of nuclear weapons and prospects for the extension of the NPT after 1995.

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On the face of it, the evolution of weapons proliferation and the performance of measures designed to stem it offer little ground for optimism. Persepctives on both sets of issues may be portrayed as sharply divided between an industrialized North and a developing South. The imaginary hemispheric dividing line between the two groups is of course jagged and largely artificial first in an obvious geographical sense, and secondly because neither what may be taken to constitute the North nor the South are homogeneous entities in any sense. Nevertheless, with respect to proliferation, some generally-shared tenets can be identified along the following lines on the basis of much current policy debate and analysis:

Seen from a Northern vantage point, in various ways from Western Europe, North America, Japan and the former Eastern bloc countries, proliferation is a strongly perturbing factor in international security. To a substantial extent for the Atlantic Alliance countries, it even appears to be taking over where the old threat from the East has left off.

In a variety of official statements and punditry, a contrast is highlighted between the end of the cold war in and around Europe, and the enduring reality of regional rivalries and conflicts (both inter-state and intra-state) in the Third

World. These rivalries are seen to tend to degenerate into arms races even as the East and the West -inasmuch as they still exist as such- break new ground in rapid disarmament. Increasingly plentiful and sophisticated conventional arsenals pile up in the South. Alarming lists of developing countries are claimed to possess or to be working on ballistic, chemical, or even biological capabilities. Predictions of the number of countries likely to attain in the foreseeable future the technical means of building nuclear armaments, however rudimentary, grow more slowly but just as surely.

Technology transfers from the industrialized North to developing countries seem to take on increasingly worrisome strategic significance. Virtually every single nuclear reactor or space-launch programme in Third World countries causes varying degrees of alarm. All or most are seen as infected by the endemic disease of "dual-use", and as foreshadowing the risks of military applications.

Moreover, the current and forecasted predicament has been remarkably embodied trait for trait by Saddam Hussein under whose leadership Iraq amassed conventional and unconventional weaponry, used every available legitimate or fraudulent route for technology and equipment procurement, and who gave at least some substance to the notion of "security threats from the South" by bullying his neighbours and defying a mighty international coalition.

The Iraqi experience has prompted searching questions as to non-proliferation mechanisms whose gaps were left cruelly exposed. The responses which have been discussed or implemented since have the common aim of strengthening existing measures.

This covers all forms of regimes, from unilateral national export controls to select non-proliferation "clubs", and multinational agreements.

The defeat of Iraq -if not of Saddam Hussein- on the battlefield has not been taken as cause for comfort. The exceptional measures of intrusive inspection and disarmament provided for by UN Security Council resolution 687 have in fact served to highlight two disquieting elements. First, even vanquished Iraq displayed considerable nuisance and obstruction potential during the course of the inspections, and second, the intrusiveness of the measures implemented is recognized as not being amenable to replication in other circumstances against anything less than a defeated "enemy state" and international pariah. In addition, the thought of how close Saddam Hussein had been to a nuclear capability prompts the direst warnings - retrospectively of how the crisis might have unfolded against a nuclear Iraq, and prospectively about how other nuclear proliferators might behave in the future.

In sum, the bipolar constraints on regional conflicts inherent in patron-client state relationships having vanished, the stage is often seen to be left open to regionally-based rivalries and warfare between increasingly well-equipped Third World armed forces. The links between future hypothetical regional conflicts and European or American security is seldom as clearly drawn as during the Gulf crisis and war. But similar contingencies have become the order of the day as far as force postures and procurement are concerned, with notable emphases on intelligence, force-projection and extended logistics.

Furthermore, it is frequently forecasted that Third World regimes which may turn out to be hostile are likely to acquire or develop the military means to threaten or inflict direct damages on Western Europe, the United States, or any other part of the industrialized North. After the Cold War, the "Rogue Statte" from the Third World has become the arch-typical potential enemy. The latter forecast is the major underpinning rationale for the United States to embark on the GPALS programme and endeavouring to elicit the backing and participation of various "friends and allies". More generally, hardly any major R&D or procurement programme on either side of the Atlantic fails to include as part of its justification a series of proliferation-related dangers originating from the South.

Seen from a southern perspective, the picture is no more encouraging, as the following sums up:

Arms races in a number of regions of the Third World may be of concern to northern industrialized states, but a good deal more so to the regional states whose own security is directly at stake. The disarmament which the North carries out in accordance with its own favourably changing geopolitical circumstances is less immediately relevant to the South. Whereas the Cold War has thrawed out, regional antagonisms persist in the Third World. Perceptions of diminished inclinations by the major powers to equip former developing client-states and to intervene on their behalf directly or indirectly, indicates to the latter the need for greater self-reliance on more potent military forces than in the past.

Proliferation is in the eye of the beholder; what the North might see as proliferation can simply be national security preparedness to the South. But in turn, the spiral of regional arms races seems to be limited mainly if not only by the availability of adequate financial and human resources.

As far as conventional armaments are concerned, the declared intention of the P.5 to restrain the flow of weaponry to regions such as the Middle East cannot possibly be taken any more seriously in the South than it is in the North. Cold War competition may be a thing of the past, but a new mercantile logic of arms sales ensures that while Iran for example, is ostracized by the United States, it can buy from Russia and China. The list may be extended ad-tedium, covering as it would the impressive array of Middle East weapons contracts secured by the United States since the Gulf crisis. These, as well as Franco-American quibbes over fighter aircraft sales to Taiwan only confirm that the industrial throes of domestic procurement reduction and the resulting urge to export, which are commonly put forward as the characteristic feature of "disquieting" Russian arms transfers, also beset all the other major producers - albeit in less exacerbated form.

On non-conventional weapons, while many in the North may be somewhat disillusioned by the performance of non-proliferation regimes, the shortcomings exposed by the Iraqi experience are also of rather more immediate concern to developing states in unstable regions. It is they, after all, who have to exist in the immediate vicinity of actual or potential proliferators. Which gives them the choice of either observing venerable but vulnerable restraint or seeking to

acquire non-conventional means of their own. Again, possible examples are legion, but simply assess for instance, the likelihood of Israel deeming it safe to give up conclusively its nuclear option and let its ultimate national security guarantee rest on the efficacy of the NPT-IAEA system...

Not only can neighbours or other nearby states be suspected of harbouring nuclear or other non-conventional arsenals or intentions, but seen from the South, the North itself presents a picture whose benignity is understandably open to question. For one thing, the Gulf war has demonstrated that even the best-equipped of Third World armies do not stand a glimmer of a chance in conventional warfare against a determined onslaught of the US-led industrialized powers' military might. There is arguably no single existing government in the Third World today which is likely to expose itself through similarly reckless actions to Northern-led international coercion. Many in the South may seek solace in the reasonable view that the North is not about to embark on an anti-proliferation Jihad with wanton "decapitation strikes" on any actual or suspected proliferator. But the dividing line between capabilities and intention is seldom a counsel for serenity, and the North's sheer capabilities, viewed from the developing countries, can only appear overbearing.

Moreover, the proliferation of statements rationalizing American and European alliances, force postures, procurement and R&D largely in terms of hypothetical southern contingencies and foes must have a somewhat disquieting ring to them in the South. Consider the equanimity with which the North Atlantic Alliance member-states would greet news of the Arab League, or

better, the Organization of the Islamic Conference forming an integrated military structure equipped and planned for "out-of-area" force projection operations by a Martyrs' Reaction Force.

In the nuclear realm, conventional wisdom points out the variance between disarmament and force reductions in the North on the one hand, and proliferation in the South. Seen from the developing world, the picture is somewhat different: The established nuclear powers are indeed reducing their arsenals, but outright de-nuclearization is on no-one's agenda even though the former cold-war enemies and targeting plans have vanished. Should some form of minimal nuclear insurance policy be put forward as a perpetual and incompressible element of the defence policies of current nuclear have's whatever the prevailing international conditions, then some have-nots or near-haves might conclude that the same rationale could apply to themselves -all the more so if, unlike the former cold war foes, their own regional strategic environments remain fundamentally unstable and insecure.

The above survey may sound exaggeratedly adversarial in present circumstances, but current trends and some recent events indicate that a North/South divide on matters of defence and non-proliferaiton could become increasingly contentious. Issues connected with technology transfers certainly point in that direction. The sanctions imposed by the US on the ISRO and Glavkosmos, and India's defiant reaction are a case in point. Old arguments concerning the discriminatory nature of a variety

of non-proliferation and export control arrangements are on the rise again.

Adapting and improving non-proliferation policy, however, is not inconceivable. But it depends on more cautious political management than has been evidenced so far, and it requires first of all a sense of perspective on the significance of weapons-proliferation issues. The nuclear issue can serve as an indicative example -apart from being one of the most consequential issues for the future evolution of security in the post cold-war world.

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A sense of perspective requires relativizing -though of course, not dismissing- the importance of the proliferation issue on the international security agenda. Such a recognition, as will be suggested later, may form a basis on which to attempt to build non-proliferation norms more universally accepted as legitimate.

First, wars fought with plentiful sophisticated conventional, let alone unconventional armaments, in the Third World remain thankfully few and far between. Greater numbers of human casualties by far are caused by much more rudimentary means from Zulu "cultural weapons" to AK-47s the world over. Nor does this apply exclusively to the Third World. In terms of sheer numbers of dead and wounded, one may venture to suggest that action to stem the domestic proliferation of hand-held

weapons might be a more urgent priority for the United States than GPALS. At the nuclear end of the spectrum, one may also consider the likelihood of one or several Chernobyl #2 among the multitude of nuclear power stations in the former Eastern bloc to be of rather more immediate concern than the prospect of a "limited missile strike" from the South nortwards.[1]

Second, the acuteness of proliferation-related challenges ought to be relativized, retrospectively against the daily reality of the former Cold War ; and prospectively with the assessment that there neither exists now nor for the foreseeable future any single developing country or hypothetical coalition thereof which could possibly muster the multiple non-military and military capabilities needed to present Europe or North America with a threat even remotely comparable with the old Warsaw Pact one.

Third, the extent of proliferation itself should not be overstated.

In the conventional realm, while recent supplies from the North -and especially from the United States- to the Middle East and other regions stand in almost farcical contrast to the professed intention to restrain arms transfers to unstable regions, the problem is nothing fundamentally new. The various domestic pressures for arms exports and the inability to

[1] The fact that many non-military threats are deliberately omitted here has more to do with the intended readership of this paper than with the importance of the issues themselves. The dismal package of abject poverty, debt, demographic upsurges and migrations, widespread starvation, AIDS and other diseases, as well as natural or man-made ecological disasters does not belong in the realm of security studies stricto-sensu and cannot possibly be dealt with adequately here.

coordinate restraint are essentially a North-North (and domestic) economic problem occasionally boosted, as in the gulf, by northern strategic considerations. Third World regions flooded with conventional weaponry are essentially a South-South problem. Whereas reduced defence budgets and procurement will make it more difficult to preserve R&D potentials in the industrialized states, there are no developing states which can realistically entertain any hope of challenging the North's crucial technological advantage in conventional weaponry and their array of sophisticated associated electronic equipment for the foreseeable future.

Basic ballistic missile technology is somewhat easier to master and more widespread. But here, what ought to be relativized is the military significance of conventionally armed SSMs. Enough has been written and said elsewhere not to dwell on the point of the capabilities of ballistic missiles compared to advanced fighter-bombers which are readily available on international markets. As for possible future Third World producers of ICBM-class missiles, candidates are few and far between. They are the two "southern" states with the most developed SSM and space-launch programmes (Israel and India), and two with sizeable military-industiral bases but no ongoing SSM development programmes (South Korea and Taiwan). North Korea still tries its best to grapple with extended-range Scuds which are in a wholly different category. The ballistic missile threats from the South are, again, essentially South-South problems. The missiles that proliferate most are relatively short-range ones with regional strategic significance against perceived regional threats.

The nuclear issue is more complex and of more direct consequence to North-South strategic relations.

On the one hand, one can relativize the phenomenon of nuclear proliferation with what are now well-known observations: Proliferation has not occurred on anything like the scale which was forecasted, for example, in the 1960s. Nuclear near-haves have furthermmore behaved so far with a remarkable degree of caution. De-facto nuclear powers (Israel, India and Pakistan) have conducted themselves with nothing like the reckless frenzy of nuclear novices so often described in the literature seeking to attribute inherently "irrational" propensities to dwellers of the southern hemisphere. Not only that, but as is also well-known (though insufficiently stressed) three developing countries, for reasons of their own, have decisively chosen to step back from the nuclear threshold (Argentina, Brazil, and South Africa).

On the other hand, however, nothing can dispose of the "you never know" argument. The risk that any current or future nuclear proliferator might not behave so cautiously, can under no circumstances be taken lighly. The inescapable archetype is the case of a nuclear-armed Iraq during the Gulf crisis and war. A key point here, is that such aggressive sanctuarization by a hypothetical Third World proliferator would be of the utmost concern to <u>both</u> North and south. Immediate neighbours of such a regional hegemon -wether it engages in bullying or outright conquest- would obviously have their own security and independence directly at stake. As for the Northern industrialized powers, they would find their task at least

considerably more complicated -if not impossible- if they attempted to intervene. The international community at large would incur a severe blow to any prospects for reliable collective security in the new world.

Stressing such common risks stemming from nuclear proliferation is one of the elements on which non-proliferation norms increasingly approaching universality can be built. But other inputs would be needed as well.

One factor would be a conscious attempt to defuse existing embryonic trends of North-South antagonism in the security realm. A recurring and generalized propensity for all manner of official statements to put forward "threats from the South" as a major justification for Northern defence preparedness after the Cold War should be de-emphasized and checked. The foundations of Northern and in particular, of Allied security, should be recognized as solid enough relative to southern capabilities -let alone intentions- to be able to avoid potentially counter-productive scare-mongering. (This notably applies to the manner in which the GPALS initiative is customarily justified, as has been discussed elsewhere[2]) The more southern nations feel themselves cast in the awkwardly-fitting role of prime post-bipolar threat, the more some of them might draw the most detrimental "lesson" from the Gulf War; namely, that the military might of the North can only conceivably be checked with by nuclear weapons.

Another key element would be for the established nuclear powers to be quite clear in their declaratory policies on the

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[2]See Christophe Carle: "Future Roles of Ballistic Missile Defenses: The North-South Dimension", in *What Future for Nuclear Forces in International Security ?*, CNSN-IFRI Workshop Report, February 27-28, 1992, Paris.

diminishing role of nuclear weapons in international security after the Cold War. The formulation of some approximations of minimal deterrence polices would thus require close attention. The notions of residual capabilities or potentials, or of ultimate security insurance would in fact be preferable to "deterrence" -however "minimal"- given that there simply is nobody left to be deterred. One of the beneficial effects of such political adaptation would be to narrow the gap between nuclear-haves and have-nots to more manageable proportions. These adaptations would not be overly demanding, since they are in fact already at work tacitly. Nuclear test moratoria extending willy-nilly into de-facto test-bans, and the notion of reduced but sustained nuclear research without escalating arsenals as a hard core of long-term security-insurance on the part of Northern nuclear powers are orientations with which the "nuclear option" policies of the likes of Israel or India may begin to bear some comparison.

With the admixture of the other important input of much clearer and binding negative security guarantees by the established nuclear powers to NPT have-nots, the makings of a new post-Cold War nuclear non-proliferation bargain could be glimpsed as a basis for the renewal of the NPT after 1995. Short of a package stressing common dangers from nuclear proliferation, together with nuclear declaratory policy fine-tuning after the Cold War, nuclear test bans and negative security guarantees, on the other hand, the entire edifice of the NPT could be in severe jeopardy.

But for a new bargain to stick, such moves could not be a one-way street. Much has been made in this paper of the

possibly detrimental effects on proliferation and security of incautious or unduly assertive declaratory and defence postures by the North "against" the South. But increased flexibility and explicitly reduced reliance on nuclear armaments by the 5 weapon-states would have to be met with renewed commitments by all NPT signatories in 1995, the signing of the treaty by non-nuclear holdouts, and the acceptance on their part of broader and more intrusive IAEA inspections (along the lines of the much-discussed "special inspections"). Less formally, de-facto nuclear non-NPT states should also deploy imaginative and constructive efforts towards regional arms control by crafting measures and declarations below the treshold of ambiguity designed to alleviate the legitimate concerns of other regional states.

All this may seem like a tall order. But cautious diplomacy is truly of the essence rather than heavy-footed non-proliferation activism. Granted, actual arms control and disarmament in regions such as the Middle East will ultimately require the sine-qua-non of transparency and reliability, which is fundamentally incompatible with nuclear ambiguity. But the East-West experience with disarmament should induce the recognition that the regional political conditions for such radical moves cannot be expected any time soon. Since proliferation is above all a by-product of regional insecurity, greaater sensitivity to regional political conditions is needed. Pushing Israel, India or Pakistan into NPT adherence and either abandoning or formally declaring their nuclear capabilities would be utterly unrealistic as well as

counterproductive. Flexibility in narrowing the gap between nuclear haves and have-nots, on the other hand, would allow more time for regional political processes to progress far enough for arms control to become conceivable.

Narrowing that gap would also be essential in promoting the greater universality of non-proliferation devices such as the NPT, and if collective security mechanisms are to be effective and broadly perceived as legitimate, universality is of the essence. The attitude displayed by the CD negotiators on the new Chemical Weapons Treaty draft is cautiously encouraging in this regard: Rather than seek unrealistically fool-proof assurances and verification, the 39 have settled for admittedly less-than-perfect constraints in order to try and secure the broadest possible endorsement on the basis of sovereign equality. The proof of the treaty will of course be in the signing. But universality or some close approximation thereof, because it alone can endow pressures or even coercion against hypothetical future proliferators with international legitimacy, would be far more important than the technical thoroughness of the inspections and verifications provided for.

In sum, there are two variants of non-proliferation fundamentalism which ought to be avoided. One consists in the systematic urge to "strengthen" -the term litters the litterature in abundance- existing regimes without giving due attention to the thoroughness of global political changes nor to still tentative regional evolutions. The widespread incantations of "reinforcement" and "strenghtening" ought to look beyond purely technical approaches lest sheer conservatism

make non-proliferation arrangements fall victim to political and institutional Darwinism. Evolutionary adaptation to changing international circumstances is required if treaties, institutions and other devices are not to fall into disrepute because they are as least efficient and legitimate where they are most needed.

A second form of non-proliferation correctness would go one step further in designating a variety of Third World states as the new post-Cold War foes, and would encourage all manner of forceful non-proliferation action, from the legal to the military, in both pre-emptive and punitive form. The problem with this approach would be its tendency to become a self-fulfilling prophecy: Branded as new enemies against which the full might of the industrialized North is aimed, some of the most capable developing countries might come to infer that prudence and national security dictate proliferation at home.

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By way of conclusion, there may be opportunities to attempt to steer non-proliferation policy towards more consensual, multilateral processes and means. Such an approach would fit a global reality characterized neither by unipolarity nor multipolarity in simple terms, but by a complex intermeshing of atomistic and sub-national factors with transnational ones, and in which patterns of national power and influence vary sharply across different issue-driven processes. In this complex system, some Third World states are acquiring

increasing significance in global military-security evolutions. This is so not just because of their actual military means, but also because their policy-orientations sometimes have much more substantial and far-reaching effects than in the past bipolar world.

Thus, there is potentially a chance to de-emphasize in an unprecendented manner the role of nuclear weapons in international security. But strategically significant developing states (particularly de-facto nuclear powers and nuclear near-haves, but also states engaging in other forms of unconventional proliferation) should be plainly aware of the risks entailed in proliferation and arms buildups. Simply put, lack of self restraint on proliferation in the South would in time entail imposed non-proliferation from the North. "Order" meaning a new adversarial hemispheric divide would be the penalty both North and South would pay for the failure to seek accommodation where it may be found.

(5)

Cesare Merlini

MULTILATERAL, BILATERAL AND UNILATERAL RESPONSES TO NUCLEAR WEAPONS PROLIFERATION

The Rome Meeting of ESG-AspenSG, October 29-30, 1992

C - The Non-proliferation Regime and the Non-nuclear-weapon States

A - (see Joachim Krause)

B -(see Joachim Krause)

The nuclear non-proliferation regime is at a crossroads. Its past role as the subsidiary of the world nuclear confrontation, of which it was helping to maintain the nearly bipolar structure, and (for that very reason) the quasi only area, for many years, of superpower agreement in the controversial field of arms control has if not subsided certainly receided. Such new situation does not find the regime in shambles. Without repeting the usual list of pros and cons of its current state, we only underline here the degree of consensus that has been reached over the years towards non proliferation among NNWS, which at the onset of the NPT and of the other components of the regime were often opposed or reluctant. Indeed they felt in their mojority they were irreversibly discriminated against, somethink sovereign states hardly like.

In the previous chapter we have discussed the prospects for action or concession by the NWSs. In this chapter we would like to analyse how the increased consensus of the NNWSs could translate into political positions and actions. Of course there no such think as the group of the NNWSs, as opposed to the NWSs, nor is here any suggestion of constituting such a group. On the contrary those NNWSs that are in a position of doing it, should take today an active role in building an enhanced non-proliferation regime in the framework of a new international security set up, with its nuclear components, and this in close cooperation - and with joint action wherever possible, as in

cooperation - and with joint action wherever possible, as in Western Europe - with the NWSs.

Germany is the most important NNWS in Europe. After the collapse of the Soviet empire and national reunification with the former GDR, its autonomous political role at the center of the continent and indeed at the global level has been enhanced, while its economic role has not gone down. The only reason that would make one to hesitate to put it on top of Russia in the hierarchy of European powers is nuclear weapons. Surrounding countries have in the past suffered from German power and watch the emergence of a stronger and larger Federal Republic with mixed feelings. Germany has, moreover, a sizeble civil nuclear program.

Several other European NNWSs have a comparable technological level and a non negligeable international weight. One may name Italy, Spain, Sweden and then Belgium and the Nederlands. Some of the former satellites or republics of the USSR might aspire to a medium power status in a not too distant future.

Strikingly similar to the situation of Germany is the one of Japan: the economic power, the growing - and growingly autonomous -international role, the historic suspicions of the neighbours, an even larger civil nuclear program; and the NNWS status.

When the current five permanent members of the UN Security Council (P-5) were given their status they did not have all their nuclear bomb. But it then happened that they all became NWSs and were the only ones to be recognised as such under the terms of the NPT. If it were to be agreed that any country be invited to join as a new permanent member of the UNSC with veto power (assuming that the two things remain linked), the equation P-5=NWSs would no longer be valid. Germany and Japan are obvious candidates.

By far the main difference between the situations of these two countries is the array of multilateral institutions existing in Europe and absent, or nearly absent, in the Asia-Pacific area. Two institutions of which Germany is a member are particularly binding: NATO and the European Community. The former has served

to codify and multilateralise the American protection and control over Germany; after the collapse of the rival alliance it is searching for a mission between continuity and change, and is certainly less binding than in the past. The latter may suffer from the opposite disease: too many missions.

In fact the EC - tomorrow the European Union if the Maastricht Treaty is ratified - is primarily supposed to set up a quasi-federal system, supranational and irreversible enough to rule out for ever a national "danger", above all the reunified Germany; secondly, it is trying to put together enough power to make Europe a substantial contributor to the new international order; and thirdly, it is expected, in a not too distant future, to accomodate new members in central and eastern Europe to stabilise their embryonic democracies, the develop their painfully changing economies, to give them a sense of belonging.

The process of European integration contributed only marginally to nuclear non-proliferation. Euratom initially provided a prototype safeguards system to be copied by IAEA; it provides today a usefull supplement to the Vienna agency, overwhelmed by increasing commitments. After a period of independent, often divergent non-proliferation policies by the member states (in the '70s), the European Political Cooperation (EPC) has given the Twelve a framework for increasingly convergent actions and after the Lisbon European Council nuclear non-proliferation has become an area of joint foreign policy under the terms of the Maastricht Treaty. The existence of the EC was a strong factor in encouraging the only two non NPT signatories, Spain and France, to join in.

Export restrictions and surveillance has alrealy become a joint policy with the adoption of the Full Scope Safeguards (FSS) by all member states consistently with the imminent entry into force of the European Integrated Market.

What would be the impact of an increasingly integrated defense among the EC-12 (or temporarily the WEU-10) on the non-proliferation regime is arguable. Some may feel it would be adverse because it would generate a huge power, possibly a superpower, especially if the nuclear capabilities of the two

NWSs which are member are to become a common European deterrent.

We believe that such a superstate is not in the prospect of any forseeable development of a European Union, even if and when it reaches a quasi-federal character. Certainly it would be useful that, following the Mitterrand "phrase" early this year an increasingly close consultation take place in the WEU (for the time being) over the role of nuclear weapons in the current and forseable contest of European security, but this should lead not to a Euro-Pentagon but to a Euro-NPG along the NATO lines (which, incidentally would not be abandoned), where the member states - NWSs as well as NNWSs - agree on the location and the targeting of such weapons deployed on their soil. In practical terms this would translate into a trade-off of renounciations between the Euro-NWSs and the Euro-NNWSs: the former would give up full national independence, the latter - current and future members - would confirm non possession. Italy and Germany may usefully enphasize their commitment by ruling out co-possession, i.e. by withdrawing the so-called "European clause" with which they accompanied the signature of the NPT. That would be a positive contribution, it seems to us, to non-proliferation.

The relevance of existing institutions to handle the West European problems explains the point that was made before about the different situation of the Asia-Pacific region, where no such institutions exist. At the same time, as it has been righly argued (Segal-IISS), if Europe is currently the area of conflicts and tensions, Asia has the major potentials of proliferation of nuclear and other weapons of mass distruction. Such potentials are enhanced by the absence of institutions and by "balance of power" being the name of the game. North Korea is currently the origin of a possible destabilisation of the equilibrium. We will return below to this "object" of non-proliferation policy. Before we would like to discuss Japan as a "subject" of such policy.

Japan is a very important actor on both the regional and the global theater. This is mostly due to its economic strength, but even within the (imposed) constitutional limits it has a very high military expenditure, one of the largest in the world.

Economic power has not proven to be much rewarding in strategic terms, as the impact of the Gulf war on the US-Japan relations demonstrated. Tokyo has not been able sofar to solve its border dispute with Moscow. Japanese security is dependent on safe navigation through seas and straits.

Particularly relevant to nuclear proliferation is the huge civil program with the associated number of scientists and technicians, highly skilled in all sectors including enrichment and reprocessing. The recourse to the recycling of plutonium - the largest in the world outside the NWSs - is generating big quantities of this sensitive fissile material, although not in an isotope composition ideal for sofisticated nuclear warheads. Part of this plutonium is to be transferred to Japan from reprocessing centers located in Europe, an issue of concern during these days.

Japan, though it had the same original misgivings as the European NNWSs, has become over time a full and outspoken supporter of the nuclear non-proliferation regime and it appears determined to become increasingly active in the field. Tokyo, e.g., has been using the economic leverage to discourage North Korea's nuclear activities. At the same time, suggestions that Japan may develop a nuclear-powered submarine for "scientific research in deep sea" or that it may invoke art. 2 of the protocol accompanying its agreement with the IAEA to autonomously exert safeguard controls on its own facilities as Euratom does for its member states inevitably raise concern among neighbors and partners.

The participation of this crucial NWS in any development and strengthening of the non-proliferation regime, particularly as we approach 1995, is of paramount importance. Any duplicity (of the kind: support the regime but get ready now in case it collapses) should be dispelled by the Japanese authorities; in particular the principle of the international character of safeguard controls should be fully respected. Rather, Tokyo should be encouraged in its current research for regional and more or less istitutionalised arrangements, following the European model to the extent allowed by the existing differences.

Regional solutions for safeguards controls may be considered to alleviate IAEA surcharge if necessary but always under the principle of internationality and the end authority of the Vienna Agency. The EC should seek a partnership with Japan to these ends.

One primary field for this partnership to act is the close cooperation with the NWSs along the lines discussed in the previous chapter. A second field is a new opening towards other important NNWSs with the purpose of a) educating them on the advantages of non-proliferation for shared security interests, b) proposing fora for a non-patronising and non-antagonising dialogue, and c) offering security guaranties where appropriate. Though most country cases are specific, we will identify four groups of NNWSs which appear of particular interest in order to develop these new forms of cooperation through a group-to-group approach whenever possible.

1 - Central and Southeastern Europe plus CIS member states other then Russia. The latter must be assisted in the process of signing the NPT and finalise agreements with IAEA with the consequent definition of the status of the strategic nuclear weapons remaining in three states. All must be brought under strict international discipline as far as export controls are concerned.

2 - Latin American countries. They have moved from resistance to acceptance vis-a-vis non-proliferation. It may be desirable to establish an effective bridge between the Tlateloco Treaty and the NPT, possibly with the end result of merging the former into the latter.

3 - Moderate states of the Middle East, Egypt and Saudi Arabia above all. The first imperative is to avoid that the Israeli hidden nuclear capability be considered as an impediment to the peace process. The second is to reassure the Arab side that pressure is also exerted on Israel in order to correct the "anomaly".

4 - ASEAN plus Taiwan and South Korea. These countries must be reassured about the future of Japan. At the same time it is to be avoided that in an eventual Korean marriage the Northern

part bring its partial capabilities as a dowry.

If we turn to those countries that are currently mentioned as "proliferators", one has to note that, after the developments that took place in Latin America and South Africa, their list has considerably shrunk. This fact allows for some concentration of pressures.

In the Middle East the case of Israel on one side and that of the Arab countries on the other are linked and different at the same time. Israel cannot join the NPT neither as a NWS, without blowing up non proliferation, nor as a NNWS, without changing dramatically its (perceived) security. The non-moderate Arab countries are NPT-parties (except for Algeria that has promised to sign), but cannot be fully trusted, after the "Saddam path" has been discovered. The solution has been suggested of freezing the Israeli deterrent through a regional (or global as proposed above) production ban under international verification. The strengthening of verification, with enhanced "on challenge" provision should do the rest. These new steps should be in the framework of a broader arms control agreement and part of the "peace process", but direct links between concessions in different arms sectors, e.g. nuclear vs chemical, are likely to do more arm than good.

The production ban may also be considered, as said above, as an international solution to stop the India-Pakistan race. But it is likely to be refused by a country close to the threshold like Pakistan (which is the real situation in India we don't really know), unless there too some sort of a "peace process" is set up.

Crucial is the case of North Korea, because of the delicate situation in the Asia-Pacific region, potentially rather unstable. It cannot be left to local actors only, Japan and South Korea above all. Tokyo preaches soft, reasonable pressure on Pyongjang, but it may not be sufficient and it may give an unclear signal to the interested countries in the region.

If any of these critical hot spots of nuclear proliferation - that circle around the Asian continent at the center of which there is the uncertain future of the CIS and the relatively

uncontrollable variable of China - gets out of hand before 1995, things may become very difficult for the non proliferation regime.

D- **The nuclear non-proliferation regime: present and future.**

The regime is made of four components: 1) the NPT, plus Tlatelolco 2) the Nuclear Supplies Guidelines and any other export control provision; 3) the IAEA, and the safeguard controls, an indispensable support of previous two; and 4) the hidden role of intelligence, whose findings are shared only when found appropriate by the country carrying it.

The effectiveness of this regime must be checked against the proliferation problems, old and new. The old problems are: 1) the acceptability of discrimination between NWSs and NNWSs; and 2) the existance of countries that refuse the regime and want to reach a nuclear capability for various reasons. The former - a major obstacle in the early phase of the regime - has regularly come up at the NPT Review Conferences, but has been substantially kept under control because of the basic effectiveness of the international security system during the last quarter of a century. The latter has been subject to a process of focussing on fewer and fewer cases (at least one lost one), but remains open and critical.

The new problems are: 1) the profound change of the international security system; and b) the "fissile bonanza" deriving from either the military stocks, from civilian production and, eventually, from warheaded dismantling.

In view of these old and new problems, there are no provisions of the existing regime that could be relaxed. On the contrary the instruments of the regime are often quite insufficient. This applies particularly to safeguard controls. The suggestions made in this paper imply a dramatic increase in safeguard capabilities, well beyond the already existing requirements deriving from new accessions to the treaty. At the same time IAEA is struggling against budget problems that make it difficult for it to ensure even the **current** level of activity. A reform is necessary that would involve both technology and

methodology. As to the latter, on challenge (special) inspections should be emphasised, so that to increase the outreach of the Agency but not to weaken its control over those countries with advanced civil programs that presently absorb by far the largest share the normal inspections.

Two issues have been raised in relation to a possible qualitative and not only quantitative extension of the IAEA instruments: a) whether to give it access to intelligence, and b) whether to involve it in nuclear weapon dismantlement. The first issue is linked to the broader problem of UN capabilities of crisis prevention that has been dealt with by the Boutros Ghali report. It is unlikely to receive a positive response in the short term. As an intermediate measure some action may be appropriately taken by the West, by developing, for instance at the level of G-7, a nuclear proliferation intelligence sharing group with the participation of NATO and WEU representatives. It would be in the interest of the West to then make their findings available to IAEA as much as possible.

As for the second issue, it has been suggested in section B of this paper that international control of military fissile material should be introduced. The implicit consequence is that also military HEU and Plutonium should be submitted to IAEA safeguards prior to assembling in, or subsequent to disassembling of nuclear warheads.

(for further points of this section D see J. Krause)

NOTE

This paper should have been written jointly by Cesare Merlini and Uwe Nerlich. Because of Uwe's illness, Joachim Krause replaced him. There was no time, however, for an exchange of contribution and for discussion in order to come to a joint paper by the two authors. Thus, C. Merlini is presenting here the draft of its own part.

MULTILATERAL, BILATERAL AND UNILATERAL RESPONSES TO NUCLEAR WEAPONS PROLIFERATION

A. Nuclear deterrence and nuclear nonproliferation

One of the reasons for the success of the nuclear non-proliferation efforts undertaken in the late 1960s and early 1970s (NPT, INFCIRC 153; NSG) was the link between the renunciation of nuclear weapons possession or control on the side of the non-nuclear weapons states (NNWS) and positive security guarantees given by nuclear weapons states (NWS) to those highly developed industrial states such as Japan, FR Germany, Italy, Sweden and others that were at that time considered to be the most likely candidates for nuclear proliferation. This scheme eventually linked together a group of at least 25, actually much more industrial countries in a security/nonproliferation regime. As to the NNWS involved, it gave them enough security to forego possession of or control over nuclear weapons (combined with an intense consultation mechanism, at least on the side of NATO) and it left leverage enough for commercial activities in the field of the civilian use of nuclear energy. As to the nuclear weapons state USA, nuclear non-proliferation was considered to be a corollary of extending deterrence to European states and to Japan. For the Soviet Union, the nuclear monopoly was part of its scheme to control events in its domaine, while it also guaranteed both internal and external security for its communist satellite regimes. France, Britain and to a certain degree also China were able to play a special role in this equation. Their nuclear weapons status was tolerable as long as their arsenals remained small in comparison to others. China was at least partially an exemption: by acquiring nuclear weapons it set a precedent for and at the same time posed a security threat to neighboring India, thus setting off a whole proliferation chain that meanwhile reaches far into the Middle East.

With the end of the Cold War and the dissolution of what once was the Soviet Union, this whole equation has changed fundamentally, thus leading us to reconsider the basic trade-offs between nuclear weapons states - especially the USA - and the industrialized NNWS. In the following the main elements of change are listed:

- *The international framework within which we have to discuss proliferation issues is in a state of flux*: The demise of the old, bipolar "order" has not so far resulted in a new world order. Earlier expectations that international cooperation and conciliation, interdependence, freedom and democratic values might form the basis for a pragmatic, peaceful but nontheless stable international order have not yet materialized. Rather it seems that existing cooperative structures

are under heavy strain and that regional and local conflicts run out of control - with consequences unforeseeable for the time being. The international constellation might develop into very different directions: in the best world, the existing cooperative structures in the Western world are not only preserved and adapted to the changes, they are even extended in a way that the East European states and the states of the former Soviet Union are also becoming part of this cooperative structure, which might be termed "zone of peace and cooperation". Under the worst scenario, Europe is falling back into the old age of an anarchic international society with local and regional conflicts on the Balkans and elsewhere being a constant source of trouble between the major European powers. Under this scenario one might envision more than the currently known nuclear weapons states in Europe or at its periphery. It would find the Americans perching on their continental US sanctuary wielding an steadily decreasing role as a unilaterally acting international power. In between these two scenarios is the one in which Russia is again building up a new empire that is hostile against the West and for which military means play an important role.

- *The nature of the proliferation problem has changed*: While in the 1960's Germany, Japan, Italy and Sweden were considered to be the most likely candidates for nuclear weapons proliferation, today the most probable candidates are either Third World nations or former Soviet republics that might strive for nuclear weapons in anticipation of rather desperate situations (such as war with Russia or other superior neighbors). In the 1960's, the potential proliferators Japan, Germany and Italy were seen as a source of instability and the 5 known nuclear weapons states were considered to be cornerstones of stability. Today it is the decay of at least one (Soviet Union) and the possibility of the decay of a further nuclear weapons states (China) as well as the danger of the disintegration of India, Pakistan, and South Africa (three states with major nuclear weapons programs) that pose major stability problems as these developments open up opportunities for instant or at least rapidly accelerated proliferation in many parts of the world - even among those states that so far were deeemed to be unable to form a proliferation risks due to their lack of expertise. As a corollary, the role of nuclear weapons in the hands of these proliferators may also differ from the traditional functions that were attributed to nuclear weapons since their invention. For many possible candidates their main strategic value might lay in attracting world attention to their possible desperate situation - nuclear proliferation is then rather a means to extort international support. For others, nuclear weapons might be an insurance policy against otherwise superior neighbors, while for some states possession of nuclear weapons might give them a means at hand to fend off international

military action - for instance in case this state just had conquered a neighboring country. However, these obvious proliferation problems notwithstanding, there are still voices pointing to the possibility that Germany or Japan - two countries with strong antinuclear sentiments - might strive for nuclear weapons. A closer look at the proponents' arguments shows, however, that their main concern is the security vacuum that might be left by US withdrawals from Europe and East Asia.

- *The nature of security problems and of security guarantees among industrialized countries has changed radically* : With the end of the Soviet threat, the need for a graduated and flexible strategy to respond to various degrees of attacks by superior WTO forces in Europe through a combination of nuclear and non-nuclear forces - both intricately linked in a defense and a deterrence mode - is no longer there. The challenges for the security of Western European states or Japan are of a different kind (local and regional conflicts that spread out under various conditions) and are not necessarily apt to be solved by nuclear guarantees. The only scenarios under which extended nuclear deterrence might play a role in the future are (1) the resurgence of Russia as a major military threat to Europe, and (2) the rise of new nuclear powers in Europe or in its neighborhood (Middle East, Western and Central Asia) or in North-East Asia. But even if Russia would decide to take on a hostile attitude against the West, there won't be any need for such a refined and sophisticated arsenal of tactical and substrategic nuclear weapons as we were familiar with until the end of the Cold War. In case of the rise of new nuclear powers, the issue of extended deterrence will have to be addressed in a way different from earlier times. In both cases, guarantees for NNWS would be of a rather basic nature depending on the nature of the possible threat. Security threats for NNWS such as Germany, Japan, Italy or other NATO states are difficult to define at the moment. However, there are various threats imaginable resulting from changes in the international environment.

- *There are new opportunities for building an international consensus on non-proliferation and related security issues*: At least for the time being there is a window of opportunity for such a new consensus and a new system of measures related to nonproliferation. The major powers of the Northern hemisphere are in a state of basic accord over many important issues on the international agenda and there is also a common interest in economic stability, integration , freedom and democracy as the main building blocs for a future international system. There is also an awareness that the role of military means as a currency of international afffairs should be reduced. Taken together, this could lead to an attempt to create a new nuclear world order built around the NPT but supported

by other supplementing regimes that guarantee the uninhibited functioning of the NPT. By the same token, the opportunity exists to undo most of the existing status differences between nuclear weapons states and non-nuclear weapons states - something that should add to the international acceptance of the NPT and its associated regimes. It would be naive to expect that general and complete disarmament of nuclear weapons might result, but a drastic reduction of existing arsenals and a high degree of equality of obligations among NWS and NNWS could realistically be expected.

In order to establish a new, durable international system that guarantees the non-proliferation of nuclear weapons - and other weapons of mass destruction - these new realities will have to be taken into account. International actions should focus on the following elements:

- Measures that drastically reduce and put under control the nuclear arsenals of the NWS, both as a means to eliminate proliferation risks and as part of an attempt to alleviate the status difference between NWS and NNWS.
- The striking of a new security balance concerning the security of industrialized NNWS that so far were subject to international security guarantees.
- Efforts to strengthen the efficiency of existing nonproliferation regimes and to supplement them, as far as it is needed, by new regimes or international measures.

In devising strategies for such international actions one has to differentiate between obligations and constraints that have to be borne by NWS on the one hand and by NNWS on the other hand. In drawing up these obligations one has to be aware of the fact that neither the NWS nor the NNWS form coherent groups with member states of rather identical interests. On the side of the NWS there is, for instance, a difference between the USA and all the other NWS, since the USA is the only remaining nuclear superpower. Russia is a special case in kind too due to its weaknesses and uncertainties. The UK and France form a third group together with China: they all have small nuclear weapons stocks mainly for defending their national survival under extreme cases. As a consequence, many obligations addressed to NWS can only be fulfilled by the USA. As for NNWS, here the difference is between industrialized countries that are part of a security alliance with the USA or another NWS; those who have no alliance relationship to any NWS and have never had; and those who once had such a relationship (or were earlier part of a NWS), but are nonaligned now.

A new deal between NWS and NNWS must take into account these differentiations and it should look for a fair sharing of obligations and rights.

B. Constraints and Obligations for the NWS

In the following some measures are listed that would spell constraints and obligations to NWS. They could be linked to measures undertaken by NNWS thus forming the basis for new trade offs.

1. Reduction of nuclear arsenals

In line with the logic of Article VI of the NPT, the fulfillment of the obligations on the NWS "to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control" will become of utmost importance during the years ahead. All NNWS will closely follow the implementation of the START Treaty and of the unilateral measures formalized during the US-Russian summit meeting in June 1992. As things stand now, Russia and the USA will have reduced their strategic weapons arsenals by the year 2003 to a total of 3000 to 3500 warheads for each side. Their arsenal of operational tactical nuclear weapons will be reduced to even smaller numbers over the coming years.

These breathtaking perspectives notwithstanding, three major issues remain to be solved from the standpoint of many NNWS:

- So long as the stability of Russia and other CIS members are still at risk, there is a great concern about the whereabouts of the nuclear weapons of the former Soviet Union as well as the weapons components and the fissionable material. This problem is already dealt with as part of bilateral US/Russia consultations and activities. However, most of theses activities are of confidential and bilateral nature.
- The question is still open of how far the two major NWS are prepared to go in terms of nuclear weapons reductions
- Closely related to these issues is the question of whether it should be acceptable any more that the NWS are subject to virtually no international supervision of their activities in the nuclear field.

Without being able to go into further detail, a few suggestions or pointers are made which could help to structure the debate.

As a first step, one might envision making the process of transportation, storage, dismantling and destruction of nuclear weapons and their components *transparent* and subject to various forms of *international supervision or monitoring*. This could reasonably involve:

- the establishment of *nuclear weapons registers* covering all actual and former nuclear weapons and their delivery systems;
- a form of international monitoring of the remaining nuclear weapons components and especially of the *fissionable materials* (in the main HEU and weapons plutonium); for this reason the idea of an international plutonium storage (IPS) might be resurrected. It would involve that the IAEA will take custody over fissionable material resulting from nuclear weapons disarmament.

As a second step, one might look for additional security by striking - at least temporary - *a ban on the production of fissionable materials* for nuclear weapons. Both Russia and the USA have already announced unilateral moratoriums on fissionable materials, thus it would only codify what has already be initiated. Such a ban should be renewable. After some times, also some kind of international verification might be considered. Since there are highly sensitive technologies involved (especially in the field of enrichment) this certainly will pose very intricate problems. Such a cut-off agreement should be structured in a multilateral way, i.e. other nuclear weapons states should be invited to follow and NNWS too, especially those not member to the NPT. At least countries like India, Pakistan and Israel should be put under pressure to join such an agreement.

A further step could aim at negotiating a *Test-Ban Treaty*. This could be started by making use of the momentum rendered by the current process of unilateral moratoria. It is doubtful, however, whether a complete and comprehensive testban would be expedient under all circumstances. Its main purpose should be to prevent construction of new nuclear weapons in NWS or of nuclear weapons at all in countries without experience in that field. However, under conditions of a drastic reduction of nuclear weapons, the other function of nuclear weapons test - checking the reliability of weapons - might become the more important the smaller the arsenal will be.

As a corollary to these measures, also all *civilian nuclear facilities of the NWS should come under IAEA safeguards*. Otherwise the measures mentioned above won't be credible. The notion of safeguards for civilian nuclear facilities and activities in NWS is not new. It was debated during the deliberations within the ENDC in the 1960's. This notion was eventually rejected. It was thought that it would be unnecessary to conduct inspections of nuclear industry in NWS, since theses states were allowed to possess and produce nuclear weapons anyhow. Also, it was considered to be extremely difficult to make a clear difference between civilian and military related nuclear activities in NWS. As the decay of the former Soviet Union meanwhile has vividly demonstrated, this logic was not very farsighted: currently there is a host of sensitive nuclear facilities in CIS states outside Russia that are

subject to no IAEA safeguard measures at all. With a cut-off agreement in force, a material balance of all nuclear activities in NWS should become much easier to justify - irrespective of many technical problems that would have to be addressed in such a case.

As to the degree to which NWS reduce their arsenals, no easy answers are possible. One could only name certain conditions and trade-offs that might play a role.

- The first condition is that international relations develop into a direction in which the recourse to nuclear weapons is less and less needed. If the world in the year 2003 is relatively favourable and peaceful, if there are no major international challenges, there will be a good chance that Russia and the USA go further down to levels similar to those of France, Britain or China.

- The degree to which both major nuclear powers and the smaller NWS are ready to reduce or even give up their nuclear arsenals would be contingent on the degree to which it can be assured that other states would not go nuclear. Thus, a real *universal NPT regime* is needed, and one that would allow *strict verification of treaty compliance*. It can be expected that the NWS will make their readiness to agree on further radical cuts in their nuclear arsenals dependent upon the accession of critical threshhold states such as India, Pakistan and Israel, to the NPT or an equivalent regional agreement, and the introduction of a mechanism by which treaty adherence can be checked with a high degree of confidence - such as very intrusive challenge inspections at any place of relevance at any time.

- There might be a further trade-off that needs to be looked at somewhat closer. The smaller the nuclear weapons arsenals become, the more important the ability to reconstitute a nuclear weapons capability will be. In this context, the availability of and control over weapongrade fissionable materials will become of crucial importance. Here again the idea of international storage for plutonium and HEU comes into play. But also the plutonium resulting from civilian use of nuclear energy should not be overlook. In light of the fact that the overall total of plutonium from spent nuclear fuel is steadily increasing, the safe storage of these materials will become an important issue too.

2. Responsibilities for security in a broader sense

Since effective non-proliferation regimes - both on a regional and on the global level - are not only an arms control issue, but relate strongly to more generic security concerns, the broader security responsibilities of NWS will also be addressed. As was already mentioned earlier, security guarantees - both bilateral and multilateral - are an important element of any nuclear non-proliferation regime.

By far the most important NWS in this respect is the *USA*. US security guarantees - in the main *positive guarantees* - are the most important ingredient of the preservation of the current nuclear status quo in Europe, the Middle East and in East Asia. Only US guarantees could furthermore help to bring about processes in these regions or elsewhere, during which nuclear proliferation can even be reversed. Without US guarantees these regions are under the risk of becoming unstable, even promptimg some states to weigh nuclear options. Most significantly, this might be the case with Japan, where it is imaginable that a combination of a further US retreat, internal instabilities in neighboring countries and increased armaments efforts (also in the nuclear field) in China, Taiwan and North Korea could force the Japanese leadership to ponder even nuclear options. Germany is, in contrast, in a better situation since a loss of US protection could be made up for by European efforts (see below).

In case of the Middle East, mainly the survival and security of Israel is at stake. Yet, the security of some US allies in that region (Saudi Arabia, Egypt and the GCC-states) is gaining importance.

US security guarantees would not only be an important means to provide security to individual NNWS in possible unstable regional environments, they would also be important contributions towards international stability in these regions. Security guarantees, however, cannot be the only instruments used in order to stabilize regional security constellations. Often, other forms of engagement, peacekeeping, peace-making or peace-enforcement activities alone or in cooperation with other states might be equally important.

The question very soon arises: how can this need for security guarantees and engagements be reconciled with the current trend in the USA to rather reduce than increase foreign commitments? As the 1992 presidential election campaign has vividly demonstrated, the USA is in a desperate need to solve its domestic economic and social problems and to turn its attention more towards itself than to others. What is needed in this phase is to increase the awareness within the USA that a recovery of the US economy can only take place if the USA continues to be an internationalist power that needs a benign international environment (especially in Europe and East Asia but also in other parts of the world).

In light of the decreasing ability of the US to take on commitments in various regions, the ability and readiness of her European and Asian allies to assume responsibilities will become of utmost importance. This gives a new meaning to the traditional contentious transatlantic issue of burden sharing. Unlike in the past, the traditional ambivalence in the European attitude towards burden-sharing - i.e. the reluctance to take on too many of the burden for the conventional defense of Eu-

rope in order to avoid any losening of the nuclear guarantee - is no longer valid, thus opening the chance for new forms of cooperation. Especially the major NNWS in Europe (Germany, Italy, Spain, Netherlands) should assume responsibilities in the fields of international peace-keeping, peace-making and peace-enforcement activities.

The main task of the *European nuclear weapons states* (UK, France) would be to prevent the upcoming of any situation in Europe that might drive Germany or any other other NNWS into a vexing nuclear weapons debate. France and Great Britain can play - together with Germany and other European states and with the USA - an important role in managing those regional or local conflicts in Eastern Europe (especially on the Balkans) that have the potential of destabilizing the whole international constellation. They should also be prepared to back up for the Americans in case the US guarantee for the major European NNWS would wither. The notion of a European Political Union is among others so much intriguing because it opens the possibility of a European nuclear force under the command of a unified European political authority. In case of a deterioration of the international constellation such an option could become extremly important. It could, under adverse conditions, save Germany from a nuclear debate that would be disastrous - both in terms of domestic politics and her international standing.

As to the responsibilities of *Russia*, the emphasis should rather be on negative security guarantees than on positive ones. There are many states that want to dissociate themselves from their Russian patrons and that are apprehensive of nuclear blackmail and armed agression from Moscow. Clear-cut and credible negative security guarantees by Russia - perhaps linked with Western pledges for economic aid - could help to ease the situation. On the other side, there are CIS-republics such as Kazakhstan and Armenia who might become a wild card in terms of nuclear proliferation in case they could not rely on Russian positive security guarantees.

Aside from their individual responsibilities the NWS must also *act collectively* in a way that creates stability and renders confidence into the NPT regime. In this respect, it is of utmost importance that they consider their role as permament members of the UN-Security Council rather as an obligation than a privilege. As a consequence, the NWS through their actions in the Security Council should

- express strong and effective guarantees for all NNWS against possible nuclear threats, and
- take actions against any NNWS that is violating its obligations under the NPT or, if not a member state, is posing a threat to international peace by acquiring nuclear weapons.

There are, however, some caveats that have to be made in this respect. First of all, security guarantees for NNWS against any nuclear threat could imply that such a guarantee will have to be enforced against one of the five established nuclear weapons states. The abandonement of the veto-right of the P-5 or at least the issuing of individual obligations by all NWS might pose a solution to this problem. Another issue relates to political psychology and international status. If there were only a few cases in which the P-5 (or at least 4 of them) pursue active enforcement measures against possible proliferators (such as those undertaken against Iraq), this would necessarily entail the danger that the Security Coucil will be viewed as a nuclear weapons states' directorate. The resultant danger for keeping the global consens over the NPT should not be underestimated. In this respect the issue of the future composition of the Security Council will be of great importance. Provided non-nuclear weapons states were permanent members of the Security Council, this impression could be dispelled much easier.

C. (to be written by Cesare Merlini)

D. Basic elements of a future international nuclear non-proliferation policy

In the following, only the basic elements of what should be an international comprehensive approach towards nuclear proliferation can be sketched out.

Any deliberation about nuclear non-proliferation should start with the NPT. The *NPT will remain the cornerstone* of all international attempts towards containing nuclear non-proliferation. The NPT contains all basic elements of a future nuclear non-proliferation regime. Although its language is partly outdated and although there would be a need to revise certain parts of it, most observers rightly agree in that one would open up a Padora's box if negotiations on *amendments* would start. Its indefinite *extension* should be pushed ahead. Yet, the member states of the NPT will have to make up their mind whether they want an indefinite extension once and forever, or whether they want periodical extensions for fixed

time periods with further automatic extensions that can only be stopped if a qualified majority of member states explicitly wants its termination.

The NPT, however, will not suffice in order to establish a lasting and stable international non-proliferation regime - which by the way will be an imortant aspect of the architecture of the future international security order. For this reason various other regimes and security systems as listed below will have to be established or developed further.

1. International efforts to control nuclear arsenals and the process of dismantling and destruction of nuclear weapons. The best way to cope with the nuclear proliferation problems resulting from the huge ex-Soviet stocks is to pursue with their rapid dismantling and to introduce a control system involving nuclear weapons states as much as nonnuclear weapons states. These measures should be:

- implementation of START I, of the unilateral initiatives by Bush and Yeltzin, and of the measures agreed on during the 1992 July summit in a way that as much as possible international control is wielded over the whole process;
- bilateral or multilateral technical and financial assistance in the process of safe and secure dismantling of nuclear weapons in the CIS;
- a multilateral cut-off agreement for weaponsgrade fissionable materials;
- a multilateral Test-Ban Treaty;
- nuclear weapons registers and related transparency measures;
- international storage of fissile material resulting from nuclear disarmament and further international efforts towards their reintroduction into civilian fuel cycles or towards their final disposal or burn-up.

2. International efforts to improve IAEA safeguards. Among the measures under discussion the following are listed here:

- extending safeguards to all fissile materials including those in NWS, except material in weapons;
- special inspections or, even better, challenge inspections;
- early design information;
- universal reporting.

3. Steps towards internationalization. In this field the following measures are under discussion:

- international Pu and HEU storage possibly including also Pu from spent fuel of civilian reactors;
- internationalization of critical facilities in NNWS and in NWS (enrichment, reprocessing, hot cells etc.);

4. Measures against the dissemination of weapons related knowledge and know how. In this area especially the establishment of institutions such as the Scientific-Technical Center in Russia are of utmost importance. But there are other national and bilateral measures imaginable.

5. Measures to prevent or control sensitive nuclear export activities. After the agreement on the Warsaw NSG Guidelines in March 1992, the following issues remain on the agenda:

- actual implementation of the agreed measures by the the NSG states;
- concerted efforts to bring newly emerging supplier states into the NSG, whereby special attention has to be paid to the CIS states;
- efforts to aid CIS states and other emerging suppliers in establishing effective export control systems;

6. Security measures (global, regional, bilateral). In this area attention should focus on the following elements:

- Security Council, resp. all NWS of the Security Council, as guarantor against nuclear threats;
- new understanding of US role in Europe, Middle East and East Asia, concomitant efforts by the Europaens and Japan to assume more responsibilities as part of a new "burden sharing";
- EPU as a means to undo residual fears concerning Germany;
- CIS as possible instrument to establish alliance links between Russia and Kazakhstan as well as between Russia and Armenia;
- Middle East, paramount importance of the peace process and the inclusion of arms control issues on a broad scale (not only nuclear weapons) in this process;

- East Asia, important role of USA as a guarantor of Japanese security, again this has to be seen in connection with a stronger role for Japan in international politics;
- South Asia, increased need to keep the relative strategic isolation of that region; continuation of efforts towards regional solutions;
- South Africa, monitoring of the internal transformation process with an eye on the danger that white minority attempts to break out by resorting to nuclear weapons.

7. Interlocking measures. International attempts towards non-proliferation on such abroad scale need to be coordinated and harmonized in a much broader way than it was used so far. This relates less to the issue of harmonizing export control regimes for various categories of weapons (MTCR, NSG, Australia Group). What is mainly implied is that existing systems of security and defense cooperation should be used to care about nuclear proliferation issues and the attending security problems.

(Joachim Krause, 26 October 1992)

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PROLIFERATION IN THE 1990s:

THE CASE OF CHEMICAL AND BIOLOGICAL WEAPONS

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INTRODUCTION

On September 3, 1992, the thirty-nine members of the Geneva-based Conference on Disarmament (CD) agreed to transmit the final text of an international agreement banning chemical weapons (CW) to the United Nations General Assembly. This marked the culmination of 24 years of efforts in the CD and its predecessor organizations to negotiate a convention prohibiting the development, production, possession, transfer and use of chemical weapons.

Once the Chemical Weapons Convention (CWC) enters into force, in 1995, a comprehensive regime banning the acquisition and use of both chemical and biological weapons (CBW) will be in place. The CWC joins the 1925 Geneva Protocol, prohibiting the wartime use of chemical and biological weapons, and the 1972 Biological and Toxin Weapons Convention (BWC), banning the development, production, possession, and transfer of biological and toxin weapons. Thus, at least in theory, the problem of CBW proliferation should soon cease to exist.

In reality, however, the spread of both chemical and biological weapons is likely to continue to demand the attention of policy makers. As Tables 1 and 2 show, many countries have yet to renounce the acquisition or use of CBW by subscribing to the Protocol or the BWC. This includes most of the states that have emerged in the wake of the dissolution of the Soviet Union and Yugoslavia, as well as several major countries in the Middle East.[1] Moreover, thus far, only 73 countries have declared that they will be original signatories of the Chemical Weapons Convention (Table 3). Of these, only a handful are located in regions

[1] Members of the Commonwealth of Independent States did, however, agree to consider the possibility of subscribing to the Geneva Protocol, without reservations, in a May 1992 agreement on chemical weapons. See, "Agreement Among the CIS States on Chemical Weapons," May 15, 1992, as reprinted in Arms Control Reporter, June 1992, p. 704.D.171.

Table 1

States Not Party to the Geneva Protocol*

Former Soviet Republics

Armenia
Azerbaijan
Belarus
Georgia
Kazakhstan
Kyrgyzstan
Moldova
Tajikistan
Turkmenistan
Ukraine
Uzbekistan

Europe

Bosnia & Herzegovina
Croatia
San Marino
Slovenia

Latin America and the Caribbean

Belize
Colombia
Costa Rica
Dominica
El Salvador**
Haiti
Honduras
St. Vincent & the Grenadines

Middle East and North Africa

Djibouti
Mauritania
Oman
Somalia
United Arab Emirates

Sub-Saharan Africa

Burundi
Chad
Comoros
Congo
Gabon
Guinea
Mozambique
Namibia
Sao Tome & Principe
Zaire

Asia and Australasia

Brunei Darussalam
Cook Islands
Kiribati
Marshall Islands
Micronesia
Nauru
Niue
Samoa
Tuvalu
Vanuatu

* As of July 31, 1992.
** Signed but not ratified.

Table 2

States Not Party to the BWC*

Former Soviet Republics

Armenia
Azerbaijan
Estonia
Georgia
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Moldova
Tajikistan
Turkmenistan
Uzbekistan

Europe

Bosnia & Herzegovina
Croatia
Holy See
Monaco

Latin America and the Caribbean

Antigua & Barbuda
Dominica
Guyana
Haiti
St. Vincent & the Grenadines
Suriname
Trinidad & Tobago

Asia and Australasia

Cook Islands
Kiribati
Maldives
Marshall Islands
Micronesia
Myanmar
Nauru
Nepal
Niue
Samoa
Tuvalu
Vanuatu

Middle East and North Africa

Algeria
Egypt
Djibouti
Israel
Mauritania
Morocco
Somalia
Sudan
Syria
United Arab Emirates

Sub-Saharan Africa

Angola
Burundi
Cameroon
Central African Republic
Chad
Comoros
Cote d'Ivoire
Gabon
Gambia
Guinea
Liberia
Madagascar
Malawi
Mali
Mozambique
Namibia
Tanzania
Zambia

* As of July 31, 1992.
States appearing in **bold** have signed but not yet ratified.

Table 3

States that have Declared their Intent to be Original Signatories of the Chemical Weapons Convention*

Europe

Albania
Austria
Belgium
Bosnia & Herzegovina
Bulgaria
Croatia
Cyprus
Czechoslovakia
Denmark
Finland
France
Germany
Greece
Holy See
Hungary
Iceland
Ireland
Italy
Liechtenstein
Luxembourg
Malta
Monaco
Netherlands
Norway
Poland
Portugal
Romania
San Marino
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom
Yugoslavia**

Former Soviet Republics

Armenia
Azerbaijan
Belarus
Estonia
Georgia
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Moldova
Russia
Tajikistan
Turkmenistan
Ukraine
Uzbekistan

Asia and Australasia

Australia
India
Japan
Mongolia
New Zealand
Pakistan
South Korea

Middle East and North Africa

Algeria
Morocco

Sub-Saharan Africa

Kenya
Nigeria

Latin America and the Caribbean

Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Paraguay
Peru
Uruguay
Venezuela

North America

Canada
United States

* As of September 30, 1992
** This statement was made prior to the disintegration of Yugoslavia.

where chemical weapons currently are proliferating.

To this problem of nonadherence must be added the more serious issue of noncompliance with the regime governing chemical and biological weapons. Despite being a party to the Geneva Protocol, Iraq used chemical weapons repeatedly during the Iran–Iraq War. The 1980s also witnessed efforts to develop biological weapons by Iraq, Syria, Iran, Libya, China, North Korea, Taiwan, and the former Soviet Union, all parties to or signatories of the Biological Weapons Convention.[2]

Ensuring compliance with the Chemical Weapons Convention may also prove to be a difficult task, in view of the large number of countries believed to have offensive chemical warfare capabilities. These currently include Iran, Israel, Syria, Libya, Egypt, Myanmar (Burma), China, Taiwan, Vietnam, North Korea, South Korea, India, and Pakistan.[3] Unlike the United States, the former Soviet Union, and Iraq, none of these countries have acknowledged their CW capabilities. Indeed, many have declared just the opposite -- that they do not possess chemical weapons.

Stemming and ultimately reversing CBW proliferation will thus require measures that promote both adherence to and compliance with the three agreements prohibiting chemical and biological weapons. This paper begins by examining the measures that have been pursued within the CBW treaty regime to promote adherence and compliance. It then turns to

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[2] See, Statement of Rear Admiral William O. Studeman, US Navy, Director of Naval Intelligence, Before the Seapower and Strategic and Critical Materials Subcommittee of the House Armed Services Committee, on Intelligence Issues," March 1, 1988, p. 48; "Statement of Rear Admiral Thomas A. Brooks, US Navy, Director of Naval Intelligence, Before the Seapower, Strategic, and Critical Materials Subcommittee of the House Armed Services Committee, on Intelligence Issues," March 14, 1990, p. 54; and Office of Assistant Secretary of Defense (Public Affairs), "Remarks Prepared for Delivery by The Honorable Dick Cheney, Secretary of Defense, American Israel Public Affairs Committee, Washington, DC, June 11, 1990," News Release, No. 294-90, p. 4.

[3] See, "Statement of Rear Admiral Thomas A. Brooks, USN, Director of Naval Intelligence, Before the Seapower, Strategic, and Critical Materials Subcommittee of the House Armed Services Committee, on Intelligence Issues," March 7, 1991, pp. 57–58. Although Ethiopia was included in an earlier statement by Admiral Brooks, it has not appeared on any official list in recent years.

measures outside the treaty regime relevant to the CBW proliferation problem. As will be shown, these measures can also enhance the prospects of CBW treaty adherence and compliance.

MEASURES WITHIN THE CBW TREATY REGIME

As was noted above, once the Chemical Weapons Convention actually enters into force, a comprehensive regime proscribing the acquisition and use of chemical and biological weapons will be in place. The cornerstone of this regime is the 1925 Geneva Protocol. The 1972 Biological and Toxin Weapons Convention, and the recently completed Chemical Weapons Convention, comprise its other elements.

The Geneva Protocol

The 1925 Geneva Protocol was concluded in the aftermath of the widespread use of chemical weapons in the First World War. The Protocol itself restated the prohibition on "the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices" of the failed 1922 Washington Treaty and added a ban on the use of bacteriological methods of warfare. No provisions were included for investigating allegations of noncompliance. Moreover, upon initially joining, over a quarter of the Protocol's 141 parties reserved the right to use CBW against nonparties or in retaliation. These reservations, in effect, legitimized the acquisition of chemical and biological weapons.

In the 65 years since the Protocol entered into force, dozens of allegations have been made of the use of lethal chemical weapons, in particular. Only six of these allegations, however, have been authenticated. Poison gas was used by the Italians in Libya in 1930, by Soviet forces in Sinkiang in 1934, by the Italians in Ethiopia in the mid-1930s, by the

Japanese in China between 1937 and 1945, by the Egyptians in Yemen from 1963 to 1967 and, of course, by Iraq in the 1980s.[4] Ironically enough, however, it was the controversial and still unresolved allegation of so-called "Yellow Rain" warfare by the Soviet Union and its allies in Southeast Asia and Afghanistan that finally prompted the international community to begin to deal with the Protocol's lack of verification provisions.

In December 1982, the UN General Assembly adopted a resolution requesting the Secretary General to investigate, with the help of qualified experts, possible violations of either the Protocol or of the relevant rules of customary international law. The resolution also called upon the Secretary General to compile a list of experts and laboratories and, with the help of expert consultants, to develop procedures for carrying out such investigations. The Soviet Union and its East European allies voted against this resolution. In the late 1980s, the means for investigating allegations of the use of chemical or biological weapons were further strengthened by the adoption of additional resolutions reiterating the Secretary General's authority to prepare for and carry out such investigations. Unlike in 1982, these resolutions were adopted by consensus.[5] UN investigations during the Iran-Iraq War and, more recently, in Mozambique and Azerbaijan, drew upon many of the procedures developed by the Secretary General under these resolutions.[6]

The prospects for compliance with the Protocol have also been bolstered by the decision of a number of countries -- including Australia, Barbados, Bulgaria, Chile,

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[4] Julian Perry Robinson, "Chemical Weapons Proliferation in the Middle East," March 31, 1992 (unpublished paper), Tables 1 & 2.

[5] The relevant resolutions are United Nations, General Assembly, Resolution 37/98 D, December 13, 1982; 42/37 C, November 30, 1987; 44/115 B, December 15, 1989; and 45/57 C, December 15, 1990. The Secretary General's reports may be found in United Nations, General Assembly, Report A/38/435, October 19, 1983; A/39/488, October 2, 1984; and A/44/561, October 4, 1989.

[6] For the reports on these investigations, see United Nations, Security Council, Report S/16433, March 26, 1984; S/17911, March 12, 1986; S/18852, May 8, 1987; S/19823, April 25, 1988; S/20060, July 20, 1988; S/20063, July 25, 1988; S/20134, August 19, 1988; S/24065, June 12, 1992; and S/24344, July 24, 1992.

Czechoslovakia, Ireland, Mongolia, New Zealand and Romania -- to withdraw all their reservations to the 1925 agreement. Three others -- Canada, the United Kingdom, and Russia -- recently withdrew their reservations concerning the use of biological weapons.[7] Austria has proposed a meeting of the Protocol's parties to adopt a declaration endorsing the withdrawal of all reservations as soon as possible.[8]

Efforts to encourage both compliance with and adherence to the Protocol were also given a boost by the January 1989 Paris Conference on the Prohibition of Chemical Weapons. Called by President Ronald Reagan in the aftermath of Iraq's chemical weapons attacks against Kurdish civilians, especially at Halabja in March 1988, the 149 countries that participated in the Paris Conference reaffirmed both the Protocol and the Secretary General's authority to investigate allegations of its violation.[9] The Paris Conference also prompted 12 new countries to announce their intention to adhere to the 1925 agreement.[10]

The Biological and Toxin Weapons Convention

As with the Geneva Protocol, much of the impetus for the second element of the CBW arms control regime came from the use of chemical weapons, in this case the massive use of riot control agents and chemical herbicides by US forces in Vietnam. Concluded in 1972, the

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[7] "Canadian Statement By Ambassador Peggy Mason to the Third Review Conference, Biological and Toxin Weapons Convention," September 10, 1991; "Biological Weapons Convention Review Conference, Statement by Ambassador Solesby of the United Kingdom of Great Britain and Northern Ireland to Plenary," September 27, 1991; and Moscow Teleradiokompaniya Ostankino Television First Program Network, January 29, 1992, as reported in FBIS-SOV-92-019, January 29, 1992, p. 3. The United States reserved the right to use chemical but not biological weapons when it ratified the Protocol in 1975.

[8] Conference on Disarmament, CD/PV.595, June 13, 1991, p. 16.

[9] "Text of the Declaration From the Paris Conference on Chemical Weapons," New York Times, January 12, 1989.

[10] Stockholm International Peace Research Institute, World Armaments and Disarmament, SIPRI Yearbook 1990, (Oxford: Oxford University Press, 1990), p. 534 (hereafter cited as SIPRI Yearbook, with appropriate year).

Biological and Toxin Weapons Convention went beyond the Protocol's proscriptions on use by banning the development, production, stockpiling, and acquisition of biological agents or toxins of types and in quantities that have no justification for "prophylactic, protective or other peaceful purposes," and of weapons or other means of delivering them. Parties also are prohibited from transferring or in any way assisting others in acquiring such agents, toxins, or delivery means. Although provisions for international verification were not included, parties agreed to take any necessary national measures to prohibit or prevent violations. They also agreed to "consult and cooperate" in resolving compliance concerns, and to permit complaints about potential violations to be lodged with the UN Security Council. Finally, parties agreed to provide or support assistance to any other party that the Security Council decides has been exposed to danger as a result of a violation.

Even before the BWC entered into force, critics pointed out that by failing to ban research and by permitting the retention of agents and toxins for prophylactic, protective or other peaceful purposes, the Convention might actually encourage noncompliance. The absence of provisions for international verification, as well as the ambiguity of the Convention's consultation and cooperation provisions were also criticized. So too was the Convention's complaints procedure, which, because of its link to the Security Council, would enable the major powers to veto any investigation not to their liking.[11]

Parties to the BWC have sought to deal with these concerns in a number of ways. At least sixteen countries -- Australia, Austria, Belgium, Bulgaria, Chile, Finland, Germany, Italy, the Netherlands, New Zealand, Norway, Romania, Sweden, Thailand, the United Kingdom, and the United States -- have passed domestic legislation making it a crime for

[11] See, for example, Jozef Goldblatt, "Biological Disarmament," Bulletin of the Atomic Scientists, April 1972, pp. 6, 8-9.

their citizens to develop, produce, stockpile or acquire biological or toxin weapons.[12] Other concrete measures to promote compliance have been adopted at the periodic conferences held to review implementation of the Convention. For example, the First Review Conference, in 1980, opened the door to an investigative mechanism that bypassed the Security Council by declaring the right of any party to request the convening of a "consultative meeting" at the expert level to resolve compliance concerns.[13]

In 1986, various confidence-building measures (CBMs) were adopted by the Second Review Conference, amidst US charges that the Soviet Union was maintaining an illegal biological weapons program. These CBMs involved the exchange of data on facilities capable of handling risky biological materials or specializing in activities directly related to the Convention; the reporting of unusual outbreaks of infectious disease or intoxication; and the promotion of scientific contacts and the publication of research results directly related to the Convention.[14]

Various changes were made in these CBMs during the Convention's Third Review Conference, in 1991. The data exchange on facilities was amended to include information on national biological defense programs and facilities. A new declaration on "nothing to declare" or "nothing new to declare" was also added in an effort to stimulate wider participation in the

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[12] Erhard Geissler, "The Spread of Biological and Toxin Weapons: A Nightmare of the 1990s?" June 1991 (unpublished paper); and SIPRI Yearbook 1992, p. 177, n. 209. In a resolution adopted in July 1992, the Supreme Soviet recommended that President Yeltsin submit similar legislation for approval. Moscow Rossiyskaya Gazeta, July 24, 1992 as reported in JPRS-TND-92-026, July 31, 1992, p. 25.

[13] The Review Conference also addressed concerns about the Convention's scope by declaring that it was sufficiently comprehensive to cover recent scientific and technological developments. Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, BWC/CONF.I/10, March 21, 1980, pp. 7-8.

[14] Second Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, BWC/CONF.II/13/II, September 30, 1986, pp. 3, 5-6.

CBMs.[15] New declarations on the subjects of national legislation, regulations and other measures for implementing the Convention; past offensive or defensive biological programs; and facilities for producing vaccines were also adopted. Responsibility for overseeing implementation of these expanded CBMs was given to the UN Office for Disarmament Affairs.

The Third Review Conference also began to deal with the Convention's lack of verification provisions by establishing a group of experts, open to all parties, to identify and examine potential verification measures from a scientific and technical standpoint. This group is to complete its work by the end of 1993. It also agreed that parties would consult regarding allegations of the use or threat of use of biological or toxin weapons and cooperate fully with any investigation undertaken by the Secretary General.[16]

Perhaps most interesting of all, in terms of their ability to promote compliance with the Convention, are the measures recently agreed among the United States, the United Kingdom, and the Russian Federation in an effort to root out and close down the illegal biological weapons program President Yeltsin has acknowledged existed under the former Soviet Union. These measures go far beyond previous bilateral activities such as the reciprocal visits to biological defense facilities carried out under the auspices of the US and Soviet Academies of Science.[17]

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[15] Only 44 countries, or roughly 40% of the Convention's parties participated in the CBMs during their first five years. See, Third Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, BWC/CONF.III/2/Add.1, August 12, 1991, pp. 3-7.

[16] Third Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, BWC/CONF.III/23, Part II, pp. 14-18.

[17] Erhard Geissler, "The First Four Rounds of Information Exchange," in Erhard Geissler and Robert H. Haynes, eds., Prevention of a Biological and Toxin Arms Race and the Responsibility of Scientists (Berlin: Akademie Verlag, 1991), p. 274.

Under a tripartite agreement reached in September 1992, Russia has agreed to open all non-military biological facilities to inspection, provide information about its BW dismantlement efforts, clarify information regarding past offensive and defensive programs, and invite independent scientists to participate in the investigation of BWC noncompliance cases. All three governments have agreed to establish a working group to address the following additional issues: reciprocal, unrestricted access to military facilities; potential BWC compliance measures and modalities for testing them; the compatibility of existing biological facilities with the Convention; cooperation in biological defense; cooperation and investment in the conversion of BW facilities, including visits to those already converted; a confidential, detailed information exchange on past offensive BW programs; public reporting on permitted biological research and development activities; and long-term scientific exchanges.[18]

The Chemical Weapons Convention

The third element of the CBW arms control regime, the Chemical Weapons Convention, has been under negotiation for nearly a quarter of a century. Throughout much of this period, however, chemical disarmament was not a particularly salient political issue. This situation began to change in the mid-1980s as a result of the widespread use of chemical weapons in the Iran-Iraq War, the reports of CW proliferation in the developing world and, more recently, the threatened use of chemical weapons in the Kuwait War. At the same time, the task of completing the negotiations was made easier by the collapse of the Warsaw Pact and the dissolution of the Soviet Union, both of which enabled key Western countries, particularly the United States, to relax their verification requirements.

The draft now before the United Nations will rectify many of the shortcomings of both

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[18] "Joint Statement on Biological Weapons by the Governments of the United Kingdom, the United States, and the Russian Federation," September 11, 1992.

the Geneva Protocol and the Biological Weapons Convention by unconditionally prohibiting the acquisition and use of chemical (including toxin) weapons, and by providing for international verification of compliance with its obligations.[19] Specifically, the Convention bans the development, production, possession, use, and preparations to use chemical weapons. Parties also are prohibited from transferring or in any way assisting others in acquiring chemical weapons, and must abide by specific guidelines for transferring chemicals for permitted purposes. End use certificates, for example, must be provided for any chemical transfer to a nonparty recipient.[20]

Unlike the Biological Weapons Convention, the CWC also contains rudimentary provisions for responding to violations. Parties may restrict or suspend a violator's rights and privileges under the Convention, or may recommend "collective measures," in conformity with international law. Particularly grave violations are to be brought to the attention of the United Nations. The CWC also differs from past treaties on the issue of assistance by eliminating the Security Council's role in determining whether an assistance request is legitimate. Instead, both the Director-General and the Executive Council of the organization responsible for implementing the Convention may act upon a request. The assistance itself, which would involve chemical defensive materials, is to be purchased with contributions to a voluntary fund or drawn from material commitments made in earlier agreements with or declarations to the treaty organization.

The CWC's verification provisions also break new ground, both in terms of breadth and in terms of intrusiveness. Parties are required to adopt domestic legislation to implement

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[19] For the text, see Conference on Disarmament, CD/1073, September 3, 1992, Appendix I, pp. 3-174.

[20] Schedule 1 chemicals may be transferred in quantities under 1 tonne to other parties, but not to nonparties. Schedule 2 chemicals may be transferred to other parties without restriction, but not to nonparties beginning the third year after the Convention enters into force. Schedule 3 chemicals may be transferred to both parties and nonparties.

the Convention, and to establish a National Authority to interact with the treaty organization. The latter, known as the Organization for the Prohibition of Chemical Weapons (OPCW), will conduct on-site inspections to verify information submitted by National Authorities on CW stocks, CW production facilities, and facilities producing or capable of producing dual-use chemicals. The OPCW will also use on-site inspections and on-site monitoring instruments to verify the destruction of CW stocks and production facilities, and the absence of CW production in civilian chemical facilities.

In addition to these routine inspection activities, the Convention also provides for challenge inspections at any site suspected of illegal activities. The party being inspected must be notified of such an inspection no less than 12 hours before the inspectors arrive at the point of entry. Within 36 hours of their arrival, the inspectors must be transported to the perimeter of the suspected site and begin monitoring traffic entering and exiting the site. Actual access within the suspected area must be provided no later than 108 hours after the inspectors arrive at the point of entry. The inspection itself, including the extent of access and the activities of the inspectors, must be negotiated between the inspectors and the inspected party. Detailed provisions have also been included for investigating allegations of the use of chemical weapons.

The past decade has thus witnessed substantial progress toward strengthening and extending the international controls on chemical and biological weapons. Nevertheless, the threat of CBW proliferation remains. Dozens of countries have yet to renounce CBW by joining the Protocol or the BWC, or by declaring their support for the newly-completed Chemical Weapons Convention. Many countries also continue to reserve the right to use CBW against nonparties or in retaliation under the Protocol, and to disregard their obligation to participate in the confidence-building measures agreed at the BWC Review Conferences. Opportunities to circumvent the Chemical Weapons Convention also exist owing to the

Convention's legitimization of chemical transfers to nonparties, its ambiguous sanctions provisions, and its limits on access during challenge inspections.

MEASURES OUTSIDE THE CBW TREATY REGIME

As concern about CBW proliferation has increased, other national and multilateral measures have been pursued in an effort to supplement the CBW arms control regime. These measures have involved regional commitments not to acquire or use CBW; export controls on the materials, technology, and services needed to make such weapons; sanctions against countries that acquire or use CBW or against companies that supply proliferators; and military measures to mitigate the threat posed by such weapons.

Regional Arms Control Measures

Within the past few years, the prospects of controlling chemical and biological weapons have been enhanced by a variety of regional measures relating to such weapons. In September 1991, Argentina, Brazil and Chile (since joined by Ecuador, Bolivia, Paraguay, and Uruguay) reaffirmed their commitment to the Protocol and the BWC by signing a declaration renouncing the development, production, acquisition, storage, retention, and use of chemical or biological weapons. They also affirmed their support for the CWC by declaring their intent to be original signatories.[21] A few months later, the five Andean Group countries -- Bolivia, Colombia, Ecuador, Peru, and Venezuela -- signed a similar declaration on chemical,

[21] For the original declaration, see "Joint Declaration on the Total Prohibition of Chemical and Biological Weapons," signed at Mendoza, September 5, 1991. See also, Nathaniel C. Nash, "3 Latin Nations Agree to Ban Chemical Weapons," New York Times, September 6, 1991.

biological, radiological, and nuclear weapons.[22] In August 1992, a declaration renouncing the development, production, possession and use of chemical weapons was signed by India and Pakistan. The two countries also declared their resolve to become original parties to the proposed Chemical Weapons Convention.[23] Unlike the South American countries, both India and Pakistan have been identified by US officials as having chemical weapons programs.

Countries located in other regions where CBW are proliferating have also proposed measures aimed at prohibiting such weapons. In Northeast Asia, North and South Korea pledged in December 1991 to work toward a phased reduction in arms, including the elimination of weapons of mass destruction. South Korea had previously said it would not develop or store CBW, while North Korea had expressed support for making the peninsula a nuclear and chemical free zone.[24] In the Middle East, Israel proposed in January 1989 that the region be made a zone free of chemical weapons.[25] Later that spring, Iraq called for a ban on both chemical and nuclear weapons in the Middle East.[26] Others have proposed the elimination

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[22] United Nations, General Assembly, A/46/760, December 10, 1991. Proposals to make Latin America a chemical weapons free zone had been made previously by a Canadian analyst and by Peru. See, G.K. Vachon, "Chemical Disarmament - A Regional Initiative?" Millennium, Vol 8, No 2, Autumn 1979; and Conference on Disarmament, CD/PV.315, June 25, 1985, p. 22.

[23] "Joint Declaration by the Republic of India and the Islamic Republic of Pakistan on Complete Prohibition of Chemical Weapons," August 19, 1992.

[24] David Sanger, "Koreas Sign Pact Renouncing Force in Step to Unity," New York Times, December 13, 1991; John Ridding, "South Korea forswears use of nuclear weapons," Financial Times, November 9-10, 1991; and "Plenary Statement, Delegation of the Democratic People's Republic of Korea, Delivered by Mr. Chang Myong Sik," GICCW/P/49, reprinted in Final Record, Government-Industry Conference Against Chemical Weapons, Canberra, September 1989, (Canberra: Department of Foreign Affairs and Trade), p. 315.

[25] "Address of H.E. Moshe Arens, Minister of Foreign Affairs of Israel," Paris Conference of States Parties to the 1925 Geneva Protocol and Other Interested Parties, Plenary Session, January 9, 1989. This proposal was reiterated following President Bush's May 1991 Middle East Arms Control Initiative. See, Jackson Diehl, "Mideast Arms Plan Draws Questions," Washington Post, May 31, 1991; and Bradley Burston, "Low profile response to Bush from Israel defense establishment," Jerusalem Post, May 30, 1991.

[26] "News in Brief," Jane's Defence Weekly, May 6, 1989, p. 797. In December 1990, Soviet Foreign Minister Eduard Shevardnadze also called for the creation of such a zone. See, David Hoffman, "Shevardnadze Urges Nuclear-Free Zone in Middle East," Washington Post, December 12, 1990.

of all mass destruction weapons from the region. Perhaps the best known, and most fully elaborated, is Egypt's April 1990 proposal.[27] Members of the UN Security Council, in the April 1991 Kuwaiti ceasefire resolution, also expressed support for making the Middle East a zone free of all weapons of mass destruction.[28]

These proposals face a number of serious hurdles. They must overcome the longstanding and deeply held animosities that exist between the countries concerned. Because of these animosities, they must include provisions for intrusive verification if they are to be viewed as effective. This will complicate their negotiation. Finally, they will have to deal with asymmetries in capabilities, and thus linkages between different types of weapons as well as between military and political issues. As a UN study on the establishment of a Middle East nuclear weapons-free zone observed:

> The close relationship - the "linkage" among all the elements that affect security is well known. Nuclear capabilities are linked to chemical weapons, chemical weapons to conventional arms, conventional arms to political conflict....The problem is much too complex and unyielding for any comprehensive settlement to solve all at once. Yet...it will not be possible to settle any one piece of the problem unless it is clear that progress is being made on the other pieces as well.[29]

In light of these difficulties, efforts to deal with the CBW problem in Northeast Asia and the Middle East might well benefit, at least initially, from a more modest approach, one that focuses on confidence building rather than disarmament. The countries concerned could begin the process by participating in the confidence-building measures agreed among parties to the BWC. Actual adherence to the BWC would not be a prerequisite for participation, and

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[27] Conference on Disarmament, CD/989, April 20, 1990. For further elaboration, see Mohamed Nabil Fahmy, "Controlling Weapons of Mass Destruction in the Middle East," American-Arab Affairs, Winter 1990-91, No. 35, p. 132; and Mohamed Nabil Fahmy, "Egypt's disarmament initiative," Bulletin of the Atomic Scientists, November 1990, pp. 9-10.

[28] United Nations, Security Council, S/RES/687, April 3, 1991.

[29] United Nations, General Assembly, Report A/45/435, October 10, 1990, p. 39.

the exercise itself could build sufficient confidence over time to encourage holdouts to join the Convention and violators to comply with its obligations. This could be followed by chemical weapons confidence-building measures.

Two models for chemical CBMs exist: those agreed among countries participating in the June 1992 Australian Regional Initiative; and those agreed between the United States and the Soviet Union in the September 1989 Wyoming Memorandum of Understanding. Under the former, 21 Southeast Asian and South Pacific countries agreed to implement certain CWC obligations in advance by declaring information about their chemical weapons stocks and related facilities, if any.[30] Under the latter, the two sides agreed to exchange data about their respective chemical weapons capabilities and to carry out reciprocal visits to relevant facilities.[31] In the case of countries in Northeast Asia and the Middle East, these exchanges and visits could be facilitated by third parties such as the United States or the United Nations. At a minimum, these CBMs can build confidence and possibly encourage the freezing of existing CW programs. Over time, they can help create an atmosphere conducive to CWC adherence and compliance.

Export Controls

For nearly a decade, countries have tried to make it more difficult and costly for proliferators to acquire chemical and biological weapons by imposing controls on the materials, technology and services needed to produce such weapons. Controls on the

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[30] For the text, see, Conference on Disarmament, CD/1157, June 25, 1992. The idea of pre-convention declarations was also suggested by a Swedish analyst in 1980 and by the Bush administration in its May 1991 Middle East Arms Control Initiative. See, S.J. Lundin, "Confidence-building measures and a chemical weapons convention," in Chemical Weapons: Destruction and Conversion (London: Taylor & Francis, 1980), pp. 139-51; and White House, Office of the Press Secretary, "Fact Sheet on Middle East Arms Control Initiative," May 29, 1991.

[31] For the text, see "The Wyoming Papers: Documents from the Foreign Ministers' Meeting," Arms Control Today, October 1989, pp. 23-4.

precursors used to make CW agents were instituted first, in 1984, when it was realized that Western chemical companies had played a key role in the establishment of Iraq's chemical weapons program. Since that time, 22 of the 24 members of the Organization for Economic Cooperation and Development (OECD) have imposed controls on various precursor chemicals.[32] Members of the now defunct Council for Mutual Economic Assistance (CMEA) have also imposed precursor controls, as have other potential suppliers, such as Argentina, China, India, Israel, and Pakistan.[33]

In the late 1980s, amidst reports of the continuing spread of chemical weapons in the Middle East and of emerging interest in biological weapons, two additional types of chemical and biological related exports were added to national control lists. The United States, for example, placed controls on five classes of biological organisms that could be used in the production of biological agents.[34] The export of other materials, technology and services

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[32] These countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Information on the controls put in place by all but Finland and Sweden is derived from Chemical Manufacturers Association, "Chemical Weapons Precursors – Export Controls," March 1990 (unpublished paper). Finland's controls are referred to in SIPRI Yearbook, 1988, p. 104, while Sweden's controls may be found in Swedish Code of Statutes, 1991:341, Act Prohibiting the Exportation of Certain Products Which May be Used for Purposes of Mass Destruction, and Related Matters (unofficial translation) and Swedish Code of Statutes, 1991:343, Ordinance Concerning Prohibition of Exportation of Certain Products Which May be Used for Purposes of Mass Destruction and Related Matters (unofficial translation). Both entered into force on July 1, 1991.

[33] For the Soviet controls, see International Affairs (Moscow), April 1986, pp. 151–52; and North Atlantic Assembly, Scientific and Technical Committee, "Interim Report of the Sub–Committee on Verification and Technology: Chemical and Biological Weapons," October 1991, Appendix 1 and 2. The activities of other CMEA countries are referred to in US Senate, Committee on Governmental Affairs and its Permanent Subcommittee on Investigations, Global Spread of Chemical and Biological Weapons, 101st Cong., 1st Sess. (Washington, DC: USGPO, 1990), p. 374. For information on Argentina, see United Nations General Assembly, A/47/181, April 28, 1992; on China and India, see White House, "Report to the Congress in Accordance with Section 586J(c) of P.L. 101–513 on Steps Taken by Other Nations to Curtail Exports to Iraq Which Might Contribute to Iraq's Nuclear, Biological, Chemical and Ballistic Missile Capability," January 24, 1992, p. 7; and on Israel, see "Statement of Richard A. Clarke, Assistant Secretary for Politico–Military Affairs, Department of State, Before the Joint Economic Committee, Subcommittee on Technology and National Security," March 13, 1992, p. 6 (hereafter cited as Clarke Statement). Information has not been published on Pakistan's controls.

[34] See, US Department of Commerce News, "US Imposes Export Controls on Chemical and Biological Agents," February 23, 1989; and Federal Register, Vol. 54, No. 38, February 28, 1989, pp. 8281–8301.

relevant to CBW production also began to be restricted. Thus, Germany, which had already placed controls on chemical weapons production equipment in 1984, adopted new restrictions in 1989 and 1990 on technical data for producing chemical weapons, on equipment that could be used to produce biological weapons, and on the participation of German citizens in chemical, biological, and nuclear programs abroad.[35]

In the United States, an Executive Order signed by President Bush in November 1990 imposed controls on any exports that would assist a country in acquiring the ability to develop, produce, stockpile, deliver, or use CBW. New rules implementing this Presidential directive were announced by the Department of Commerce in March 1991.[36] The United Kingdom also adopted new restrictions in 1990 and 1991 on goods and technical data which the exporter knows or has grounds for suspecting may be used in the development, production, handling, detection, identification, or storage of chemical or biological agents, weapons, or medical means of protection against or treatment for exposure to such agents. The new controls also apply to goods or technical data that may be used for disposing of wastes from the development or production of chemical or biological agents or weapons.[37]

The emergence of these national controls on chemical and biological materials, technology, and services have been paralleled by similar efforts on a multilateral level. Under the auspices of the Australian government, a growing number of Western industrialized

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[35] John Tagliabue, "Bonn Limits Export of Chemical-Arms Materials," New York Times, August 8, 1984; and Duesseldorf Handelsblatt, November 14, 1990 as reported in FBIS-WEU, November 26, 1990, pp. 10-13.

[36] White House, Office of the Press Secretary, "Executive Order 12735: Chemical and Biological Weapons Proliferation," November 16, 1990; and Federal Register, Vol. 56, No. 49, March 13, 1991, pp. 10756-70. See also, Federal Register, Vol. 56, No. 158, August 15, 1991, pp. 40494-502.

[37] Statutory Instruments 1990 No. 2632, Customs and Excise: The Export of Goods (Control) (Amendment No. 6) Order 1990, made December 20, 1990; and Statutory Instruments 1991 No. 1583, Customs and Excise: The Export of Goods (Control) (Amendment No. 7) Order 1991, made July 9, 1991. A new Export of Goods Control Order consolidating these amendments came into force in March 1992.

countries have met periodically since 1985 to coordinate their export control policies. Fifteen countries participated in the first meeting of what has come to be known as the "Australia Group," where it was agreed to establish controls on five precursor chemicals. In December 1989, the Group widened its focus, agreeing to warning guidelines for chemical weapons processing equipment. Six months later, it expanded into the biological area, agreeing to warning guidelines for materials and technology for producing biological agents. In May 1991, the Group agreed to establish worldwide controls over 50 precursor chemicals and to a list of CW processing equipment similar to that included in the US and West German controls. Twenty-two countries (plus the European Commission) participated in the Group's December 1991 meeting, where preliminary agreement was reached on one type of biological equipment and on a variety of organisms and toxins. In June 1992, the Group added four more chemicals to its precursor control list and agreed on a list of BW processing equipment.[38]

Despite this web of inter-locking national and multilateral export controls, CBW proliferators have continued to benefit from outside assistance. This is in part because the export controls themselves have not always been implemented effectively. West German companies, for example, continued to supply sensitive materials to both the Iraqi and the Libyan CW programs through the late 1980s. In 1989, the West German government finally began to tighten its enforcement efforts by hiring additional personnel, requiring more information on end users, establishing harsher penalties for violations, and boosting domestic

[38] The Australia Group does not publish information about its activities, but US guidelines and lists generally embody the Group's decisions. See, for example, Federal Register, Vol. 55, No. 64, April 3, 1990, pp. 12397-98; Federal Register, Vol. 55, No. 242, December 17, 1990, pp. 51740-42; Federal Register, Vol. 56, No. 49, March 13, 1991, pp. 10760-64; Federal Register, Vol. 56, No. 189, September 30, 1991, pp. 49441-44; and Federal Register, Vol. 57, No. 136, July 15, 1992, pp. 31309-12. See also, "Australia Group Expanding," Pacific Research, February 1992, p. 25; and "Australia Group Meeting Approves Biological Controls," Export Control News, June 30, 1992, p. 25.

monitoring of both German companies and foreign purchasers.[39] These changes notwithstanding, the government still refuses to provide a German court information from the United Nations Special Commission needed to prosecute a German company involved in the Iraqi CW program.[40]

Proliferators have also been able to obtain assistance because of the existence of other suppliers outside the Australia Group. Twenty-two of the fifty chemical precursors controlled by Australia Group members, for example, are produced in other countries in Eastern Europe and the developing world.[41] Some of these countries have adopted partial export controls; others have none. This situation has prompted Western governments to take a number of steps. US officials, for example, have visited Eastern Europe and the Commonwealth of Independent States (CIS) to discuss US nonproliferation efforts. CBW export control seminars have also been held for the same countries by both the United Kingdom and France.[42] Officials from the G-7 countries, plus Australia, have also visited the CIS to encourage the adoption of CBW related controls.[43] These efforts have paid off.

Earlier this year, a State Department official confirmed that Bulgaria, Czechoslovakia, Hungary, Poland and Romania were in the process of applying controls comparable to

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[39] See, "Germany Tightens Export Curbs," Export Control News, February 25, 1991, pp. 14-5; and "Export Controls, A report by the Federal Minister of Economics on the tightening of export controls for goods with civilian and military applications (dual-use goods) in the Federal Republic of Germany," March 11, 1992.

[40] See, for example, Der Spiegel, April 13, 1992, as reported in JPRS-TND-92-012, April 22, 1992, pp. 23-5.

[41] Department of Commerce, Bureau of Export Administration, Office of Foreign Availability, "Foreign Availability Review: 50 CW Precursor Chemicals (II)," November 8, 1991.

[42] Both of these initiatives are mentioned in the Clarke Statement, pp. 13-14.

[43] "Nonproliferation Notes," Pacific Research, August 1992, p. 28.

Australia Group countries.[44] In April, Russian President Yeltsin signed a decree providing for the establishment of a new export control system, including the drafting of lists of materials, technology and services covered by international export control and nonproliferation agreements.[45] One month later, CIS members meeting at Tashkent agreed, among other things, to coordinate their dual-use chemical export policies.[46] Finally, to help deal with the "people problem," both Russia and Ukraine have concluded agreements with Western governments for the creation of science and technology centers to employ scientists formerly engaged in work on Soviet nuclear, chemical, and biological weapons.[47]

In the years ahead, Western governments must persuade other potential suppliers outside Eastern Europe and the former Soviet Union to adopt controls analogous to those of Australia Group members. They must also begin to link their export controls more directly to the agreements governing chemical and biological weapons. As noted above, the CWC permits chemical transfers to nonparty recipients. These transfers, as well as those involving CW related technology and services, should be denied to countries that refuse to join the Convention or that are found to be violating its obligations. BW related exports should similarly be used to promote adherence to and compliance with the Biological Weapons Convention.

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[44] Clarke Statement, p. 14. In June 1992, COCOM invited the CIS to participate in a new forum on the control of sensitive technology. This may well presage CIS and East European participation in the Australia Group. See, White House, Office of the Press Secretary, "COCOM Issues," June 17, 1992.

[45] Georgi Angelov, "Russia Lays Groundwork for Export Control System," Export Control News, May 30, 1992, pp. 14-5.

[46] "Agreement Among the CIS States on Chemical Weapons," May 15, 1992, as reprinted in Arms Control Reporter, June 1992, pp. 704.D.171-72.

[47] See, for example, Comptroller of the Department of Defense, "Report On Proposed Obligations for Facilitating Weapons Destruction and Nonproliferation in the Former Soviet Union," May 12, 1992.

Sanctions

In April 1984, shortly after UN investigators confirmed that chemical weapons were being used in the Iran–Iraq War, an Indian analyst issued a warning to the international community. "The Iraqi use of chemical weapons ... is a portentous development," the analyst wrote. "If Iraq gets away with the use of chemical weapons, we could be entering an era when chemical warfare could [become] legitimate, and politically less costly."[48]

For the next several years, Iraq continued to use chemical weapons against Iranian military forces with impunity. Not until 1988, when Iraq's own Kurdish civilian population came under repeated chemical attack, did individual countries finally begin to respond. At the UN General Assembly that fall, French President Francois Mitterrand called for an embargo on all products, technologies and weapons to countries that used chemical weapons.[49] Two years later, during the June 1990 Washington Summit, Presidents Bush and Gorbachev promised to consider imposing sanctions, including those under Chapter VII of the UN Charter, against any country that violated the Geneva Protocol.[50] The following spring, the Bush Administration declared that violations of the Chemical Weapons Convention, especially the use of chemical weapons, would be met with "all appropriate measures."[51] In July 1992, the administration offered specific examples of the types of measures it was prepared to seek, in concert with other countries, against countries and individuals that violated international nonproliferation norms. These included Security Council embargoes and inspections,

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[48] C. Raja Mohan, "Chemical Weapons in the Gulf: A Dangerous Portent," Strategic Analysis (Delhi), Vol. IX, No. 1, April 1984, p. 71.

[49] Paul Lewis, "Mitterrand Asks Sanctions Against Users of Poison Gas," New York Times, September 30, 1988.

[50] "Documents from the US–Soviet Summit," Arms Control Today, June 1990, p. 26.

[51] White House, Office of the Press Secretary, "Statement by the President on Chemical Weapons Initiative," May 13, 1991.

extradition agreements, and immigration restrictions.[52]

The past few years have also witnessed, at least in the United States, efforts to legislate sanctions against countries that use CBW or against foreign companies that supply proliferators. Although Iraq was the focus of the initial sanctions bills introduced in 1988, broader legislation soon was being considered in response to reports of Libya's efforts to build a CW production facility at Rabta and of the continuing spread of CW more generally.[53] In November 1990, on the eve of the Kuwait War, President Bush vetoed the first sanctions bill to make it through both houses of Congress, on the grounds that the legislation would severely constrain the president's authority to carry out foreign policy.[54] The following year, the administration and Congress reached a compromise on the issue, and legislation imposing sanctions against CBW suppliers and users was signed into law. The new provisions require the president to deny access to US government contracts and the US market to foreign companies who "knowingly and materially" contribute to the acquisition or use of CBW weapons. They also mandate a wide range of sanctions against countries that use or make "substantial preparations" to use CBW, including the denial of foreign assistance, arms sales, arms sales financing, and US credit or other financial assistance. If the illegal activities are not halted and international inspection permitted, multilateral development assistance, bank loans, or landing rights may be denied, diplomatic relations downgraded or suspended, or

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[52] White House, Office of the Press Secretary, "Fact Sheet on Nonproliferation Initiative," (released July 13, 1992).

[53] For information on efforts to adopt sanctions in 1988 and 1989, see John Felton, "Iraq Sanctions Yield to Special Interests in Senate," Congressional Quarterly, October 29, 1988, pp. 3141–43; "Chemical–Arms Sanctions Bill Casualty of Turf Dispute," Congressional Quarterly, December 2, 1989, p. 3323; and Pamela Fessler, "Congress' Record on Saddam: Decade of Talk, Not Action," Congressional Quarterly, April 27, 1991, pp. 1073–75.

[54] For information on the legislation, see "Senate Approves Sanctions Bill," Congressional Quarterly, May 19, 1990, p. 1572; and Congressional Record, Part III, October 26, 1990, pp. H12771–83, S17179–91. For an explanation of the President's veto, see White House, Office of the Press Secretary, "Memorandum of Disapproval," November 16, 1990.

import or export restrictions put in place. Congress agreed to allow the imposition of company sanctions to be delayed for up to six months if the government of jurisdiction is itself taking action against the offending company. It also agreed to allow the president to waive the country sanctions on national security grounds (with the concurrence of the chairman and ranking minority member of the Senate Foreign Relations and House Foreign Affairs Committees) or if there is a fundamental change in the violating country's policies and leadership.[55]

These national undertakings to punish countries that acquire or use CBW have been complimented by similar multilateral commitments. In August 1988, for example, the UN Security Council warned Iraq that it would consider appropriate and effective measures, in accordance with the UN Charter, should there be any future use of chemical weapons.[56] Three years later, the G-7 countries agreed to give immediate consideration to the imposition of severe measures against any country that used chemical or biological weapons.[57] The following September, participants at the Third Review Conference for the Biological Weapons Convention called upon the United Nations to take appropriate measures in response to

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[55] See, Congressional Record, October 3, 1991, pp. H7460-7503; October 4, 1991, pp. S14437-14442; October 8, 1991, pp. H7637-7641; November 20, 1991, pp. H10641-10657; and November 26, 1991, pp. H11401-11416, and S18180-18181. In 1992, new legislation to punish companies or countries that supply unconventional or advanced conventional weapons or dual-use technology to either Iraq or Iran was introduced in both the House and the Senate. See, Congressional Record, April 8, 1992, pp. S5052-5058; and June 18, 1992, pp. E1895-1896. Legislation was also introduced which would halt all US funding to multilateral development institutions that continue to provide aid to countries that violate international nonproliferation regimes. The bill would also prohibit the Export-Import Bank from assisting such countries, and would punish banks whose officers are convicted of export control violations. See, Congressional Record, April 8, 1992, pp. H2425-2435. None of these bills were enacted into law.

[56] United Nations, Security Council, S/RES/620, August 26, 1988.

[57] "Economic Summit Declaration on Conventional Arms Transfers and NBC Non-Proliferation," Disarmament, Vol. 14, No. 4, 1991, p. 204.

allegations of the use of biological or toxin weapons.[58] The prospects of such measures, including the imposition of Chapter VII sanctions, were subsequently enhanced by a Security Council statement, in January 1992, declaring the proliferation of all weapons of mass destruction a threat to international peace and security.[59]

Punitive measures have not, however, been the only responses considered to deal with the CBW proliferation problem. Indeed, during the past few years, a number of countries have begun to explore the possibility of rewarding compliance with international nonproliferation norms.[60] Japan, for example, announced in early 1991, that it would take into account a country's development and production of weapons of mass destruction when making its foreign aid decisions.[61] At roughly the same time, a key committee in the US Congress considered legislation linking US foreign assistance to the willingness of countries to adhere to the Chemical Weapons Convention.[62] Six months later, a link between aid and disarmament was established in a related sphere: the Nunn–Lugar legislation providing assistance for the destruction of Soviet nuclear, chemical and biological weapons required the president to certify, among other things, that the recipient was committed to complying with all relevant

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[58] Third Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin weapons and on their Destruction, BWC/CONF.III/23, Part II, p. 18.

[59] United Nations, Security Council, S/23500, January 31, 1992. A few days earlier, the Federal Republic of Germany called on the Council to adopt a resolution declaring breaches of international nonproliferation obligations a threat to international peace and security against which the Council would impose sanctions. See, United Nations, Security Council, S/23474, January 24, 1992.

[60] For one of the earliest elaborations of this cooperative approach, see David A. Koplow and Philip G. Schrag, "Carrying a Big Carrot: Linking Multilateral Disarmament and Development Assistance," Columbia Law Review, Vol. 91, No. 5, June 1991, pp. 993–1059.

[61] See, for example, Yuko Mizuno, "Humanitarianism redefined: aid plan under fire," Japan Economic Journal, April 27, 1991, p. 3.

[62] US House of Representatives, Committee on the Budget, Task Force on Defense, Foreign Policy and Space, Foreign Aid Funding and Chemical Weapons, 102nd Cong., 1st Sess (Washington: USGPO, 1991).

arms control agreements.[63] Germany has also linked future aid to the Commonwealth of Independent States to adherence to disarmament treaties and control over nuclear, chemical and biological materials and know-how.[64] In a broader but vaguer policy statement in July 1992, the Bush administration said it would take other countries' performance on key nonproliferation norms into account in developing its "cooperation" and technology transfer relationships.[65]

Clearly, neither the threat of punitive action nor the promise of rewards can guarantee that countries will not acquire or use chemical or biological weapons. Both proliferators and suppliers are, however, likely at least to consider such measures when formulating their policies. The CBW and related missile sanctions adopted by Congress, for example, apparently already have caused some countries to review their export control systems. As a senior State Department official has described it, the actual application of these sanctions has gotten "the undivided attention" of the countries affected, "and in some cases spurred them to get their exports under effective control."[66]

This suggests that other governments should be encouraged to follow the US lead and enact legislation aimed at punishing countries that acquire or use CBW or foreign companies that supply them. The time has also come for the Security Council, the European Community, and other multilateral bodies to make explicit statements warning that future violations of the

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[63] For the actual language, see Arms Control Reporter, December 1991, p. 611.E-3.27. Efforts also were made in 1992 to link aid to the Commonwealth of Independent States to adherence to international nonproliferation and arms control obligations. See, for example, Congressional Record, June 22, 1992, p. E1939.

[64] See, for example, ADN, January 26, 1992, as reported in FBIS-WEU-92-017, January 27, 1992, p. 10.

[65] White House, Office of the Press Secretary, "Fact Sheet on Nonproliferation Initiative," (released July 13, 1992).

[66] Clarke Statement, p. 13.

CBW treaty regime will not go unpunished.[67] Finally, other countries should also make it clear that they will consider a recipient's adherence to and compliance with the Geneva Protocol, the BWC and the CWC when making their economic and military aid decisions.

Military Measures

Concern about chemical and biological weapons proliferation has also stimulated interest in military measures to deal with the threat posed by such weapons. These include not only passive and active defenses, but also pre-emptive and retaliatory action. These measures can help discourage proliferation by reducing the benefits and increasing the costs of acquiring or using chemical or biological weapons.

Since the early 1980s, Western governments have taken a number of initiatives to enhance the ability of their forces to survive and continue operating in a CBW environment. The United States, for example, re-opened its chemical warfare school at Ft. McClellan, Alabama, established a focal point for chemical warfare matters within in the Office of the Secretary of Defense, and constructed a live agent training facility for its troops. Overall, between fiscal year 1980 and 1991, more than five billion dollars was appropriated for CBW defenses. Most of this, however, was directed at the Soviet/Warsaw Pact threat.[68]

As a consequence of the Kuwait War, additional efforts are now underway to redress the remaining weaknesses in national CBW defense programs and to develop defensive postures appropriate to the new threat environment. The US Army, for example, is

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[67] This was originally proposed by Lewis Dunn. See, Lewis Dunn, "Combatting Chemical weapons Proliferation: The Role of Sanctions," in Lewis A. Dunn and James A. Schear, Combatting Chemical Weapons Proliferation: The Role of Sanctions and Assurances, Occasional Paper 3 (Washington, DC: Henry L. Stimson Center, 1991), p. 9.

[68] This is drawn from the author's testimony in US House of Representatives, Committee on Armed Services, Hearings on National Defense Authorization Act for Fiscal Years 1992 and 1993 - H.R. 2100, Title III - Operation and Maintenance (Washington: USGPO, 1991), pp. 590-601.

incorporating more realistic CBW scenarios in its training exercises. Consideration is also being given to ensuring that adequate quantities of CBW defensive material are available. Various other shortcomings are also being addressed, including the need for vaccines against specific threat agents; for biological detectors, both point and remote; for remote chemical detectors; for lightweight protective equipment; and for non-aqueous decontamination materials.[69]

Active defense measures have also gained in currency, notwithstanding disputes over the effectiveness of the US Patriot missile against Iraqi SCUDs during the Kuwait War. Israel, with financial backing from the US Strategic Defense Initiative (SDI) program, is continuing to develop the Arrow Anti-Tactical Ballistic Missile (ATBM) system for use against conventional or unconventionally-armed missiles. Other technology developed under the SDI program is being directed at the unconventional missile threat by the United States. The Extended Range Interceptor Technology (ERINT) program, for example, is designed to destroy a chemical warhead by direct impact rather than by high explosive fragmentation near the warhead. Another system, the Theater High-Altitude Area Air Defense (THAAD) system, seeks to provide both wide area and high altitude defense against unconventionally-armed missiles.[70]

Other recent developments support possible pre-emptive or retaliatory action against CBW proliferators. The US Air Force, for example, has issued a request for proposals for a warhead capable of destroying, disabling, or denying chemical or biological weapons and

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[69] See, US Army, Report to the House Armed Services Committee, "Program to Improve Chemical Warfare Protection and Training," March 31, 1992; and "Statement by Dr. B. Richardson, Deputy Assistant to the Secretary of Defense (Chemical Matters) Before the Defense Policy Panel Chemical-Biological Threat Inquiry, House Armed Services Committee," October 1, 1992.

[70] These are discussed in Thomas G. Mahnken, "The Arrow and the Shield: U.S. Responses to Ballistic Missile Proliferation," Washington Quarterly, Winter 1991, pp. 199-200.

associated equipment located at fixed sites on the ground, with minimal agent dispersal.[71] Consideration is also being given to using US Special Operations Forces to locate and destroy storage facilities, control nodes, and other strategic assets associated with weapons of mass destruction.[72] Similar covert operations may be undertaken by US intelligence agencies under a presidential finding, signed in late 1991, authorizing the intelligence community to make proliferation one of its top priorities. At the very least, this finding should help produce the type of intelligence information needed to carry out such operations.[73]

These military responses to the CBW threat are not without their limitations. The use of CBW protective and decontamination equipment, for example, slows down the pace of military operations. ATBMs, as one analyst has pointed out, are costly and imperfect, and "address only one of the ways in which weapons of mass destruction could be delivered."[74] Pre-emptive or retaliatory action against CBW stockpiles and associated facilities can also be problematic, as the Kuwait War showed.

Nevertheless, military measures do have a role in national efforts to deal with the CBW proliferation problem. They also have a role in multilateral nonproliferation policies. The assistance provisions of both the BWC and the CWC already sanction the supply of CBW defensive material to potential victims. These provisions should be interpreted more broadly to legitimize other forms of military aid. This could be done by building upon the Security

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[71] "AF plans RFPs on warhead technology to defeat chemical-biological weapons," Aerospace Daily, August 6, 1992; and "Eglin lab program to study defeating chemical/biological agents on ground," Inside the Air Force, August 28, 1992.

[72] See, US Department of Defense, Report of the Secretary of Defense to the President and the Congress (Washington: USGPO, 1992), p. 100.

[73] See, for example, Robin Wright, "U.S. Efforts to Halt Arms Race Called Limited," Los Angeles Times, June 21, 1992.

[74] Steve Fetter, "Ballistic Missiles and Weapons of Mass Destruction," International Security, Vol. 16, No. 1, Summer 1991, p. 41.

Council's January 1992 statement declaring proliferation a threat to international peace and security. More specifically, the five permanent members of the Council should make it clear that future violations of the Geneva Protocol, the BWC, or the CWC will be viewed as threats to international peace and security, thus invoking the mutual assistance provisions (Article 49) of the UN Charter.[75]

CONCLUSION

By the middle of this decade, a comprehensive regime proscribing the acquisition and use of both chemical and biological weapons will be in place. In theory, this should solve the proliferation problem; in practice, however, CBW proliferation is likely to remain a problem because of the failure of states to adhere to the regime, or comply with its obligations.

This paper has examined some of the measures that have been undertaken to promote compliance with the two pre-existing agreements on chemical and biological weapons, the Geneva Protocol and the Biological Weapons Convention. It has also discussed the impact of the newly-completed Chemical Weapons Convention on the Protocol and the BWC, as well as on the CW proliferation problem more generally. Finally, it has explored other measures that have been pursued to encourage CBW treaty adherence and compliance.

As has been shown, regional arms control measures can make CBW intentions and capabilities more transparent and thus less threatening. This, in turn, can create a climate conducive to the renunciation of chemical or biological weapons. Controls on CBW-related exports can slow the pace of proliferation by inhibiting the acquisition of the materials, technology and services needed to produce chemical or biological weapons. Sanctions can

[75] This idea is drawn from James A. Schear, "Combatting Chemical Weapons Proliferation: The Role of Assurances," in Dunn and Schear, Combatting Chemical Weapons Proliferation, pp. 31, 35.

reinforce CBW export controls by imposing political, economic or military costs on proliferators and their suppliers. Finally, military measures can encourage the elimination of CBW by reducing their military utility and by increasing the military costs to countries that acquire or use such weapons.

In sum, an effective strategy for eliminating the threat of CBW proliferation must promote adherence to and compliance with the Geneva Protocol, the Biological Weapons Convention and the Chemical Weapons Convention. This requires both measures aimed at strengthening the existing treaties and measures outside the treaty regime--such as regional arms control, export controls, sanctions, and military measures.

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The Missile Technology Control Régime and some issues related to Technology Transfer

A discussion paper by Ronald Mason

1 The problem of non-proliferation is a problem of the relationship between civil and military applications of enabling, generic technologies. The nuclear proliferation treaty is a prime example of a complex "bargain" where the establishment of a régime to prevent proliferation is not seen to limit civil exploitation of nuclear technology. Régimes which are perceived or interpreted as bearing down on, say, economic development through the evolution of a country's infrastructure will have difficulties, to put it no more strongly, in being sustained.

2 A note on the usage of technology: it can simply be taken as a knowledge base, a base which is increasingly international and where the contributions from the different national 'players' are changing in a significant way; and there is the subsequent implementation of knowledge and skills to provide a specific product or process. The latter represents the systems approach and is a direct contribution to the process of innovation. It is particularly at the subsystem or system level that one may rationally seek some form of control, assurance on end-use and insist on a high degree of transparency in the technology transfer process. But in the biological and chemical areas, the 'discrete' technologies themselves approximate at least a subsystem; hence the particular problems of a chemical régime and, more particularly, of a future biological proliferation treaty. Finally, one has to recognise the problems flowing from intangible technology transfer, the exchange and training of personnel from the industrializing countries - these problems, latent or otherwise, were illustrated recently by the possible transfer of skilled scientists and engineers from the former Soviet Union to countries whose record on non-proliferation scarcely merits the description of being robust!

3 The development of the Missile Technology Control Régime can be briefly summarised: it was established in 1987 by the G7 countries (France, Germany, Canada, Italy, Japan, the UK and US) and has since expanded to a present membership of 22 countries - the list is conspicuous by the absence of two members of the Security Council, a fact which has relevance to the recent news of exports from Russia to Iran, curiously <u>via</u> China.

MTCR was originally designed to combat proliferation of nuclear delivery systems. In the words of the first MTCR Guidelines "the purpose....is to limit the risk of nuclear proliferation by controlling transfers that could make a contribution to nuclear weapons delivery systems other than manned aircraft. The guidelines are not designed to impede legitimate national space programmes or international cooperation in such programmes as long as such programme could not contribute to nuclear weapons delivery systems". There is the compromise, the balancing of interests which accompany most arms control treaties or régimes.

In the wake of the Gulf conflict, MTCR members agreed to extend the Régime to cover delivery systems for chemical and biological warheads. The purpose of the Guidelines becomes one of limiting 'the risks of proliferation of weapons of mass destruction'. The Annex to the Guidelines consists of two categories of items, which term includes equipment (system or subsystem (my addition)) and technology. The amended index is likely to continue to exercise severe constraint on a range of missile vehicles with a range of at least 300 km but will drop the 500 kg payload criterion – in keeping with the possible qualitative as well as quantitative changes in warheads.

4 There is no doubt that the Régime has been drafted in a constructive and comprehensive way. Those items in the first category are the most sensitive, and there is a presumption of denial, while those in the second category covers components and production facilities. The first group should be relatively straightforward to police, even for transfers from countries which are not partners to the Régime; the second will pose a spectrum of verification problems, some of them bordering on the impossible unless one has a measure of transparency and of inspection methods, of the quality of assurances which are being sought with the Chemical Weapons Régime.

5 The Russian sale to China (and Iran) includes, apparently, missile guidance technology, rocket engines and propulsion technologies. The MTCR places in Category 1 "Guidance Sets" capable of achieving system accuracy of 3.33 per cent or less of the range (eg a CEP of 10 km or less at a range of 300 km). This order of accuracy does not provide a conventional-tipped missile with significant military value; with a chemical or nuclear warhead, and given appropriate fuzing technologies, it would be adequate and would offer a marked enhancement to, for example, China's existing capabilities.

6 It is clear that the prospects for missile non-proliferation are not encouraging if Russia (and other CIS countries) and China remain outside the Régime; these countries are increasingly linking the legitimacy of their transfers to the transfers of advanced conventional equipments from the West to countries in the Middle East and elsewhere. A response, directed at enhancing collective security in these regions, must surely continue to press for adequate monitoring of the nuclear - and the forthcoming chemical - treaties. MTCR is an important but secondary issue within our present structures.

7 The recent missile technology transfers also seem all the more remarkable given that Russia perceives an increased risk of missile attack on account of the close proximity of several states that are acquiring or desire to acquire, longer range missiles. That perceived threat has generated an increased interest in East-West cooperation on topics ranging from tactical ballistic missile defence to information exchange on early warning systems. Any cooperation must be related to responsible policies for technology and arms transfer.

8 The pace of technology change requires a "rolling look" at all the régimes and treaties in place, sometimes at the risk of a degree of unravelling (the ABM Treaty comes to mind). Technology transfer will continue to be in the front of the stage of international relations and its connection with arms transfers and civil developments represents a major challenge for the future.

9 Finally, a note on ballistic missile defences and the missile proliferation issue. A number of observers, including the writer, are convinced of the complementarity of active missile defences with non-proliferation. There is a compatibility, in prospect, of limited missile defence deployment with arms control; of a broad base of cooperation being a major Confidence-Building Measure. Such prospects have followed the significant redirection of the Strategic Defence Initiative towards the more constrained objectives of the Global Protection Against Limited Strikes programme. How this will continue, how it may impact on a revision of the ABM Treaty - these and other issues are far from clear. Cooperation on early warning systems is on the table and bilateral initiatives can be extended, either by a series of bilateral memoranda of understanding or, in a more formal way, via institutions such as the CSCE. It is clear that the US and Russia are already "talking" concretely on active missile defences, a fact which inevitably generates some nervousness in the Western alliance. What does seem essential is the emergence of a consensus on the

relation between missile defences and missile proliferation, the newer concepts of deterrence, and the way in which East/West cooperation will bear upon them, and a specific analysis and understanding of how these developments will contribute to enhanced collective and regional security.