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Nuclear Deterrence: Problems and Perspectives in the 1990's

Edited by
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The work of the Institute aims at:

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2. Promoting informed participation by all States in disarmament efforts;

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Preface

Few strategic doctrines raise as many controversies as nuclear deterrence. Some are philosophical, ideological or political in nature and question its legitimacy in regards to the considerable risks that it implies, or to the inequality between nations that it upholds. Others are of a technical character and develop, in an unlimited way, possible scenarios, corresponding arms systems, and foreseeable interactions between partners. Still others have a retrospective or historic dimension, notably when it comes to evaluating the past efficiency of nuclear deterrence and appraising its contribution to the maintenance of peace for deterrence strives to be a doctrine of peace maintenance, its organizing principle being that of non-use. The present volume attempts to adopt a different approach. In conjunction with the remarkable transformations affecting international society and the resulting new security or insecurity - context, it is more a reflection on the future of nuclear deterrence.

Today, nuclear deterrence warrants fundamental reexamination. Apart from the traditional challenges from diverse sources and countries, the pertinence of a strategy which presently has neither a major threat to confront nor a designated enemy cannot but be questioned. Concurrently, the spread of nuclear materials, equipment and technology, and the vibrant political interest in acquisition of nuclear arms in a number of countries, threaten further proliferation. In the future, therefore, there may be a decoupling between deterrence and nuclear arms, presenting new dangers to international security.

To implement existing commitments to nuclear disarmament is an enormous task. Tens of thousands of nuclear weapons are slated for withdrawal, and most of them for elimination as well. Still, the retention of US and Russian strategic nuclear weapons at the level of 3000-3500 is compatible with existing nuclear doctrines and not to be confused with the concept of minimal deterrence. Depending on the properties ascribed to this concept and the environment in which it would be implemented, some hundreds of reliable and invulnerable weapons might be enough to sustain it. If we want to go beyond that level, however, to even more ambitious objectives, we enter the complex and difficult domain of international political order issues.

One such ambitious objective might be to keep a few nuclear weapons under international authority - to deter states that might be tempted to reintroduce nuclear arms. Another goal is to eliminate nuclear weapons altogether: this is the stated objective in UN documents. However complex and distant such ambitions may seem, we should not abstain from discussing them. It is sometimes hard to live without objectives, and we need markers along the way.

In this volume, the future of nuclear deterrence is examined from a great many angles. No common position will be found. On the contrary, and as is natural, highly divergent points of view are expressed. UNIDIR hereby wishes to contribute to a debate which is far from being closed.

UNIDIR would like to thank all the contributors to this report as well as those who participated in the debates of the Conference held in Paris at the *Académie Diplomatique Internationale*, on 10 and 11 December 1992. The present Research Report was produced under the direction of Serge Sur, Deputy Director of UNIDIR. The manuscript was prepared for publication by Anita Blétry and Kent Highnam.

Sverre LODGAARD
Director, UNIDIR

List of Acronyms

ABM	Anti-Ballistic Missile
ACM	Advanced Cruise Missile
ALCMs	Air-Launched Cruise Missiles
AMC	Air Mobility Command
ATBM	Anti-Tactical Ballistic Missile Defence
BMD	Ballistic Missile Defence
BMs	Ballistic Missiles
BSTS	Boost Surveillance and Tracking Satellites
CD	Conference on Disarmament
CIS	Commonwealth of Independent States
COPUOS	Committee on the Peaceful Uses of Outer Space
CSCE	Conference on Security and Co-operation in Europe
CTB(T)	Comprehensive Test Ban (Treaty)
CW	Chemical Weapons
C^3I	Communications, Command, Control and Intelligence
DSP	Defence Support Programme
ELINT	Electronic Intelligence
FOFA	Follow-on to Lance (SNF missile)
FOST	Force océanique stratégique
GATT	General Agreement on Tariffs and Trade
GPALS	Global Protection Against Limited Strikes
GPS	Global Positioning System
HAWK	Homing-All-The-Way-Killer
IAEA	International Atomic Energy Agency
ICBMs	Inter-Continental Ballistic Missiles
IISS	International Institute for Strategic Studies
INF	Intermediate-Range Nuclear Forces
IRBMs	Intermediate-Range Ballistic Missiles
ISRO	Indian Space Research Organization
MAD	Mutually Assured Destrcution
MIRVs	Multiple Independently Targetable Re-entry Vehicle
MPT	Multilateral Preparatory Talks
MTCR	Missile Technology Control Regime
MVRs	Multiple Independently Targetable-Re-entry Vehicles
NATO	North Atlantic Treaty Organization
NPT	Non-Proliferation Treaty
NSG	Nuclear Suppliers' Guidelines
NWFZ	Nuclear Weapon-Free Zone
OTH-B	Over-The-Horizon-Backscatter
PAC-3	PATRIOT Anti-Tactical Missile Capability Three
SAC	Space Application Centre (Italy)
SAC	Space Activities Commission (Japan)
SALT	Strategic Arms Limitation Treaty or Talks
SAR	Synthetic Aperture Radar
SDI	Strategic Defence Initiative

SDIO	Strategic Defence Initiative Organization
SLBMs	Submarine-Launched Ballistic Missiles
SLCMs	Submarine-Launched Cruise Missiles
SRAM	Short-Range Attack Missile
SSBNs	Ballitic-Missile carrying submarines
START	Strategic Arms Reduction Talks (Treaty)
STARTCOM	US Strategic Command
THAAD	Theatre High Altitude Area Defence

Opening Addresses

Sverre Lodgaard

Distinguished participants,

On behalf of the United Nations Institute for Disarmament Research it is my pleasure to wish you welcome to this conference devoted to the problems of nuclear deterrence in the 1990s.

It is the task of UNIDIR to conduct applied research on questions relating to disarmament and international security. In discharging our duties we draw on the expertise, insight and experience of a variety of professions. The field is interdisciplinary, and it is not limited to the academic domain: applied research means that politicians, diplomats and military officers are indispensable in our efforts to promote a better understanding of the problems and prospects of international security. This conference has been convened in that spirit: I am pleased and honoured to see the range of high-level expertise assembled here today.

UNIDIR is a United Nations Institute. Consequently, there is a penchant for multilateral approaches and global perspectives in reference to the principles of the United Nations Charter. Under the UN umbrella, we enjoy a fair degree of independence and autonomy, safeguarded in our statutes. We have the freedom of expression without the constraints of having to negotiate consensus documents among national representatives. I hope that you will feel free at this table to air your views and opinions, it being understood that you are all speaking in your personal capacities and that you will not be quoted without permission.

Ladies and gentlemen, looking back at the darkest periods of the Cold War, East-West relations were preoccupied with the conduct and management of nuclear confrontation. At times, big power relations were about little else: they sometimes degenerated into nuclear accountancy.

The name of the game was *deterrence* - in a great many variations. As a policy, deterrence is aggressive and defensive at the same time: during the Cold War, it was pursued at the cost of *co-operation*, which was downplayed and sometimes ridiculed as being impractical and unrealistic. While the main arenas of nuclear deterrence were Europe and East Asia/the Pacific, all countries were affected by it, directly or indirectly.

Critical voices held that nuclear deterrence was not simply something which had functioned in the past and which might not function in the future: deterrence had a negative impact on international relations which enhanced tension and, in turn, the risk of war. Hence the view that deterrence ought to be transcended, that co-operation should substitute for it; and that now, it is the challenge of the 1990s to implement this transition - in a new world order. To which we must ask: what will the security problems of the new international system look like, and what would or should the role of nuclear weapons and of nuclear deterrence be? And: which are the new security structures that can make large nuclear arsenals superfluous and prevent a return to nuclear arms races?

Today, some 70 per cent of current US and Russian inventories are slated for withdrawal most of it for destruction as well. By the year 2003, the two former adversaries are scheduled to deploy no more than 3000-3500 strategic nuclear weapons each. To reduce the chance of interruption or reversal in an uncertain political environment, no effort should be spared to ensure the quickest possible downloading, disabling, dismantling, storing and disposal of warheads taken out of service.

The magnitude of these cuts notwithstanding, remaining forces would seem large enough to be compatible with old doctrines of nuclear warfighting and extended deterrence. While the concept

of minimal deterrence has become central to nuclear discourse, it has not yet been put on the drawing boards as a guiding principle for the nuclear forces of the future. Neither has it been well defined. It is one of the objectives of this conference to clarify the concept of minimal deterrence and the political and technical requirements for achieving it.

In this connection, I venture to make two observations right away. First, the size and configuration of minimal deterrent forces is a function of the properties of the concept and of the military-political setting in which it would be implemented. Numbers are important, but by and large, they constitute a dependent variable. They depend, for instance, on the state of horizontal proliferation and of ballistic missile defences. Among the factors influencing the 1995 conference of the nuclear Non-Proliferation Treaty, the peace process in the Middle East, the nuclear status of Ukraine and the test ban issue have been named the top three. In the field of ballistic missile defence, the interface between ABM- and ATBM systems has become a delicate matter of considerable concern. These are important items for discussion today and tomorrow.

Second, with a doctrine of minimal deterrence, predicated on the view that the only sensible rationale for possession of nuclear forces is to deter others from using theirs, there would be no need for one side to match the nuclear weapons of others at any prescribed ratio. With a moderate number of survivable and reliable nuclear weapons and a survivable C3 system, the retaliation could easily be guaranteed to be greater than any rational leader would want to risk for any political objective. Furthermore, if there is no designated enemy and the political landscape is fluid, the weapons need not and should not be targeted in peacetime. However, given that they would be rapidly targetable in case of renewed tension as we shall have to assume - this would seem to be a technical point of modest political significance.

During the Cold War, political, military, industrial and technological forces pushed doctrines into the realm of nuclear warfighting. For long periods of time, the pursuit of stability was an uphill fight, with arms controllers yielding to proponents of nuclear option policies. Stability stands a much better chance of being enhanced in today's context of disarmament, when the forces that tried to turn nuclear weapons to political advantage are on the retreat. Now, there are good opportunities both for radical cuts and for shaping more stable configurations of forces. We should attend to both with great vigor and urgency, mindful that nobody knows for how long the present period of grace will last.

As US and Russian arsenals shrink, the pressures for China, France and the United Kingdom to enter the disarmament process will mount. It is not clear, however, what it takes to get the others on board. The Bush-Yeltsin agreement hardly goes far enough to multilateralize the process: minimal deterrence at some lower level may do. In large measure, this is a matter of perceptions and sensitivities: perceptions about the military utility or uselessness of nuclear weapons; sensitivities regarding their status connotations. If the United States and Russia proceed with deep cuts, we may hope that in due course all nuclear weapons states will become more flexible. Far from taking that for granted, however, we should consider how best to help such flexibility along in order to make nuclear disarmament as comprehensive as possible.

In United Nations documents, general and complete disarmament remains the declared goal of disarmament endeavours. This goal is inscribed in a number of arms control agreements, such as in Article VI of the NPT. At this stage, no one is planning for a nuclear weapons-free world. However, I believe it is no longer disreputable not even in the leading nuclear weapons states to discuss the preconditions and modalities of a world without nuclear arms.

The relative merits of a world without nuclear arms and a world based on minimal deterrence is a matter of dispute. The first alternative is unstable against re-invention and breakout; the second alternative carries some residual incentives towards horizontal proliferation and renewed arms build-up. Systematic comparative analysis of advantages and disadvantages should be undertaken in order to facilitate informed political debate about the desired end state of disarmament efforts. On an

optimistic note, this may no longer be an exotic exercise. And even if such goals appear distant, there is merit in clarifying our ultimate objectives.

After the conclusion of the CW Convention, nuclear weapons are the only weapons of mass destruction which have not been *de jure* prohibited. Up to a point, the NPT even legitimizes them by defining two categories of states those having tested a nuclear weapon by 1967 constituting "the nuclear weapon states", the rest being "non-nuclear". So far, the NPT has been successful. However, the Treaty embodies an egalitarian perspective - that of a nuclear weapons-free world and to strengthen the non-proliferation regime we should make it more equitable. At this conference, I hope we shall attend not only to the horizontal and vertical dimensions of nuclear forces, but in large measure to the interrelationships between them as well.

Last but not least: what kind of international system are we moving into? What kind of world lies ahead? The questions that we raise and the answers that we offer inevitably rest on certain assumptions in this respect. This is not a world order conference - but good scholarship and prudent analyses should always try to make the underlying assumptions as accurate and explicit as possible.

Distinguished participants, I am grateful to the Académie Diplomatique Internationale and its Secretary-General Kyra Bodart for receiving us in these beautiful premises and for hosting the meeting. As for UNIDIR, I am myself a newcomer, assuming the directorship only a month ago. The credit for preparing and convening this conference should therefore go to my good colleague Serge Sur, to Sophie Daniel with whom you have been communicating, and to other collaborators on the UNIDIR staff.

I look forward to the presentations and to the discussion that will follow, and I wish for all of us a fruitful and inspiring meeting.

Admiral Lanxade

Mr. Director, Ladies, Gentlemen,

"What role should we assign nuclear weapons in the post-Cold War world? The question is a simple one, the answers are not."

These are the opening sentences of an American report which was published just a few months ago.

The author's question is at the heart of contemporary debate on strategy, for the international situation has changed profoundly changed with the collapse of the Soviet system, the end of East-West confrontation and the disappearance of the previously dominant bipolar order.

The strategy of nuclear deterrence could no more emerge unscathed from the current period of upheaval than any other political and military doctrine. On the other hand, while it is hard to judge the effectiveness of a weapon which has not been used, its role in a context of high tension but great stability is now universally acknowledged.

In Europe, nuclear weapons have enabled peace to be kept despite an extremely high-risk environment. *Outside Europe*, they have *exerted a moderating influence* on the development of crises and conflicts by helping to limit their intensity and spread.

On the other hand, nuclear deterrence provoked an *unprecedented arms race* that has in many ways been ruinous and senseless. *For some*, the idea in acquiring ever more sophisticated weapons was to *keep control of the game* and make up, by the quality of their nuclear weapons, for a disproportionate conventional inferiority. *For others*, the aim was to *counterbalance the enemy's technological lead* by ceaselessly accumulating extremely powerful weapons that were put at the service of an unambiguous nuclear doctrine.

So as the years passed countries built up, almost automatically, *enormous nuclear arsenals* out of all proportion with what a purely defensive strategy would have required.

Notable in this regard is the originality of the French doctrine and of the *concept of strict sufficiency* which has always underpinned it. Based as it is on an authenticated ability to inflict *unacceptable damage* on any potential aggressor, our strategy of deterrence has to date perfectly fulfilled the objectives set for it.

On the other hand, while it has *kept us out of an arms race* in which we could not in any case have stayed the pace, this concept has necessitated *maintaining the full credibility of our resources* no matter what the advances in technology and adverse countermeasures.

Our choices have stood the test of time, with the result that even today *our concept seems to have weathered better than others* the current upheavals. For all that, at a time when everything is evolving and changing, can we, any of us, afford not to think about nuclear deterrence? I believe not, for there are many questions confronting, or about to confront, political and military leaders:

- *What is the use of nuclear deterrence* in a world in which the threat of mutual destruction between East and West seems to have disappeared?
- To whom is this deterrent addressed and *against what kind of threat*?
- Is not the slide towards *concepts of use* going to gather dangerous momentum?
- Is it possible to *extend the nuclear guarantee*?
- Could we, should we, add a *conventional dimension* to nuclear deterrence?

These are all questions that cannot be ignored, but the answers to them are so complex that you will hardly be able to develop them all within the context of this brief conference. None the less, before the discussions begin, I would like to give you a few topics for reflection.

First, of course, you will have to take into account the *new elements of the nuclear equation in Europe*. The prospect of a major clash which could rapidly lead to extremes has now been replaced by a vast movement of concertation and co-operation extending to all aspects of State business.

Of course, no one can guarantee that this movement will be irreversible, but we have seen the *rapprochement* take substance with the signature and ratification of the *Paris accords*. Since then, confidence-building and transparency measures have multiplied, while the opening of frontiers has enabled the peoples of Europe, after four decades of separation, to rediscover each other and get to know each other better.

As a result, experts are faced with new questions:

- Given the new developments, are nuclear doctrines conceived during the Cold War still appropriate?
- In this new and uncertain context, can nuclear weapons retain for much longer their central role in the power strategy of States?
- How much will *public opinion* count in the elaboration of new doctrines now that the Chernobyl syndrome is being compounded by serious concern about the ocean floor, nuclear waste dumps and malfunctioning nuclear power stations?

In fact, it might seem that all the conditions are coming together to "delegitimize" nuclear policy and void a doctrine that has until now stood the test of time.

Caution is, however, called for and we should not be too quick to forecast the end of nuclear deterrence.

Firstly, because "*you cannot disinvent what has been invented.* The world has entered the nuclear age and it is not about to leave it. There is no post-nuclear era in strategy, just as there is no post-industrial era in economics".[1]

Secondly, because *not all the risks have vanished,* even in Europe. Of course the *threat of world conflict has receded,* but we have seen the multiplication of "little wars" fuelled by nationalist, ethnic and religious tensions against a backdrop of serious economic and social problems. The development of these crises is hindering the democratic process, delaying the rehabilitation of economies and the improvement of living standards, and jeopardizing the most recent achievements relating to freedom and independence.

While nuclear weapons cannot play any direct role in resolving such conflicts, they can help to contain them and thus prevent the violence spreading to the major Powers in the region.

At the same time, we cannot turn a blind eye to the risk that results, and will result for many years to come, from the existence of a *considerable weapons potential, in particular a nuclear weapons potential* in Eastern Europe.

How can we fail to be worried by the presence of more than 30,000 nuclear warheads, some of them in politically unstable regions, when we know that it will require something in the order of 10 years to implement disarmament agreements and for the region to return to some sort of stability with regard to the deployment of nuclear weapons?

So the need to have a *certain deterrent capability* remains a very real one and will do so as long as there are nuclear arsenals in Europe, even if the threat has faded, even if the blocs have disappeared.

That is an essential condition for *maintaining the strategic balances* in Europe and thus the *stability* of the continent. It does not exclude adjustments, not only to take into account the new East-West relations but also to take on board *the new risks* looming on the horizon, including those outside Europe.

For, in addition to the problems posed by dissemination, which I have just mentioned, there are the very real risks for nations of *nuclear proliferation.*

Two factors have combined to give it renewed impetus:

- On the one hand, *the availability of specialists,* high-level scientists and engineers, indirect victims of *détente,* who are tempted to cash in on their talent outside their own country;
- On the other hand, *the growing ambition of certain States* to gain the status of regional Powers by acquiring nuclear weapons.

The Gulf War and the subsequent revelations concerning Iraq's nuclear programme have heightened *the international community's concerns* about the *proliferation* of high-performance launch systems and weapons of mass destruction, especially in the world's unstable regions.

The debate is not a new one, but the rekindling of interest in it leads me to make two observations:

- The first is that we should not try to substitute a new adversary from the South or elsewhere for the former enemy in the East. All we should do is to take account of the indisputable reality: the *dangers of proliferation*;
- The second is that there is indeed something paradoxical about the representatives of nuclear Powers condemning the evils of proliferation and at the same time defending the virtues of their own national deterrent.

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[1] Mr. Mellick, IRIS symposium, 29 January 1992.

We are all well aware of it, but what the nuclear Powers are seeking through the maintenance of the status quo is the stability provided by a system which has already proved itself.

Of course we must advance on the road to disarmament, but can we, today, imagine a world without nuclear weapons? Quite clearly, we have not yet reached that point.

Meanwhile, it is not by multiplying the number of warheads - and the number of negotiators - that we shall accelerate the disarmament process now that history has made possible significant progress in this field. Nor, however, is it by developing costly *anti-missile missile systems* that we shall discourage proliferation - not, that is, without the risk of *restarting a universally deplored arms race.*

In fact, action against proliferation means first of all that the producer countries must show *great restraint in their exports*, no matter what the industrial stakes might be.

As you know, this is the message France wishes to spread in order that a *code of good conduct* may be adopted by all the Powers concerned.

Furthermore, it seems to me desirable to dissociate the fight against proliferation from a *more comprehensive approach* that would lead by successive stages to general disarmament whilst allowing each State to satisfy its legitimate need for security. It was for that purpose that on 3 June 1991 the President of the Republic announced *the French arms control plan.*

The plan covers *all categories of weapons* and invites the United Nations fully to play the role it was assigned by its Charter. It is probably up to the Security Council to *guarantee and, if necessary, to harmonize disarmament* and non-proliferation policies according to *objectives set for each weapons category and for each region.*

Concerning *nuclear disarmament*, the signing of the START agreements and the proposals for additional reductions put forward by President Bush and President Yeltsin is to be welcomed. If the measures announced are implemented, they should speed up the reduction of the planet's two biggest arsenals.

Similarly, the announcements by the United States and Russia that they have adopted, or extended, *moratoriums on nuclear testing* should enable the nuclear Powers to examine together how, pending the abolition of such testing, concerted measures can be taken to limit the number of tests.

Food for thought indeed.

Lastly, one cannot but welcome the *progress of the Non-Proliferation Treaty* and the new accessions to it, including that of France. France is prepared, as you know, to commit itself to nuclear disarmament according to the conditions it set forth at the United Nations General Assembly in 1983.

To be sure, not all those conditions have yet been fulfilled, but things are moving in the right direction. We have therefore taken a number of measures to that same end such as renouncing a mobile strategic missile, significantly reducing the number of our final warning weapons and, most recently of all, temporarily suspending nuclear tests in the Pacific.

These are considerable steps forward, but until the international situation has stabilized and a *sufficiently reliable and verifiable code of good conduct* has been established, it seems to me that nuclear deterrence will constitute de facto - that may be regrettable, but it is the way things are the most effective means of protection for the vital interests of those nations which possess it.

Another requirement is for the other States, those which have renounced the acquisition of nuclear weapons, to obtain from the nuclear-weapon States assurance that those weapons will not be used against them and that they will not be threatened with them.

It is in that spirit that France put forward last June new proposals for reaching legally binding agreement on *negative security assurances* for non-nuclear States.

The extension of these assurances will be facilitated, let there be no doubt about it, by the multiplication of high-precision weapons enabling *highly effective non-nuclear strikes* on command posts, defence facilities and even, if so desired, the authorities responsible for an act of aggression.

Technological progress could also enable the development in the very future of *nuclear arms with high penetration capability* emitting very little energy and capable of destroying limited targets such as bunkers or underground nuclear installations.

It would then be very tempting to *move from a strategy of non-use to a strategy of use*. The change would be all the more attractive in that it would make possible *abandonment of the counter-city strategy* and thus, because of the public's susceptibility to the "zero deaths" argument, facilitate the acceptance of a new doctrine.

However, the effect, as Pascal Boniface so rightly observes, would be that "the nuclear taboo would be broken and we would be entering into nuclear conflict by the back door with the illusion, which we would soon lose, that we would be able to control its escalation". Nuclear weapons, by being rendered commonplace, would lose their deterrent value and we would end up with a result that was the opposite of the one sought.

On the other hand, in this day and age, can we be satisfied with a deterrent based only on nuclear strategy as construed by France? Is that strategy still the best suited to the complex nature of crisis situations and the diversity of the potential risks?

Should we not have, to complement nuclear weapons, conventional weapons systems that would allow more flexible responses and could act as a deterrent not through the threat of massive reprisals but through the extreme accuracy of the strike?

This is probably the direction in which our thoughts should be going. Our review should take account of the changes, or potential changes in the world that might affect nuclear deterrence and of the need to show some restraint in the military domain in order to encourage the present disarmament process.

The review should also cover the growing role played by regional security organizations in Europe, of course, but also outside Europe, in places where antagonisms and tensions mean that there is an even greater risk of nuclear weapons being used.

Finally, with regard to Europe, we will not be able to avoid for much longer *the problem of a European nuclear deterrent*, which the President of the French Republic has said will be "one of the principal questions in the construction of a common European defence".

It is likely that the building of Europe will result in the gradual awareness of *common vital interests*, in a kind of *growing solidarity* among the countries of Europe. It is at that point that it will become possible to create a common doctrine.

There are various possible scenarios, but it is clear that on the day that *European political union becomes a reality*, that Europe has a common foreign policy and a common defence, the nuclear weapons which some of its members possess will be at the service of all of them.

That is *still a remote prospect*, but nothing prevents us from thinking about it now.

* * *

Those are, ladies and gentlemen, some of the ideas that I wanted to develop as an opening to this conference.

I will end my contribution with an observation: we are witnessing today the *difficult birth of a new world* in which the old points of reference no longer apply.

The new international order that is gradually taking shape before our eyes is upsetting the hierarchy of our values and shaking our most firmly held convictions.

Nuclear deterrence, which has been the cornerstone of peace in Europe and of relative stability in the world for over 40 years, was bound to be affected by this wholesale realignment.

It must adapt to the new requirements of international security and to the sweeping changes that are taking place.

Today's conference will undoubtedly make a considerable contribution to progress in this regard.

That is at any rate my hope for the discussions you are about to begin.

I have faith in the future, for genuine peace and stability, beyond nuclear deterrence, can only lastingly come from respect for the principles of democracy and sovereignty - and they are daily gaining ground throughout the world.

Part I

The Future of Nuclear Deterrence

Chapter 1
Nuclear Deterrence Revisited

Serge Sur

One of the most important consequences of the profound changes that have affected the international system over recent years undoubtedly relates to nuclear deterrence. As the cornerstone of East-West relations, and the foundation of the arms control effort which dominated all other approaches to disarmament, it embodied the permanent opposition between two camps as well as the limits to their confrontation. At the same time, as it was limited to East-West relations, deterrence appeared to concern the non-aligned countries only from the viewpoint of non-proliferation. Political communication on this subject is often dominated by double talk. It is an inevitable exercise for the nuclear powers, especially since they are now all participants in the NTP, to seek the ultimate abolition of such weapons while accepting their stabilizing role in the present circumstances. At the same time, the non-nuclear countries, which assert the keenest opposition to this type of weapon, may sometimes be suspected, in various ways, of preparing to acquire them.

The radical changes of recent years, linked with the political evolution and dismantling of the USSR and the reunification of Germany, place nuclear weapons and deterrence - and the distinction between them must be carefully maintained in an entirely new political and strategic framework. These changes, whose principal features are well known, are not, however, complete. The significance of the events is far from having been completely revealed. They remain fluid, unpredictable, largely out of control, compared with the set and somehow repetitive or spasmodic nature of the old mould of international relations, those of the post-war period.

Immediate developments call into question, *inter alia*, the role of nuclear weapons in the organization of international security. It can be approached from various viewpoints, depending on one's time perspective: in relation to the past, what remains of the foundations of deterrence, and what effects are the changes in the political system having on it? In relation to the present, how can one control the potentially dangerous consequences of the fragmentation of the USSR and the dispersal of its former arsenal among a number of States? In relation to the future, what is the risk resulting from the very fact of questioning deterrence and increasingly expanding nuclear technology for military purposes? Is there not a possibility of a contradictory double deviance, whereby the traditional nuclear Powers are embarking on the path of disarmament while new seekers after proliferation appear in all the areas of tension?

However, current problems can be presented in another way. Rather than analysing hypotheses, which can be infinitely varied and permutated, it is possible to: (1) proceed from the basic elements of deterrence, as progressively established both through the modification of doctrines and through bilateral or multilateral negotiations. Even when they are empirically established, these elements remain permanent. (2) Observe the way in which changes external to deterrence itself have already affected these elements. (3) Consider the new prospects for the management of deterrence, and the influence that their characteristics may have on the very concept of nuclear deterrence. In this regard, the problem is posed in entirely new terms.

A. Permanence of the Basic Elements

Deterrence and Nuclear Weapons

Several fundamental factors must be borne in mind in this regard.

1. Deterrence must be distinguished from nuclear weapons themselves. The existence of a doctrine which guarantees the effectiveness of weapons through their non-use, making deterrence a means of keeping the peace and not an instrument of war, is in fact neither contemporaneous with the emergence of nuclear weapons nor a logical consequence of their existence. It is well known that their dreadful first appearance involved their offensive use, falling outside any context of deterrence. Deterrence means that the State abiding by it intends to *forbid an action*, and not *force an action to be taken*. As a result, above and beyond non-use, deterrence is *per se* and by nature defensive and stabilizing. It involves an effective threat, and a threat which remains theoretical.

Deterrence necessarily presupposes the existence of several nuclear partners, who are in a position to deter one another. If this is not the case, it is not possible to rule out the prospect of the use or threat of use of nuclear weapons for the purpose of securing specific advantages, as was demonstrated by the first use of such weapons by what was at the time the only nuclear Power.

Hence it is clear that the existence of nuclear weapons offers more dangers without a doctrine of deterrence than with one. Moreover, envisaging a sort of general renunciation of deterrence as a political or declaratory solution would be meaningless, or would be highly likely to have a negative impact. As has often been stressed, this would lead neither to the disappearance of existing weapons nor to the disappearance of nuclear technology for military purposes: nuclear weapons cannot be uninvented, and international security will for a long time remain faced with the need to live with them.

2. Since its emergence nuclear deterrence has experienced great instability. Man has never been able to stabilize it through technological evolution - which, indeed, has regularly called its forms into question as it has developed, or through a homogeneous doctrine which would have served as a reference and a common rule applied to the different partners. It has always been easier to grasp deterrence in terms of what it was not, its limits, its uncertainty, than to apprehend it positively and with certainty. As a result, as Raymond Aron emphasized from the outset, it has never been possible to demonstrate the effectiveness of deterrence.

The paradox of deterrence is that this inherently stabilizing doctrine has never been stabilized. It has not stood in the way of the nuclear arms race, which most often has sought to overwhelm it. It has only partially limited the proliferation of nuclear Powers. The increase in their numbers, though limited, has complicated the calculations and expectations on which it rests, and exacerbated the uncertainties inherent in it. In part, this dynamic is linked to the doctrines themselves and their dialectic. It is undoubtedly more fundamentally dependent on the strategic options opened up by the appearance of new weapons systems. These have essentially challenged the constraints imposed by the contemporary status of the doctrines, even if the effect is not immediate. The prospect of the use of outer space for the purposes of defence against nuclear attack, and the profound shock caused by the SDI in the field of deterrence, offer particularly significant examples in this regard.

The consequences of this instability include the reintroduction of the hypothesis of a nuclear war, even if it is a limited one. Consequently the risk is that the situation will lead to the self-destruction of deterrence, since it is cancelled out when viewed against the prospect of the use of nuclear weapons on the battlefield. The debates concerning the very notion of tactical nuclear weapons are all familiar. What is known of Soviet military doctrine also shows that the hypothesis of a large-scale first use could not be ruled out.

All these elements compound the instability of deterrence, and may give rise to reasonable doubt in this regard. As well as, moreover, the questions concerning the degree of tragic resolve of rulers which would lead them to go into action in the event of a failure of potential deterrence. Nevertheless, the doctrine contains certain constant characteristics.

Deterrence and Arms Control

3. These characteristics are both general and relatively imprecise. In spite of, or perhaps because of, the refinement, not to say the extreme sophistication of the scenarios implied by the different doctrines, uncertainty remains concerning the precise substance of deterrence. In fact, it rests on immaterial elements, the anticipation of behaviour and the credibility of its occurrence, in appropriate circumstances. The build-up of equipment, the redundancy of systems, provide it with impressive backing, but who can say that they are not ultimately illusory? If it is viewed not from the subjective viewpoint of each of those involved but in terms of its overall operation, it stems from a tacit understanding between partners who agree to regard it as credible *vis-à-vis* themselves and adjust their conduct accordingly. It is thus in itself an abstract exercise based on symbolic exchanges. In contrast to war, which, according to Clausewitz, furnishes proof of whether promissory notes issued in the realm of politics enjoy proper backing, deterrence lives permanently on credit, and in so far as it is effective no one can finally determine whether this credit is actually secured.

Its purpose is to prevent aggressive behaviour by means of the threat, not the use, of weapons, where such behaviour is that of another nuclear Power, or of one of its allies acting in liaison with it. The hypothesis of resort to the threat of the use of a nuclear weapon against a non-nuclear country which is not the instrument of a nuclear Power is in fact highly unlikely. Besides, it is ruled out by various formal commitments entered into by a number of nuclear Powers, admittedly in the form of declarations. But the nuclear threshold by its nature involves a degree of uncertainty which is intended to strengthen its effectiveness. In this regard, some lowers may be tempted to equate the threat or the use of very advanced conventional weapons or others alleged to be weapons of mass destruction with the nuclear threat itself, though this would seem to be of very doubtful validity.

- Yet deterrence does not rule out all forms of conflict, as has been seen in a number of cases, including conflicts in which nuclear Powers are involved. Deterrence tends only to prevent large-scale attacks, and from this viewpoint has deeply embedded its logic into the framework of the East-West confrontation.

- Beyond its purely strategic dimension, the status of a nuclear Power, once officially recognized and consolidated, particularly by means of international arms control treaties, confers on the States which benefit from it a special international position, and therefore presents general political features. However, it cannot without confusion be linked to the status of a permanent member of the Security Council. In fact this is a matter of historical coincidence, which, it is true, in some respects confers validity on the criteria initially selected by the authors of the Charter. But nuclear deterrence, on the one hand, and collective security, on the other, which the Charter endeavours to organized through the Security Council, rest on principles that are very different and ultimately opposed. Deterrence presupposes the primacy of individual security, ultimately to the detriment of the security of third parties which might suffer the consequences of a failure of deterrence through the use of nuclear weapons; collective security strives to establish international procedures and effective instruments of coercion for the benefit of a comprehensive, or solidarity-based, approach to security. These are two systems of peace-keeping which are competing, not to say contradictory - at least at first sight.

- Access to the status of a nuclear Power is closed, in the sense that deterrence has been organized on the basis of a *de facto* situation to the benefit of five Powers. Two of them, the United States and the USSR, were for a long time jointly dominant, with the place of the other nuclear Powers restricted and accepted by them in so far as it did not threaten to call their primacy into question. This situation tended to become converted into a *de jure* situation and prevent the emergence of new nuclear Powers, in the name of the stability of deterrence itself. The eventuality that the "threshold countries" might step over the threshold is widely regarded as a threat to deterrence. It could involve a risk of general proliferation, enhancing the likelihood of uncontrolled use of weapons. The ability of the countries in question to limit themselves to strictly defensive doctrines is, moreover, questionable. Consequently, the link between deterrence and arms control is a consubstantial one.

4. Arms control, of which nuclear weapons constitute the principal though not the only field of application, is a component of deterrence itself and vice versa. It is not only a complement or correction, but deterrence as a system for keeping the peace between nuclear partners can only operate on this basis. It involve a method of communication, material and intellectual, between them. It also involves prevention of the deployment of destabilizing weapons which are likely to call into question the balance that has been achieved and that it is designed to protect by channelling technological developments. These destabilizing weapons are not exclusively nuclear. They may be systems which are associated with them (delivery systems) or which are external to them but capable of interfering with their effectiveness (arms based on new technologies, for example). But in so far as deterrence relies on the effectiveness of non-use, it is itself an arms control technique.

It is these foundations, constituted progressively and in fact empirically, which are abruptly and unpredictably brought face to face with the transformation of all the aspects of the international system, and which must therefore be reassessed.

B. The External Context and the Evolution of Deterrence

This context has already transformed the communication codes linked to deterrence, by means of an effect whose origin is external to its own logic, which is the logic of arms control. The result is a profound crisis for arms control, its methods, its objectives, its partners. This policy has not so far succeeded in defining a new general direction, reformulating a new logic. In practice it has been more defensive or *ad hoc* than shaped by a grand design. Yet in this rearguard action, it has succeeded in safeguarding the essential achievements.

Prospects for Spread of Nuclear Capabilities

5. The most dramatic element in the new politico-strategic context lies in the disappearance of the USSR, one of the central participants in deterrence, partnership with which constituted the very foundation of arms control. To a large extent the bilateralism, around which arms control was built, belongs to the past. It is true that Russia claims that it can immediately ensure the continuity of the State, and has undertaken to exercise effective control over nuclear weapons located outside its territory, in other States of the CIS, Byelorussia, Kazakhstan, Ukraine. Despite the assertions of principle, many questions remain in this regard, and the actual fate of the weapons in question remains in doubt. It is true that the new States concerned in the CIS have asserted the will to respect the bilateral agreements previously concluded by the USSR with the United States, but there still seems to be a possibility that they plan to make use of the nuclear weapons over their territory as a means of pressure, for economic or political ends, in the CIS framework or in a broader

framework. The lack of reliable control over all the weapons and delivery vehicles of the former USSR, or their components, the sudden availability and difficult circumstances of many Soviet researchers and technicians increase the likelihood of a spread of technologies, know-how or even nuclear weapons or delivery systems to States that are potential proliferators. For the time being there would seem to be a smaller risk where private groups are concerned.

6. This possibility, which has not yet been shown to have become a reality, gives greater tangibility to a movement of creeping spread of nuclear capabilities, which in fact has been proceeding for several years in various regions affected by age-old tensions: the Near and Middle East, South Asia, the Far East. They have many origins. Perhaps State policies which, overly or less so, do not discourage proliferation. Perhaps the logic of the market, and the commercial interests of private enterprises which deliberately ignore the existing restrictions on transfers of technologies or sensitive equipment. The transfers originate both in industrialized countries and in developing countries, but in the latter case State policies are more directly involved. As far as their content is concerned, such transfers are very diversified, and often apparently inoffensive, and their fragmentation in space and time helps to conceal the reality of concerted nuclear programmes developed by certain States. The problem is made more complicated by the availability of many older technologies or items of equipment which may have military applications.

Such a market would not develop so rapidly if there were no buyers. Not all are potential proliferators. Not all are developing countries. But one should always think in terms of capability and not in terms of intention. In this regard it seems clear that the creeping growth in nuclear capabilities is inevitable. Besides the nuclear Powers and the "threshold States", there is undoubtedly a need to take into account the growth in countries with a nuclear capability which they could transform into reality at short notice even if they show no intention of doing so for the moment. This is incontestably a new challenge to nuclear deterrence, all the more so as the States which are suspected of harbouring intentions in the direction of proliferation by no means subscribe to the logic of deterrence. They may wish to obtain political advantage, of a symbolic kind, through a desire for power. They may even envisage a strategy of "aggressive sanctuarization" which would enable them to embark on intimidation or conquest under the umbrella of the nuclear threat, an action completely at odds with conventional deterrence. From this viewpoint, deterrence would no longer be an instrument of arms control and the management of nuclear weapons.

Undermining the Political Foundations of Deterrence

7. In addition, the traditional political foundations of deterrence have abruptly vanished. In the East-West context, it was based on the perception of a threat, real or supposed, from an identified adversary. It was possible to analyse and evaluate its origin, destination, intensity, and thereby to respond to it. In principle reciprocity of threat had a stabilizing effect, although, as has been said, the stabilization of the nuclear instrument has never been achieved, at least between the two principal nuclear Powers. Today this threat has disappeared, at least in its old form, since the maintenance of considerable stockpiles of weapons and delivery systems for what will undoubtedly be a long period rules out the dropping of one's guard in this respect.

What is more, the new threats or attacks against international security take unexpected and unforeseeable forms, whether they involve terrorism, ethnic or national antagonisms, the break-up of certain States or their inability to fulfil their basic functions towards their populations, or else increasingly internationalized and large-scale crime. These new forms are added to the potentially warlike policies that may be feared from certain other States in areas of international tension. Where Europe is concerned - the central point of application of deterrence thus far - these new forms of

insecurity have abruptly replaced the stable tension that prevailed in the time of the blocs. It is easy to see in that a return to pre-1914 or post-Versailles Europe. But in fact it seems to involve a historically new situation which cannot be judged by reference to the past. Threats to security in Europe involve consequences of a military nature, but they are much more immediately non-military, of an economic and social character, and bear witness to a malaise in the overall political organization of the continent. It seems that they should be analysed in terms of global and transnational problems much more than in terms of power rivalries. The latter might eventually develop, but today Europe is suffering much more from a shortage of power than from rivalry between States. The present period is characterized much more by deconstruction and the absence of collective capability than by an effort to create a new system, if we set aside the restricted framework of the European Community, which to date has not yet become a European Union.

What can nuclear deterrence contribute towards dealing with these risks, which are unpredictable, difficult to assess and difficult to prevent, and to which the responses are by no means obvious? Certainly not a solution, but it retains the incomparable advantage of reflecting a passive stabilization. At the very least it tends to prevent a degradation in the field of nuclear weapons and aims to keep their dangerous features out of reach. This is the minimum benefit that can be drawn from it.

8. If this function is minimal, the debate on nuclear deterrence is muted. It is not that nuclear weapons have not attracted attention. But thinking about the role and the future of deterrence has not been pursued on the scale one might have expected, for several reasons: the urgent nature of other issues, inertia arising from the status quo, a desire to avoid adding to confusion, the lack of foreseeable or acceptable solutions, a concern to maintain a minimum consensus on these matters, or, on the part of the nuclear Powers, to excessively hamper their freedom of judgement and of action. The result is that developments, of an ad hoc though substantive nature, have taken the path of unilateral measures rather than that of agreements, for which it is more a question of ensuring their survival and possible adaptation than revivifying them. In this regard the very technique of arms control must be subject to a comprehensive reassessment, which logically goes hand in hand with that of deterrence but has not yet been undertaken. The success of the topic of minimal deterrence could make a contribution in that direction. Furthermore, the change of Administration in the United States should lead to an overall review whose direction and range cannot at present be gauged, whereas the policy pursued by Russia seems to be characterized by a wait and see attitude and a degree of turning in on domestic problems, in Russia or in the CIS. Russia's principal argument today is its weakness, whose consequences it would like others to shoulder or share, just as in the past it used its military force to exert pressure on its partners.

The present state of affairs corresponds to a series of partial adjustments which lack an overall sense of organization, but have nonetheless already substantially modified former postures. They may result from agreements between the United States and the fragmented parts of the USSR, as in the case of the Lisbon Protocol (May 1992), with Byelorussia, Kazakhstan, Russia and Ukraine, on the continuity of the START Treaty; or again with Russia to substantially lower the nuclear warhead ceilings specified in the same Treaty. More often they have resulted from unilateral measures which sometimes involve a formal or informal expectation of reciprocity. Mention might be made, among others, of the withdrawal of nuclear weapons deployed on surface vessels by the United States; the reduction of certain types of weapon, such as the French cut from six nuclear submarines to four; the non-deployment of certain types of missile, or a decision to give up their manufacture; moratoriums on nuclear tests, both American (and hence British) and French and Russian, with the continued exception of China, a component of a broader attitude of nuclear prudence or even nuclear build-up on the part of China. Concrete prospects of co-operation among

nuclear Powers for the destruction or recycling of fissionable material, especially in the case of Russia, are taking shape.

These different measures are rather dispersed and not always spectacular, but they make up an impressive record. It accentuates a movement that has already begun towards the effective reduction of nuclear weapons - not merely their stabilization or the harnessing of their dynamic direction. They derive from a public, not to say conspicuous diplomacy conducted by political leaders, a sort of informal negotiation for a general audience, as opposed to long and sometimes obscure technical discussions among experts designed to formalize detailed technical agreements. These contacts have not disappeared, but provide back-up for unilateral measures or public diplomacy. In this way the nuclear Powers, or four of them at least, have oriented themselves towards a contraction in nuclear weapons and systems. At the same time they remain attentive to the problem of proliferation, and the case of Iraq offers an example of their resolve in this regard.

The Fragility of the Non-Proliferation Effort

9. The Iraqi example is more illuminating as to problems than solutions. The coercive approach adopted in resolution 687 is suited to this specific case. Above and beyond the problems raised by its application, the difficulty in identifying the entirety of the Iraqi nuclear programme, the future of the permanent constraints it imposes on Iraq, it constitutes an example which would be difficult to replicate. The operation to impose nuclear disarmament on Iraq, conducted internationally under the authority of the Security Council, is only a byproduct of the measures to restore peace adopted after the invasion and annexation of Kuwait. They would not have been taken in ordinary circumstances, and consequently in no way constitute a precedent for efforts to combat illegal nuclear proliferation. At the very most they offer an opportunity to test certain inspection techniques, or evaluate requirements for taking action in similar circumstances.

Hence it is the problems highlighted by this affair which are the most enlightening. This enlightenment is largely negative. The non-proliferation Treaty and the associated system of safeguards, the foundations of the multilateral regime in this area, have demonstrated disturbing weaknesses. It has proved possible for a State party to pursue a programme for the manufacture of nuclear weapons in a clandestine manner, notwithstanding Agency inspections, and to do so on such a scale and over such a period of time as to come very close to its objective. Despite existing restrictions and controls, it can acquire supplies on the international market without apparently encountering major obstacles. Ultimately, and given other indications, one may wonder whether the NPT does not run the risk of serving as an alibi, or a decoy, enabling a specific State to retain apparent international respectability while secretly pursuing banned research and development activities. The NPT grants it a presumption of innocence behind which it can surreptitiously engage in proliferation. This certainly necessitates a complete review of international machinery in this field, especially in the run-up to the NPT extension conference in 1995. It is however true that the application of the existing NPT machinery, and hence its effectiveness, depends on the diligence of the parties.

10. What conclusion should be drawn for the present status of nuclear deterrence? It does not really appear to be in question for the moment, either *de jure* or *de facto*. It is simply that, while its spirit remains oriented towards peace and security, the way in which it is applied is based on a new function, or a renewal of its traditional function, nuclear arms control.

De jure, nuclear weapons remain the only weapons of mass destruction which are not prohibited, at least to a certain extent, after the conclusion of the Chemical Weapons Convention. The singularity of nuclear weapons, resulting from their very link with deterrence, is thus confirmed, at the same time as the myth of chemical weapons as the "poor man's nuclear weapon"

happily proves to be empty. However, the eradication of chemical weapons cannot be equated with *a contrario* recognition of the legitimacy of nuclear weapons. It is obvious that international security will be better assured through collective security machinery which does not require them, or even excludes them. But moral standards must remain relative, according to circumstances.

In fact, it may be observed that the Messianic themes proclaimed by certain nuclear Powers - making these weapons "impotent and obsolete" and ridding the planet of them through the deployment of a space defence system, as in President Reagan's SDI project in 1983, or achieving the complete disappearance of such weapons by the year 2000, in the case of Mr. Gorbachev in 1987 - have disappeared. No one is working to such close deadlines, or with approaches that are so costly, dependent on chance and based on an accelerated arms race in space. Rather, it is a question of adjustments, short-term or medium-term adaptations starting from the existing situation, on the basis of concepts which are not entirely clearly defined - existential deterrence, minimal deterrence and so on.

The cardinal advantage of deterrence in this context, beyond a response to marginal threats, therefore seems to be the downward stabilization of nuclear weapons, in the double form of cuts in the stockpiles of the nuclear Powers and greater attention to the risks of proliferation. A potential military value remains in this regard, in so far as over rapid nuclear disarmament might have the opposite effect of making proliferation more attractive and more rapid, by dumping on the market equipment, technologies, personnel that might be dispersed to the benefit of proliferator States. In any event, the elimination of such weapons is known to require a long, complex, costly process, the pace and the phases of which must be carefully planned so as to maintain or even enhance international security at its various stages.

C. Problems in the Management of Deterrence

The Primordial Nature of Non-Proliferation

11. It is clear that non-proliferation issues acquire priority in this regard, and that the problems involved tend to dominate other aspects, which become components of them, such as the future of the former Soviet nuclear stockpile, the limitation or complete prohibition of nuclear tests, or the control of missile technology or space issues. The problems are not new, and an arsenal of measures designed to prevent or at least delay proliferation already exists. In a new context, the effectiveness of this arsenal is now questionable. What measures can be contemplated to renew it, at the unilateral, bilateral, regional or multilateral level, or at the institutional level? In addition, relations between nuclear Powers, as well as their independent attitude *vis-à-vis* their own forces, must also be considered.

Ultimately the meaning of deterrence is led to become broader and deeper. Above and beyond the prevention of military attacks against a nuclear Power, or against one of its allies, deterrence tends to entail stricter and more comprehensive mastery of all nuclear problems, well ahead of a confirmed military threat. The task is to deter the emergence, or even the prospect of such a threat. In this sense, deterrence is not called upon to be only minimal in its strictly military dimension. It must also be broader in its concerns and strengthened in terms of the methods required by this function of prevention. It then acquires its true scope because it then becomes fully incorporated in the nuclear arms control effort.

Yet the two senses - minimal deterrence with cuts in weapons systems, and broader deterrence with the whole range of techniques preventing the dissemination of know-how, equipment and technologies that can lead to the manufacture of nuclear weapons or delivery systems - should not be confused. Minimal deterrence, which has a military significance, combines the weapon's strategic effectiveness with its non-use. The goal of broader deterrence is denuclearization, and ultimately

its purpose is not to deter by using nuclear means but to deter nuclear means themselves. Thus it restricts nuclear weapons more radically. However, in contrast to what might at first be thought, these two meanings are complementary much more than contradictory.

12. As far as future risks of proliferation are concerned, it is known that they are enhanced not necessarily by the greater desirability of nuclear weapons, but by the growing availability of the human or technological elements involved in their manufacture. The development of dual technologies particularly complicates the issue because there can be no question of hindering civilian technological progress, or civilian uses of nuclear energy.

Yet the result is not a risk of general proliferation. It remains localized, stemming from certain specific situations. Might one in this regard draw up a kind of model of a "proliferator State" which is a candidate for possession of nuclear weapons? An examination of the positions of the States concerned does not lead to definite conclusions. These countries are not necessarily dictatorships; democratic regimes may be involved. They may already be located in a nuclear environment, or on the contrary belong to a region which is still nuclear free. They may have claims on their neighbours, and their attitude may be assumed to be aggressive, or on the contrary they may simply have a concern to defend themselves. However, certain constants may be identified among them. First of all, the country in question must enjoy financial, industrial, scientific resources which will enable it to acquire a nuclear capability, a capability which remains, if not exceptional, then at least restricted. External assistance can only support an independent domestic capability, but not substitute for it. Next, it must have an institutional framework that will enable it to carry out over a lengthy period a programme which must remain secret in order to evade preventive measures aimed at non-proliferation. At the same time it is inevitable that the programme and its results should eventually become visible, if only to ensure the political and strategic effectiveness of the potential possession of nuclear weapons. This visibility may be organized by the State itself or discovered by others. Next, and perhaps excepting Argentina and Brazil, cases of potential proliferation correspond to zones of tension in which regional security is not guaranteed. Generally speaking, proliferation answers to regional rather than universal objectives, even if it naturally carries with it consequences for international security as a whole. Finally, it will be noted that from this point of view potential proliferators often contribute to sustaining proliferation on the part of others by exporting or reexporting sensitive equipment and technologies.

Lastly, one might question what purpose it might serve, for the countries in question and for the other Powers, to gain officially recognition of their status as nuclear Powers. The mind turns to India, Pakistan, Israel. What would be the benefits? The identification of criteria of international responsibility, with the acceptation of a code of deterrence, the adoption of regional confidence-building measures, participation in the NPT and more broadly to the non-proliferation effort? The drawback is that it would be very difficult later to stand in the way of new candidates for this official status, and that, under cover of adjusting the legal situation to the facts, there would be a risk of legalizing proliferation on a much greater scale. But the question certainly deserves to be put.

13. Generally speaking, what is the arsenal of means which are being applied, and which may if necessary be strengthened, in order to prevent proliferation? There is certainly no single solution, but there is already a wide range of existing measures. However, not all are equally effective. It will no doubt be desirable to continue to follow various avenues - global, regional, bilateral, concerted or unilateral.

- Where global measures are concerned, it is obvious that the NPT remains indispensable in any multilateral regime. However, it requires substantial strengthening if it is to retain its credibility,

bearing in mind the Iraqi experience. The lack of concrete universality from which it continues to suffer despite recent accessions (China, France, South Africa in particular) may not be overcome in the short term, so that this treaty provides no complete solution. Within the treaty context, as is well known, the strengthening of Agency safeguards and associated verification procedures is a vital condition for its effectiveness. The NPT itself should perhaps be made less declaratory and more operational in nature. But to what extent will the 1995 extension conference be able to modify the equilibrium which was originally achieved, and, if it cannot itself effect amendments to the NPT, or a broader review, at least open the path in that direction?

Meanwhile, article VI of the treaty, specifying the nuclear disarmament of the nuclear Powers as a goal, has long been lacking in substance. The recent restrictions or reductions adopted by the nuclear Powers have begun to give it some meaning. But it might be appropriate to give concrete form to the issue of the complete prohibition of nuclear tests, which is at once a non-proliferation measure and an arms limitation measure. The idea that testing is in any event no longer essential to the maintenance of a sufficient deterrent, and that it is no longer legitimate if it is aimed at the development of new types of weapon, has gained ground. A first stage might involve the extension of bilateral restrictions on underground testing. The path of negotiation might at the very least be opened in this direction, and the multilateral negotiating forum of the Conference on Disarmament appears to be the appropriate body for this purpose. More broadly, consideration by the CD of issues of transparency, and of non-proliferation of technologies associated with weapons of mass destruction or the prohibition of the production of fissionable material, may also make a contribution to the global non-proliferation effort.

- Regional measures, despite their great intellectual attraction, have had only limited success to date. They are very attractive because they involve initiatives by countries in a given region, and are therefore more specifically suited to their needs, while at the same time they offer a better response to their security requirements. But so far the record is relatively thin. The Treaty of Tlatelolco is only now beginning to achieve full effectiveness, while the Treaty of Rarotonga covers a huge but largely empty area. The American proposal for a conference of the five Powers, China, United States, India, Pakistan, Russia, for South Asia does not enjoy unanimous support. Generally speaking, the concept of nuclear-weapon-free zones remains largely a potentiality, especially for regions which are experiencing a lack of security and cannot apply such a measure separately from a broader settlement of their security problems. Fundamentally, the multilateral approach to non-proliferation has been global to a much greater extent than regional, and, in this area as in others, regionalism has remained undeveloped. Will the Near East offer concrete prospects in this regard? It is obvious that such a path depends on a more wide ranging political and strategic settlement of the region's security problems. But it is interesting that resolution 687 sought to place the constraints imposed on Iraq in this regard in the context of the future establishment of a regional zone free of weapons of mass destruction although the Security Council's approach is in this case alien to such a concept, since it is unilateral, coercive and discriminatory.

Bilateral co-operation, especially in the American-Russian framework, may help to limit the risks of the spread of ex-Soviet weapons and equipment. Co-operation between Russia and other Powers may also facilitate the destruction of fissionable material and the dismantling of nuclear weapons, or efforts to find places for former Soviet scientists. Other examples relate to co-operation between Argentina, Brazil and the two Koreas, one day perhaps between India and Pakistan. This type of co-operation is a response to concrete situations and actual problems. It complements broader approaches, and could lead to genuine peaceful co-operation by taking the form, in particular, of confidence-building measures between countries whose relations were hitherto largely characterized by mistrust.

"Collective unilateralism" is a better term than "institutional approach" to describe formulas along the lines of the London Club, the MTCR, or meetings of the permanent members of the

Security Council to limit proliferation. These formulas are unilateral in nature because they are aimed at securing the acceptance of restrictions and constraints by countries which have not participated in drawing them up. The effectiveness of such measures is undeniable as long as their sponsors respect them, and as long as they can be adapted in a sufficiently flexible and rapid way to respond to technological developments. Nevertheless, they have the fundamental drawback of being perceived as clubs of industrialized countries imposing restrictions on trade on the part of the developing countries. Furthermore, they must perform a difficult trade-off between economic considerations and strategic objectives, in a climate of keen competition between sellers. The absence of participation by the buyers, and hence their *a priori* lack of sympathy for this type of formula, does not facilitate matters. China's attitude of passive resistance or even aloofness *vis-à-vis* consultations among the permanent members of the Security Council is an indication of this mistrust, even if China cannot be regarded as a spokesman for the developing countries.

It would certainly be highly desirable for this collective unilateralism to be progressively transformed into multilateralism, by including the participation of the recipient countries, and clearing the path for genuine co-operation. In this regard it may be regretted that the Security Council does not exploit the potentialities of Article 26 of the Charter, which authorizes it to draw up plans "*for the establishment of a system for the regulation of armaments*". If the Council operated as a collegiate institution, it would seek the involvement of various categories of States for this purpose. In so far as these plans must be submitted to the member States, they may be said to fall into a multilateral framework. On this basis a synergy between the Council and the CD could be developed, which would mark the complementary character of the different approaches as well as the close link between non-proliferation and security.

The Council took a step, but only a symbolic one, with its meeting at summit level on 31 January 1992. The following wording is to be found in its final declaration: "*The proliferation of all weapons of mass destruction constitutes a threat to international peace and security. The members of the Council commit themselves to working to prevent the spread of technology related to the research for or production of such weapons and to take appropriate action to that end*". An extremely substantial formula pregnant with potentialities. First of all, proliferation is considered to be a threat to peace and security, and thus as being contrary to collective security. Hence an intellectual link is established between deterrence, of which non-proliferation is an instrument, and collective security. In the same spirit, it will be noted that the reference to arms control henceforth forms part of the United Nations vocabulary, which until recently objected to this concept as being too closely linked to nuclear deterrence and the strategic dialogue between the United States and the USSR. Above all, the declaration emphasizes the complementarity of the different approaches: that of the NTP, by stipulating that the members of the Council will take "*appropriate measures in the case of any violations notified to them by the IAEA*", which consolidates the link; those others which the members commit themselves to adopting to prevent the spread of technologies in this area, comprising both concerted measures and strictly unilateral measures, which are thus legitimized at the institutional level.

- The role of strictly unilateral measures adopted by each State to control its own exports cannot be overestimated. Ultimately it is here that all efforts must culminate, whether they are pursued in the framework of international instruments or independently. In this regard the legislation in question, which is by definition specific to exporters, must be sufficiently firm and it incorporate provisions for updating so that its effectiveness can be maintained. It is also necessary for breaches by exporters to be subject to domestic penalties, and for domestic courts to give fairly extensive acknowledgement of the power to act against such breaches, in order to open up the foundations of control. There is also a need for more specific and enhanced domestic administrative means of verifying compliance with restrictions on the part of exporters. International publication of such legislation, with a regular report on practice, could constitute a useful confidence building measure,

as well as providing guidance for adaptation and replication. Convergent national legislation can make it possible to manage without international instruments, the drawing up of which is always a complex tasks.

Mention has been made here only of approaches to non-proliferation by means of restrictions, leading to the all-round prevention of increases in the number of parties involved or the weapons themselves. Other approaches, linked with the evolution of deterrence itself, may also be envisaged especially the idea of establishing a system of protection against nuclear strikes, making proliferation ineffective and therefore pointless. However, these would appear to suffer from serious drawbacks.

Transcending Deterrence, or a Return to Basics

14. If we come back to nuclear deterrence proper, we need to look ahead to the prospect of its being left behind as the instruments involved are internationalized.

This topic is not a new one, and in essence it was contained in the SDI project drawn up by President Reagan in 1983, since he envisaged as an ultimate stage the transfer of space defence technology and the consequent eradication of nuclear weapons. Today more modest variants exist in the form of GPALS, or the idea that the United States and Russia should jointly develop and deploy a GPS. In this way the latter is taking up a plan initially suggested by the United States, while attempting to make use of it, since, in addition to the technological benefits that might be obtained, it would ensure the continuation of a form of partnership with the United States, as a foundation for maintaining a global role. Such a system could combat proliferation by ensuring effective protection against limited nuclear strikes, on the basis of relatively unsophisticated technologies, or against accidental launchings. If it were extended to all the nuclear Powers, or all those wishing to participate, it would consolidate their monopoly. States attempting to defy it would be obliged to raise their ambitions if they could, and thus to act in a much more visible manner. Furthermore, it would ward off the possibility of a failure of deterrence and a war between nuclear Powers, since they would be involved in the management of a common security instrument.

However, this potentiality has a dual feature which raises doubts as to whether it is realistic in present circumstances. On the one hand, it might lead to a degree of internationalization of decisions regarding the possible use of weapons. But it is by no means certain that it would be possible to reach a collegiate decision in a given specific situation, and this could only undermine the credibility of the instrument, making it as subject to chance as the operation of the Security Council was for a long time. On the other hand, and most importantly, such an undertaking would presuppose a major financial, technological and military effort which hardly seems likely in the present context. Would public opinion and parliaments in the democratic countries support it? Especially since, in order to permit the deployment of such a system, it would be necessary to question certain arms control treaties, especially the ABM Treaty, with the risk that an arms race in space might recommence.

This paradoxical result, intensifying the arms race in order to be better able to curb it, would be justified only in the face of actual nuclear proliferation coupled with a doctrine of use setting aside the concept of deterrence in favour of, say, "aggressive sanctuarization". But this stage has by no means been reached, and those who wish to pursue this hypothesis are in a hurry to abandon attempts to prevent proliferation.

The situation of the medium-sized nuclear Powers would also require clarification. Either they participate in such a system, which for them amounts to placing themselves voluntarily under a kind of international control; or else they do not participate, and the system can acquire potential effectiveness against them, paralysing their deterrent force in another way.

- Another prospect of internationalization is specific to the construction of the European Community, which ultimately involves a possible European nuclear posture. There are many variants, low or high, which could confer on it a degree of reality, focused around the two poles formed by the British and French deterrent forces. It may involve a simple European doctrine which does not jeopardize national control of armed forces, pending transfer of the instrument into the hands of a European executive branch. In general, we may simply repeat that any use of the nuclear threat which was dependent on a collegiate decision would be very likely to be paralysed. We may set down the principle that the effectiveness of deterrence can only depend on an individual decision taken by a State on its own account, on the basis of its own assessment of the situation. Any formula for internationalization inevitably leads to the ultimate abandonment of any prospect of use, and hence of any effective threat. This falls under the heading of destruction through excessive enthusiasm. Perhaps this is the goal sought by some souls, getting rid of deterrence through transfer rather than through renunciation, while at the same time guaranteeing a certain form of international arms control, following a logic reminiscent of the Baruch Plan.

15. Another conceivable trend, which has partially begun with the reduction of weapons systems and the current disappearance of the nuclear threat, is the trend towards minimal deterrence. This involves a kind of return to basics, the emphasis placed on a risk of reprisals out of all proportion to the benefit to be drawn from possible aggression, and effected only in the presence of a large-scale attack.

Above and beyond this general orientation, it is not easy to delimit more precisely the concrete implications of minimal, or limited, or sufficient deterrence for nuclear weapons and strategies. It probably rules out any formula for the deployment of nuclear weapons in or towards space, as well as the proliferation of defensive systems. It presupposes a reduction in existing nuclear stockpiles and delivery systems, and probably a halt to nuclear testing of all kinds as well as the production of fissionable material, or at least drastic restrictions on it coupled with verification. But the various powers are not in comparable positions. Minimal deterrence makes nuclear weapons that last resort, that final bastion whose use would be justified only by a mortal threat to the security of the country concerned. However, it must retain the uncertainty as to possible actual use which underlies deterrence, whose boundaries may not be delimited too accurately and whose effectiveness must not be circumscribed too restrictively. In this regard the least powerful weapons are not the least effective, since in certain cases the very excessive nature of the threat itself may well make it inoperative. Thus it initiates a withdrawal in good order of nuclear weapons towards the genuine logic of deterrence. For less extreme dangers can be prevented by less formidable means.

Should one see here, with a stabilization of the instrument, with a stabilization of the doctrine, a culminating point of nuclear deterrence, durably attached to principles which set aside the arms race, prevent proliferation and respond to the objectives of arms control? Or more simply a pause, a stage, a transition towards the complete and progressive elimination of nuclear weapons as collective security is strengthened and complemented by effective regional arrangements? This would mean a return to the security architecture of the Charter, which is completely extraneous to nuclear deterrence. More probably the two systems will tend to coexist for a long time yet, in positive ambiguity.

Chapter 2
Recent and Prospective Developments in Nuclear Arsenals*

Michael Brown

In the past, nuclear arms control negotiations moved slowly and generated little in the way of real disarmament. Several years of negotiations in the late 1960s and early 1970s - the Strategic Arms Limitation Talks (SALT) led to the signing of a 1972 agreement that simply placed a cap on the number of long-range ballistic missiles in the Soviet and American arsenals. The missiles themselves could be modernized and equipped with multiple warheads; most were. Bombers and cruise missiles were totally unconstrained by this agreement. No nuclear weapons (warheads or bombs) were dismantled as a result of SALT I. Several more years of negotiations led to the signing of the SALT II treaty in 1979. SALT II would have required the Soviet Union to retire approximately 250 long-range ballistic missiles and bombers (out of a total of some 2,500); the treaty would have imposed no cuts on the somewhat smaller American arsenal.[1] The 1987 treaty on Intermediate-range Nuclear Forces (INF) went further, requiring the Soviet Union and the United States to eliminate an entire class of missiles and missile launchers. The treaty did not obligate the two sides to destroy the nuclear warheads that were to be carried by these missiles, however, nor did it affect their huge arsenals of long-range weapons.[2]

Given this track record, the twelve-month period beginning in July 1991 constituted a watershed in the history of nuclear arms control. In mid-1991, the United States fielded over 12,000 nuclear weapons in its strategic arsenal, the Soviet Union just under 12,000.[3] The United States also fielded some 5,750 tactical nuclear weapons, the Soviet Union an estimated 17,000.[4] In mid-1992, US President George Bush and Russian President Boris Yeltsin announced that their countries would reduce their strategic arsenals to a maximum of 3,500 weapons per side. In addition, plans were in the works to reduce the US tactical nuclear arsenal to 2,500 weapons, the Russian arsenal to under 4,000 weapons. If all of these plans are implemented, the nuclear arsenals of the two sides will shrink from a combined total of almost 47,000 weapons to some 13,500 weapons, a reduction of over 70 percent. Approximately 33,500 nuclear weapons will be removed from the operational force structures of the two sides, and most of these weapons will be destroyed, not stored. In addition to agreeing on deep numerical cuts, Washington and Moscow took steps that will enhance nuclear stability, slow down nuclear modernization, reduce the dangers posed by unauthorized attacks, promote verification and transparency, and, in the long run, save the two countries substantial amounts of money.

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* Portions of this paper will be published as "Nuclear Arms Control," in Trevor Findlay (ed.), *Arms Control in the Post-Cold War World* (Sydney: Allen and Unwin, 1993).

[1] For an overview of the SALT negotiations and agreements, see Coit D. Blacker and Gloria Duffy (eds), *International Arms Control: Issues and Agreements* (Stanford: Stanford University Press, 1984), chapters 11-12; John Newhouse, *Cold Dawn: The Story of SALT* (New York: Holt, Rinehart, and Winston, 1973); Strobe Talbott, *Endgame: The Inside Story of SALT II* (New York: Harper and Row, 1980).

[2] For a detailed analysis of the INF treaty, see International Institute for Strategic Studies (IISS), *Strategic Survey, 1987-1988* (London: IISS, 1988), pp. 21-32.

[3] For a breakdown of US and Soviet strategic forces in 1991, see Michael E. Brown, "Strategic Forces", in Joseph Kruzel (ed.), *American Defense Annual, 1991-1992* (New York: Lexington, 1992), pp. 70-76.

[4] See "Comparison of U.S. and Soviet Nuclear Cuts", *Arms Control Today*, vol. 21, no. 9 (November 1991), p. 27. Western estimates about the size of Moscow's nuclear arsenal, especially its tactical nuclear arsenal, are not necessarily authoritative: there are many unknowns. The figures presented in this paper are the best available in the public domain.

It was not a coincidence that these developments took place when the Cold War was ending and the Soviet Union was breaking up. As the relationship between Washington and Moscow moved from an adversarial to a co-operative footing, leaders in the two capitals began to see nuclear weapons in a different light.[5] Once an integral component of the struggle for power between two rival camps, nuclear weapons started to become less important. With the break-up of the Soviet Union, reasons for keeping nuclear weapons began to be outweighed by reasons for getting rid of them.

The changing nature of relations between Washington and Moscow in conjunction with the special dangers generated by the break-up of the Soviet Union led leaders in both capitals - first Washington, then Moscow to abandon the slow-moving, formal arms control negotiations of the past and adopt a faster-paced, informal approach. Unilateral initiatives were undertaken arsenals were cut, programs were cancelled in the hope that the other side would reciprocate, which it generally did. When needed, negotiations were conducted at the ministerial or even head of state level. Technical details were not allowed to dominate the proceedings, as they did so frequently in the past. Improved relations and a more dynamic approach to arms control made it possible for the two sides to make radical cuts in nuclear forces in a remarkably short period of time.

It is far from clear, however, that additional cuts will be forthcoming. Although Washington and Moscow have promised to reduce their nuclear arsenals by tens of thousands of weapons, they plan to retain several thousand strategic and tactical weapons each. Many policy makers in both capitals remain deeply committed to the idea of retaining massive nuclear arsenals, even though there is a good strategic argument to be made for adopting minimal deterrence strategies and reducing nuclear forces to no more than a few hundred weapons per side.

In this paper, I do four main things. First, I review the efforts that were made in the last half of 1991 and the whole of 1992 to limit strategic and tactical nuclear forces, focusing primarily on the United States and the former Soviet Union. Second, I provide an assessment of what this intense flurry of activity accomplished. Third, I analyze the implications of these developments for nuclear weapon deployments in the United States, Russia, Kazakhstan, the Ukraine, Belorussia, Britain, France, China, Israel, India, and Pakistan all of the states in the international system currently in possession of nuclear weapon capabilities. In doing so, I provide an overview of current nuclear weapon deployments in each of these countries and projections about nuclear weapon deployments in the future. Fourth, I identify several steps that remain to be taken on the arms control front, and I assess the prospects for arms control in the near term.

New Limitations on Strategic and Tactical Nuclear Weapons

In 1991 and 1992, unprecedented steps were taked to slash both strategic and tactical nuclear forces in the United States and the former Soviet Union. This arms reduction process involved several distinct steps. The first of these took place on July 31, 1991, when Bush and Soviet President Mikhail Gorbachev signed the Strategic Arms Reduction Treaty (START), nine years in negotiation. Under the terms of the treaty:[6]

> Each side would be allowed to deploy no more than 1,600 inter-continental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and heavy bombers. Within this total, each side would be allowed to deploy a maximum of 154 heavy ICBMs.[7]

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[5] See Ivo Daalder, "The Future of Arms Control", *Survival*, vol. 34, no. 1 (Spring 1992), pp. 51-74.

[6] See *Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms*, signed on July 31, 1991.

[7] The two sides also agreed not to deploy new types of heavy ICBMs, mobile heavy ICBMs, heavy SLBMs, or rapid reload launchers.

The total number of nuclear weapons (warheads and bombs) attributed to these launchers could not exceed 6,000. Of these, no more than 4,900 could be deployed on ICBMs and SLBMs; no more than 1,540 on heavy ICBMs; and no more than 1,100 on mobile ICBMs.[8]

Heavy bombers not equipped to carry nuclear-armed air-launched cruise missiles (ALCMs) would count as one delivery vehicle against the 1,600 limit and one weapon against the 6,000 limit.

Heavy bombers equipped to carry nuclear-armed ALCMs would be counted as one delivery vehicle against the 1,600 limit. Each of the first 150 American ALCM carriers would be counted as ten weapons against the 6,000 ceiling; each additional ALCM carrier would be counted as carrying all of the ALCMs which it is equipped to carry. Each of the first 180 Soviet ALCM carriers would be counted as eight weapons against the 6,000 ceiling; each additional Soviet ALCM carrier would be counted as carrying all of the ALCMs which it is equipped to carry. American ALCM carriers could be equipped to carry a maximum of twenty ALCMs, and Soviet ALCM carriers could be equipped to carry a maximum of sixteen ALCMs.[9]

Submarine-launched cruise missiles (SLCMs) were not limited by the START treaty itself. However, each side agreed to make an annual statement about its deployment plans for long-range, nuclear-armed SLCMs, with the understanding that at no point would either side make plans to deploy more than 880 of these missiles.[10]

Once ratified, the terms of the Treaty would be implemented in three phases over a period of seven years.

Critics of the treaty argued that it did not go far enough. First, they pointed out that, because of START's unusual attribution and counting rules, each side would be able to deploy 8,000-9,000 strategic weapons - not 6,000 as the framework of the treaty implied.[11] The main reason for this was START's bomber counting rule: bombers that did not carry ALCMs would be counted as only one weapon against the 6,000 weapon ceiling, even though these bombers were capable of carrying up to 24 bombs and SRAMS. As a result, the two sides would be left with arsenals roughly the size of what they had in 1982, when the START negotiations began; all the treaty accomplished in numerical terms, therefore, was to keep the situation from getting worse. To get down to this level, moreover, the two sides could simply retire older systems; with the notable exception of the Soviet Union's SS-18, a heavy ICBM that received special attention in the treaty, new systems would not be put to pasture. In addition, critics complained that START only limited deployments - it did not obligate either side to dismantle nuclear warheads or bombs that were taken out of the operational inventory and placed in storage. Finally, critics argued that START took too long to negotiate; if follow-on negotiations took as long as START, little progress would be made in the long run.[12]

It is certainly true that START had limitations. It is equally true that START was a major accomplishment. First, it required the two sides to reduce the number of strategic weapons they deployed by about one-third - from a combined total of around 24,000 to a combined total of 15,000-16,000.[13] START was the first agreement to mandate significant cuts in strategic forces, and cuts of 8,000-9,000 weapons should not be dismissed lightly. Second, START helped to stabilize the strategic balance. It reduced ballistic missiles warhead deployments by 40-50 percent and heavy ICBM warheads by 50 percent. START also gave the two sides an incentive to deploy bomber forces rather than ballistic missile forces. As a result, the balance between first-strike weapons and second-strike weapons was pushed in the direction of the latter. Third, START

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[8] The two sides agreed that ICBMs and SLBMs would not be flight tested with more warheads than the official attribution numbers agreed to at the Washington summit of December 1987.

[9] These provisions would only apply to nuclear-armed ALCMs with ranges in excess of 600 kilometers. Non-nuclear ALCMs were not limited by the START agreement, provided that they could be distinguished from nuclear ALCMs. The two sides also agreed that they would not deploy nuclear-armed ALCMs with multiple, independently-targetable warheads.

[10] This understanding only applied to nuclear-armed SLCMs with ranges in excess of 600 kilometers. The two sides agreed that they would not deploy nuclear-armed SLCMs with multiple, independently-targetable warheads.

[11] For illustrative START-compliant force structures, see Brown, "Strategic Forces", pp. 70-76.

[12] For critical comment on START, see Rowan Scarborough, "Ex-Aide Labels START Useless", *Washington Times*, June 26, 1991; Eric Schmitt, "Despite Euphoria on Arms Control, Deterrence Remains a Potent Force", *New York Times*, July 30, 1991; Alexei G. Arbatov, "We Could Have Done Better", *Bulletin of the Atomic Scientists* (November 1991), pp. 36-40, 47; Bob Smith, "Let START End With Cold War", *Defense News*, May 18-24, 1992, p. 32.

[13] For details, see Brown, "Strategic Forces", pp. 70-76.

allowed each side to conduct highly intrusive inspections on the territory of the other. This elaborate verification regime, the first of its kind for strategic weapons, would promote transparency and, therefore, stability. Finally, the 250-page START document - the treaty itself, along with attached protocols, agreed statements, unilateral statements, and declarations - provided a detailed framework for follow-on negotiations.[14]

Just a few weeks after START was signed, the attempted coup in Moscow shifted Washington's concern from ratification of the treaty to command and control issues: Who was in charge of the Soviet nuclear arsenal? When the coup failed and the Soviet Union began to break apart, additional questions were raised: Where were the Soviet Union's thousands of nuclear weapons located? Who was in charge of them? How long would central control over these weapons last? What could the West do to minimize the nuclear dangers posed by the break-up of the Soviet Union?

Given the urgency of the situation, President Bush decided to forego formal arms control negotiations, glacial enterprises under the best of circumstances. Instead, he announced on September 27 that the United States would take a number of unilateral steps to stabilize the nuclear balance:[15]

> It would eliminate its entire inventory of 2,150 ground-launched tactical nuclear weapons, most of which were deployed in Western Europe and some of which were deployed in South Korea. All nuclear artillery shells and warheads for short-range ballistic missiles would be brought back to the United States and destroyed.[16]
>
> It would stop deploying tactical nuclear weapons - including nuclear-armed SLCMs, nuclear depth charges, and air-delivered bombs - on surface ships, attack submarines, and land-based naval aircraft. (The United States normally deployed about 100 nuclear-armed SLCMs and 400 nuclear bombs and depth charges at sea.) Approximately half of the 2,200 tactical nuclear weapons in the naval arsenal would be destroyed.[17]
>
> It would take off alert all US strategic bombers, as well as all US ICBMs scheduled for deactivation under START.
>
> It would stop developing a mobile launcher for the MX and small ICBMs, and it would cancel the short-range attack missile (SRAM) program.
>
> It would place all of its strategic nuclear forces under a single command.

Bush called on the Soviet Union to take similar steps in each of these areas. He also called on the Soviet leadership to accelerate implementation of START, to enter into negotiations aimed at eliminating all multiple-warhead ICBMs - particularly destabilizing weapons because of their lethality and their attractiveness as targets. In addition, he invited the Soviet Union to join the United States in working toward deployment of limited defenses against ballistic missile attacks. Finally, he proposed that the two sides hold technical discussions on (a) the safe storage, transportation, dismantlement, and destruction of nuclear warheads; and (b) possible improvements in nuclear command and control arrangements.

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[14] See David Hoffman and John E. Yang, "U.S., Soviet Union Reach Landmark Accord", *Washington Post*, July 18, 1991; Dunbar Lockwood, "START: An Essential Step in a New Era", *Arms Control Today*, vol. 21, no. 9 (November 1991), pp. 2-3.

[15] See "US Disarmament Initiatives", *Survival*, vol. 33, no. 6 (November/December 1991), pp. 567-569.

[16] As of mid-1991, the United States deployed an estimated 1,600 warheads for ground-launched tactical weapons Lance surface-to-surface missile warheads and nuclear artillery shells - and 1,400 air-delivered tactical nuclear weapons in Western Europe. In October 1991, NATO decided to reduce the number of air-delivered tactical nuclear weapons in Western Europe from 1,400 to 700. This decision, in conjunction with President Bush's decision to eliminate all US ground-launched tactical nuclear weapons, reduced NATO's nuclear arsenal from 3,000 to 700 weapons, a reduction of over 75 percent. Later in the year, the United States decided to withdraw all of its air-delivered tactical nuclear weapons from South Korea, leaving it with no nuclear weapons on the Korean peninsula. See David F. Bond, "Bush's Cuts are Little Threat to U.S. Military Capabilities", *Aviation Week and Space Technology*, October 7, 1991, pp. 20-22; "Impact of the Bush Nuclear Weapons Initiative", *Arms Control Today*, vol. 21, no. 8 (October 1991), p. 37; R. Jeffrey Smith, "NATO to Cut 80% of Nuclear Arsenal in Europe", *International Herald Tribune*, October 18, 1991.

[17] See "Comparison of U.S. and Soviet Nuclear Cuts", p. 27; Bond, "Bush's Cuts", p. 20.

Bush's initiative was widely praised and rightly so.[18] If the Soviet Union followed suit, Western security would be significantly enhanced. But even if Moscow did nothing, Bush would have succeeded in easing European concerns about the stationing of US nuclear weapons in Western Europe, always a contentious issue in the Western alliance.

As it turned out, Bush's gamble paid off. On October 5, Gorbachev announced that the Soviet Union would follow the US example and implement some unilateral arms control measures of its own:[19]

> It would destroy all of its estimated 10,000 ground-launched tactical nuclear weapons - nuclear artillery shells and warheads for tactical ballistic missiles.[20]
>
> It would stop deploying tactical nuclear weapons on surface ships, attack submarines, and land-based naval aircraft. Many of these weapons would be destroyed. (The Soviet arsenal included approximately 2,000 of these weapons.)[21]
>
> It would take the nuclear warheads off its anti-aircraft missiles, destroy some of these warheads and place the rest in central storage.
>
> It would take off alert all strategic bombers, all rail-mobile ICBMs, 503 other ICBMs, and 3 submarines with 48 SLBMS.
>
> It would stop developing new launchers for rail-mobile ICBMs, a small/mobile ICBM, and a SRAM.
>
> It would reduce its strategic arsenal to 5,000 START-countable warheads, not 6,000 as the treaty called for.
>
> It would stop testing nuclear weapons for one year.
>
> It would place all of its strategic nuclear forces under a single command.

Gorbachev indicated that the Soviet Union was willing to discuss issues related to the safety and command and control of nuclear weapons, as well as the possibility of deploying joint ballistic missile defense systems. Gorbachev agreed that accelerated implementation of the START agreement was desirable, but he went one step further in suggestion that negotiations should begin to cut START force levels in half. Finally, Gorbachev proposed that the two sides should agree to move all air-delivered tactical nuclear weapons to central storage; destroy all sea-based tactical nuclear weapons, and stop producing fissile material for nuclear weapons.[22]

If Gorbachev's unilateral initiatives were implemented, Western concerns about the Soviet nuclear arsenal would ease: strategic weapons would be under tighter control; and thousands of tactical weapons - which were smaller, more widely dispersed, guarded less carefully, and therefore more likely to fall into the wrong hands - would be destroyed. It was surprising, therefore, that the Bush administration did not push Gorbachev to implement his redeployment and disarmament plans in October and November, nor did it offer Moscow any financial assistance on this count. The US Congress appropriated $400 million in late November to help Moscow with the transportation, storage, and dismantlement of nuclear weapons, but central power in Moscow had already collapsed. In December, the Soviet Union itself ceased to exist, and thousands of strategic and tactical nuclear weapons were deployed outside of Russia.

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[18] See William Drozdiak, "Continent Hails U.S. Initiative as Dawn of a Much Safer Era", *International Herald Tribune*, September 30, 1992; Tom Wicker, "Out From Under That Mushroom-Shaped Cloud", *International Herald Tribune*, October 4, 1991; Giovanni de Briganti and Charles Miller, "Allies Hail U.S. Move to Cut Nuclear Arms From NATO Stock", *Defense News*, October 7, 1991, p. 29; Strobe Talbott, "Toward a Safer World", *Time*, October 7, 1991, pp. 6-8; "Foreign Leaders, Congress Hail Nuclear Cuts", *Arms Control Today*, vol. 21, no. 8 (October 1991), p. 27.

[19] See "Soviet Disarmament Initiatives", *Survival*, vol. 33, no. 6 (November/December 1991), pp. 569-570.

[20] For details on the size of the Soviet tactical nuclear arsenal, see "Comparison of U.S. and Soviet Nuclear Cuts", p. 27; Steven E. Miller, "Western Diplomacy and the Soviet Nuclear Legacy", *Survival*, vol. 34, no. 3 (Autumn 1992), pp. 3-27.

[21] *Ibid.*

[22] The United States did not follow-up on Gorbachev's proposal to move all air-delivered tactical nuclear weapons to central storage: this would have left NATO with no tactical nuclear deterrent. However, NATO defense ministers decided later in October to reduce the number of air-delivered tactical nuclear weapons based in Western Europe from 1,400 to 700. As noted earlier, Bush's unilateral action and this NATO decision reduced NATO's tactical nuclear arsenal from around 3,000 weapons to 700 weapons.

The collapse of the Soviet Union set off alarm bells in the West: Who had custody of and control over Soviet nuclear weapons? What would become of them? A flurry of Western diplomacy in conjunction with a series of meetings among the republics of the former Soviet Union soon resolved some of the more pressing issues. It was agreed that the four republics that had strategic weapons stationed on their territory - Russia, the Ukraine, Belorussia, and Kazakhstan - would establish procedures for joint control over these forces: Decisions to use nuclear weapons would be made by the President of Russia "in agreement with" the leaders of the Ukraine, Belorussia, and Kazakhstan, and "in consultation with" the leaders of the other republics of the new Commonwealth of Independent States. The republics also agreed that all tactical nuclear weapons deployed outside of Russia should be sent to Russia for dismantlement. The Ukraine and Belorussia promised to join the Nuclear Non-Proliferation Treaty as non-nuclear weapon states. The Ukraine pledged to have all tactical nuclear weapons off its territory by July 1, 1992 and all strategic weapons off its territory by December 31, 1994. Shipment of tactical weapons from the republics to Russia began in early January 1992.[23]

President Bush jumped back into the fray on January 28, when he announced additional unilateral cuts in strategic forces and outlined a proposal for further strategic arms reductions. According to Bush, the United States would:[24]

> Stop production of the B-2 bomber after 20 aircraft had been built.
>
> Cancel the small ICBM program outright, discontinue MX ICBM production, terminate advanced cruise missile production, and stop production of new SLBM warheads.[25]
>
> Propose that, if the United States and the republics of the former Soviet Union eliminate all of their multiple-warhead ICBMs the United States would reduce the number of warheads deployed on its SLBMs by one-third and convert a "substantial number" of strategic bombers to conventional use.

Senior administration officials later explained that, if Bush's proposal was implemented, each side would be left with 4,500-4,700 strategic weapons.[26]

The next day, President Yeltsin outlined unilateral cuts and arms control proposals that were even more sweeping. According to Yeltsin, Russia would:[27]

> Stop building Bear and Blackjack bombers, as well as existing types of ALCMS and SLCMs. Forego building new types of SLCMs.
>
> Stop conducting military exercises with large numbers of strategic bombers.
>
> Reduce combat patrols of submarines armed with SLBMs.
>
> Deactivate weapons that are to be eliminated under START in three years rather than the seven years called for in the treaty.
>
> Propose that the two sides forego development and production of new types of ALCMs.
>
> Propose that the two sides eliminate all nuclear-armed SLCMs.
>
> Propose that the two sides stop combat patrols of submarines armed with SLBMs.
>
> Propose that the two sides reduce their strategic offensive forces to 2,000-2,500 weapons each.
>
> Propose that the two sides stop targeting each other with nuclear weapons.
>
> Propose that the two sides eliminate existing anti-satellite systems and implement a comprehensive ban on such weapons.
>
> Propose that the two sides jointly develop and jointly operate a global system of ballistic missile defense.
>
> Propose that the two sides enter into negotiations aimed at the cessation of all nuclear tests.

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[23] Based on the detailed account in Miller, "Western Diplomacy", pp. 9-15.

[24] See "President George Bush's State of the Union Address", *Survival*, vol. 34, no. 2 (Summer 1992), p. 121.

[25] As a result, the United States would not be building any nuclear bombs or warheads for the first time since 1945. See Thomas W. Lippman, "New Strategic Era Sees Transformation of U.S. Nuclear Arms Establishment", *Washington Post*, May 11, 1992.

[26] See Kathy Sawyer, "Cheney Rejects Yeltsin Offer on Bigger Arms Cuts", *Washington Post*, February 3, 1992; Dunbar Lockwood, "Bidding Down", *Bulletin of the Atomic Scientists*, vol. 48, no. 3 (April 1992), pp. 8-10.

[27] See "Russian Arms Control Initiatives", *Survival*, vol. 34, no. 2 (Summer 1992), pp. 122-124.

Propose that the two sides agree to stop producing fissile material for nuclear weapons.

Eliminate one-half of its nuclear warheads for air defense missiles. Eliminate one-half of its estimated 5,000 air-delivered tactical nuclear weapons. Eliminate one-third of its estimated 2,000 sea-based tactical nuclear weapons.[28]

Propose that the two sides place all remaining air-delivered tactical nuclear weapons in central storage.

When he suggested that the United States and Russia reduce their strategic offensive forces to substantially lower levels, Yeltsin invited Britain, France, and China - the other three states that have acknowledged having nuclear weapons capabilities - to join in what he called "the process of real nuclear disarmament." Russia's ultimate goal, he maintained, was the complete elimination of nuclear weapons and other weapons of mass destruction.[29]

Russian Foreign Minister Alexei Kozyrev suggested on February 12 that, as an interim measure, the five nuclear powers could adopt a "zero alert status." According to Kozyrev, this could be achieved if the five powers removed all warheads from their ICBMs, all bombs and ALCMs from their bombers, and all SLBMs and SLCMs from their submarines and surface ships. Nuclear warheads and bombs would be kept in centralized storage depots, which would provide assurance against unauthorized or accidental use. He noted that steps such as these should be easy to verify.[30]

The American and Russian positions on additional cuts in offensive forces became clearer in February and March, when discussions were held on these issues at the ministerial level. The centerpiece of the American position was that the two sides should eliminate multiple-warhead ICBMs and that each side should deploy 4,500-4,700 offensive weapons. The Russian view was that all multiple-warhead ballistic missiles - ICBMs and SLBMs - should be eliminated; elimination of only the former would favor the United States, Moscow maintained. The Russians also maintained that the two sides should strive for deep cuts, deploying only 2,000-2,500 offensive weapons each.[31]

The Bush administration had two main objections to the Russian proposal, neither of which was convincing. First, it maintained that reducing forces to lower levels would be destabilizing because it would impinge on the number of SLBM-carrying submarines the United States could deploy.[32] This line of reasoning was specious: a low warhead ceiling would not prevent the United States from deploying all of the 18 Trident submarines in its current force structure plans; the United States could stay under a warhead ceiling by downloading ICBMs and SLBMs, or by reducing the number of SLBMs deployed on each missile-carrying submarine, while continuing to deploy large numbers of submarines. Second, the administration argued that there was little point in agreeing to deep cuts, because they could not be implemented for many years. According to US Secretary of Defense Richard Cheney, "There's actually a limited capability in both countries to actually dismantle nuclear warheads."[33] Again, the administration's reasoning was specious: neither the START agreement nor the Yeltsin proposal called for the dismantlement of warheads or bombs; they simply called for lower levels of deployed forces. In any event, delivery systems can be rendered inoperable quickly and easily and, if an interest develops in destroying warheads and bombs as well, these weapons could simply be deactivated; dismantlement could come at a later stage of the process.[34]

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[28] See "Comparison of U.S. and Soviet Nuclear Cuts", p. 27.

[29] See "Russian Arms Control Initiatives", pp. 122-123.

[30] See Kozyrev's remarks before the 611th Plenary Meeting of the Conference on Disarmament, Geneva, February 12, 1992.

[31] See "Baker, Kozyrev Discuss Deep Cuts", *Arms Control Today*, vol. 22, no. 2 (March 1992), p. 21.

[32] See Sawyer, "Cheney Rejects".

[33] Quoted in *Ibid.*

[34] See Ivo H. Daalder, "American Nuclear Diplomacy Transformed: Arms Control After the Moscow Coup", manuscript, May 1992; Lockwood, "Bidding Down".

These negotiations were sidetracked by two developments. First, on March 12, the Ukraine suspended shipments of tactical nuclear weapons to Russia; it maintained that it needed better assurances that the weapons being sent to Russia were actually being destroyed. This move came as a shock to most policy makers in the West. Until that time, the transferral had been proceeding well; thousands of weapons had been moved to Russia, and most of the republics of the former Soviet Union had been denuclearized. After a few weeks of international arm-twisting and Ukrainian posturing, shipments were resumed. On May 5, the last Soviet tactical nuclear weapons deployed outside of Russia crossed the Ukrainian-Russian frontier. A total of 6,500 tactical nuclear weapons were relocated in four months.[35]

The second stumbling block involved ratification of the START agreement and the problem of securing firm commitments from the Ukraine, Belorussia, and Kazakhstan to relinquish all of the strategic nuclear weapons stationed on their territory - 360 ICBMs and 80 bombers capable of carrying over 3,000 warheads and bombs.[36] The ratification problem was both legal and political in nature: Legal, because the United States signed the START treaty with the Soviet Union, a country that no longer existed; a substitute or some alternative formula had to be found before the treaty could be ratified and put into effect. Political, because the Ukraine, Belorussia, and Kazakhstan did not want Russia to assume the Soviet Union's rights and responsibilities under the START treaty and thereby attain a special place in the international pecking order. The Ukraine, Belorussia, and Kazakhstan, particularly sensitive to status issues such as these, insisted that all four republics should accede to the treaty as equal partners. In the end, the three smaller republics got their wish: A protocol between the United States and the four republics was signed in Lisbon on May 23.[37] In exchange, the leaders of the Ukraine, Kazakhstan, and Belorussia confirmed in writing that their republics would relinquish all of the strategic weapons on their territory and join the Nuclear Non-Proliferation Treaty as non-nuclear weapon states.[38]

With the signing of the START protocol, high-level attention in Moscow and Washington could again turn to the problem of resolving Russian-American differences over offensive force levels and limitations on multiple-warhead missiles. Intensive talks between Kozyrev and US Secretary of State James Baker took place in the run-up to the Bush-Yeltsin summit, scheduled to take place on June 16-17 in Washington.

On the first day of the summit, Bush and Yeltsin announced that they had agreed on major reductions in strategic offensive forces.[39] Specifically, the two leaders agreed to a two-phase arms reduction process:

> In the first phase, to be completed by the end of the START Treaty's seven-year implementation period, each side will reduce its forces until it deploys no more than 3,800-4,250 strategic nuclear weapons (warheads and

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[35] See Eleanor Randolph, "Ukraine Halts Transfer of Nuclear Arms to Russia", *International Herald Tribune*, March 13, 1992; "Ukraine Declares Transfer of Atom Arms is to Resume", *International Herald Tribune*, April 15, 1992; Margaret Shapiro, "Last Tactical Nuclear Arms Pulled Out of Ukraine", *International Herald Tribune*, May 7, 1992; Miller, "Western Diplomacy", pp. 15-16.

[36] For an inventory of strategic weapons deployed on the territory of the Ukraine, Belorussia, and Kazakhstan, see Table 5; IISS, *The Military Balance, 1992-1993* (London: IISS, October 1992), pp. 71, 86, 92-93, 133, 227, 232-235; Miller, "Western Diplomacy", p. 6.

[37] See "Protocol to the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms", *Survival*, vol. 34, no. 3 (Autumn 1992), p. 136. Also, see Don Oberdorfer, "With Signatures, Chapter Closes on 3 Republics' Brief Nuclear Era", *International Herald Tribune*, May 25, 1992; Dunbar Lockwood, "U.S., Four Commonwealth States Sign START Protocol in Lisbon", *Arms Control Today*, vol. 22, no. 5 (June 1992), pp. 18, 29.

[38] See "Protocol to the Treaty"; Letter from Leonid Kravchuk, President of the Ukraine, to George Bush, President of the United States, May 7, 1992; Letter from Nursultan Nazarbayev, President of Kazakhstan, to George Bush, President of the United States, May 19, 1992.

[39] See "US-Russian Joint Understanding on Strategic Offensive Arms", *Survival*, vol. 34, no. 3 (Autumn 1992), pp. 136-137.

bombs). Of this total, no more than 2,160 warheads can be deployed on SLBMs, no more than 1,200 on multiple-warhead ICBMs, and no more than 650 on heavy ICBMs.

In the second phase, to be completed by the year 2003 (or by the end of 2000 if the United States can assist with the elimination of weapons in Russia), each side will reduce the total number of weapons deployed to 3,000-3,500. Of this total, no more than 1,750 warheads can be deployed on SLBMs. Multiple-warhead ICBMs are to be eliminated altogether.

Significantly, this agreement jettisons the START Treaty's bomber counting rule, whereby each penetrating bomber was counted as carrying only one weapon regardless of how many bombs and SRAMs it actually carried. Under the terms of the Bush-Yeltsin agreement, bombers will be counted as having "the number of nuclear weapons they are actually equipped to carry."[40] Each B-2 bomber, for example, will be counted as carrying sixteen weapons. As a result, each side will be required to reduce its deployments to 3,000-3,500 weapons, a significant cut in the 7,500-8,000 weapons each will be able to deploy under the terms of the START Treaty.

Even more significant are the commitments to eliminate all multiple-warhead ICBMs and to slash ballistic missile warhead deployments. These steps, in conjunction with a continuing commitment to retain survivable retaliatory forces, will make the nuclear balance between the two sides much more stable.

Bush and Yeltsin also decided that their countries should work together, in conjunction with allies and other interested parties, on a global protection system against limited ballistic missile attacks. The two presidents maintained that this should be done "without delay." They acknowledged that deploying a global defensive system might involve "changes to existing treaties," such as the 1972 Treaty on the Limitation of Anti-Ballistic Missile (ABM) Systems.[41] The strategic implications of moving in this direction are potentially worrisome.

Negotiations aimed at turning the June 1992 framework into a formal treaty were delayed by the presidential campaign in the United States and by domestic politics in Russia. In late December 1992, a flurry of diplomatic activity led to compromises on the few technical issues that remained on the table. Presidents Bush and Yeltsin signed what is now known as the START II Treaty in Moscow on January 3, 1993.[42]

Major Accomplishments

The initiatives that have been undertaken and the agreements that have been reached since mid-1991 are major steps forward in six respects.

First, if all of these initiatives and agreements are fully implemented, deep numerical cuts will be imposed on the arsenals of the two nuclear superpowers. As noted earlier, the nuclear arsenals of the two sides will shrink from a combined total of almost 47,000 weapons to some 13,500 weapons, a reduction of over 70 percent. Approximately 33,500 nuclear weapons will be removed from the arsenals of the two sides, and most of these weapons will be destroyed, not stored.

More specifically, Washington and Moscow pledged to reduce deployments of strategic nuclear weapons from a combined total of 24,000 weapons to no more than 7,000 weapons. The Ukraine,

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[40] *Ibid.*

[41] See "US-Russian Statement on a Global Protection System", *Survival*, vol. 34, no. 3 (Autumn 1992), p. 137.

[42] To reduce the costs to Moscow of implementing the treaty, the United States agreed that Russia could convert 105 of its 170 six-warhead SS-19 ICBMs into single-warhead ICBMs (which it would not have been able to do given START I limits on downloading). The United States also agreed that 90 of Russia's SS-18 silos could be modified to house single-warhead ICBMs. Finally, the United States agreed to allow Russian inspections of American B-2 bombers, to verify their payload capabilities. See Elaine Sciolino, "U.S. and Russia Agree on Atomic Arms Pact", *New York Times*, December 30, 1992; Serge Schmemann, "U.S. and Russia Sign Disarmament Pact", *International Herald Tribune*, January 4, 1993.

Belorussia, and Kazakhstan promised to eliminate all of the strategic nuclear weapons deployed on their territory - 360 ICBMs and 80 bombers capable of carrying over 3,000 warheads and bombs.

Stunning cuts were made in tactical forces as well. The United States promised to destroy its entire inventory of 2,150 ground-launched tactical nuclear weapons, most of which were deployed in Western Europe and some of which were deployed in South Korea. (In July 1992, President Bush confirmed that all of these weapons had withdrawn from overseas bases and returned to the United States, where they will be dismantled.[43]) NATO decided to reduce the number of air-delivered tactical nuclear weapons deployed in Western Europe from 1,400 to 700, leaving it with a substantially reduced nuclear arsenal. The United States decided to withdraw all of its air-delivered tactical nuclear weapons from South Korea, leaving it with no nuclear weapons on the Korean peninsula.

The republics of the former Soviet Union oversaw the transfer of all tactical nuclear weapons deployed outside of Russia - some 6,500 ground-launched, air-delivered, and sea-launched weapons - to Russia itself. Moscow pledged to destroy all of its estimated 10,000 ground-launched tactical nuclear weapons, as well as half of its estimated 5,000 air-delivered nuclear weapons.

The United States, Russia, and Britain also promised to stop deploying tactical nuclear weapons on naval vessels in peacetime. In the past, perhaps 1,000 of these weapons would have been deployed on surface ships and submarines under normal circumstances. Approximately 1,800 tactical naval weapons 1,100 American, 700 Russian, 25 British - are to be destroyed; the rest 1,100 American, 1,400 Russian - are to be stored on land.[44] (In July 1992, President Bush announced that all US sea-based tactical nuclear weapons had been withdrawn from overseas bases, ships, and submarines, and returned to the United States.[45])

In sum, Washington and Moscow pledged to reduce their tactical nuclear arsenals from a combined total of nearly 23,000 weapons to some 6,500 weapons. The United States will reduce its arsenal from 5,750 to 2,500 weapons: it will destroy 2,150 ground-launched and 1,100 sea-based weapons; it will retain 1,100 sea-based and 1,400 air-delivered weapons. Russia will reduce its tactical nuclear arsenal from an estimated 17,000 weapons to less than 4,000 weapons: it will destroy an estimated 10,000 ground-launched, 700 sea-based, and 2,500 air-delivered weapons; it will retain an estimated 1,400 sea-based and 2,500 air-delivered weapons. Some 16,500 Russian and American weapons are to be dismantled.

Second, these actions will enhance crisis stability in important respects. The decisions to reduce ballistic missile warhead deployments and to eliminate multiple-warhead ICBMs, in conjunction with the continued commitment on both sides to retain survivable retaliatory forces, will significantly reduce first-strike capabilities and first-strike incentives in a foreign policy crisis or military confrontation, should one occur. The elimination of all multiple-warhead ICBMs will be particularly important: these systems have potent first-strike capabilities and are, for this very reason, highly attractive targets. In addition, taking large numbers of strategic forces off alert will make it harder for foreign policy crises to escalate into nuclear confrontations. Similarly, taking all ground-launched and sea-based tactical nuclear weapons away from operational commands and moving them to central storage will make it harder for conventional military confrontations to turn into nuclear shoot-outs.

Third, several of these actions - reducing strategic arsenals, taking large numbers of strategic forces off alert, establishing single commands for strategic forces, taking most tactical nuclear

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[43] See "U.S. Brings Home All Tactical A-Arms", *International Herald Tribune*, July 3, 1992; "U.S. Nukes Leave Europe", *Defense News*, July 6-12, 1992, p. 2.

[44] The United States normally deployed 100 nuclear-armed SLCMs and 400 nuclear bombs and depth charges at sea. I am assuming that Soviet deployments were of comparable size. See Bond, "Bush's Cuts", p. 20.

[45] See "U.S. Brings Home"; "U.S. Nukes Leave Europe".

weapons away from operational commands and moving them to central storage - will make it much more difficult for renegade military officers to launch unauthorized nuclear attacks. Given the disintegration of the Soviet empire, the break-up of the Soviet Union, the political and economic chaos in Russia, and the consequent collapse in morale in the Russian military, this is not an insignificant concern in the West. Reducing nuclear arsenals and placing remaining forces under tighter command and control will also make it harder for renegade officers to sell nuclear weapons or delivery systems on the international arms market.

Fourth, weapon modernization efforts have been significantly curtailed. In a series of unprecedented moves, Washington and Moscow cancelled over a dozen ICBM, bomber, and cruise missile programs in the last half of 1991 and the first half of 1992. In September 1991, President Bush terminated development of mobile launchers for the MX ICBM and small ICBM, as well as development of the SRAM. In October, Soviet President Gorbachev scrapped plans to build new rail-car launchers for ICBMs, a small, mobile ICBM, and a SRAM. In January 1992, Bush announced that he would stop production of the B-2 bomber, the advanced cruise missile, the MX ICBM, the small ICBM, and new warheads for SLBMs. The next day, President Yeltsin announced that production of the Bear bomber, the Blackjack bomber, existing ALCMs, and existing SLCMs would be terminated. Although research and development efforts are still under way in many areas in both countries, a stunning number of major development and procurement programs have been cancelled. The qualitative dimension of the nuclear arms race has therefore been dampened to a significant degree.

Fifth, the START I verification regime is the most extensive and intrusive in history. Implementation of this regime will promote transparency and, therfore, strategic stability. The START regime also provides a framework that can be built on if the two sides decide to verify the unilateral initiatives they have pledged to undertake. Finally, the START regime provides a framework for verification and implementation of the START II Treaty.

Sixth, although redeployment and dismantlement efforts will cost a great deal of money in the short run, the initiatives that were undertaken and the agreements that were reached in 1991-92 will save the United States and Russia substantial sums of money in the long run. According to US Secretary of Defense Cheney, President Bush's unilateral cuts in strategic forces alone will save the United States nearly $20 billion.[46] According to a recent study conducted by the US Congressional Budget Office, reducing the US nuclear arsenal to 3,000 weapons (including tactical weapons) would save the United States $15.5 billion per year.[47] Although actual savings will depend on decisions made about specific systems and programs, there is no doubt that the "arms control dividend" will, for the first time, be substantial.

Implications for Nuclear Weapon Programs

If fully implemented, the arms control agreements that were reached in 1991 and 1992 will have profound implications for the nuclear arsenals of the United States and Russia, as well as for the nuclear forces currently stationed in Kazakhstan, the Ukraine, and Belorussia. These agreements may, if the arms control process continues, eventually have an impact on nuclear weapon programs in Britain, France, China, Israel, India, and Pakistan - the other states in the international system with nuclear weapon capabilities. In order to assess this impact, we need to take a closer look at the current status of the nuclear weapon programs in these eleven countries, as well as their future prospects.

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[46] See George Leopold, "Cutbacks Signal End to U.S. Strategic Modernization", *Defense News*, February 3, 1992, p. 6.

[47] ee U.S. Congressional Budget Office (CBO), *The START Treaty and Beyond* (Washington: CBO, October 1991), pp. xiv-xv.

The United States

Table 1 provides an overview of US strategic nuclear forces, as of mid-to-late 1992. A total of 50 MX ICBMs have been deployed in silos. The sea-based leg of the triad is in the process of being modernized: Trident submarines are replacing Poseidon submarines, and Trident D-5 SLBMs are replacing older model SLBMs. The bomber force has been modernized with the deployment of 95 B-1B bombers which are, despite the problems experienced with their defensive electronics systems, highly capable aircraft. Over 12,000 gravity bombs and missile warheads are in the deployed arsenal, although it is important to note that additional bombs and warheads are probably in storage. The alert status of these forces is lower than it was during the days of the Cold War: bomber forces have been taken off alert altogether (meaning that bombers are no longer kept on runway alert, fully-fueled and fully-armed), and all ICBMs scheduled for destruction under the terms of the START agreement have been taken off alert.

Table 1: Current US Strategic Nuclear Forces

System		*Number*	*Deployed Weapons*[a]
ICBM	Minuteman II	450	450
	Minuteman III	500	1,500
	MX	50	500
SLBM	Poseidon C-3	192	1,920
	Trident C-4	384	3,072
	Trident D-5	120	960
Bombers[b]	B-52G	40	480
	B-52H	94	1,880
	B-1B	95	1,520
Total		1,925	12,282

Sources: IISS, *Military Balance, 1992-1993* (London: IISS, October 1992), pp. 225-230; "Past and Present Strategic Nuclear Forces," *Arms Control Today*, vol. 22, no. 6 (July/August 1992), pp. 35-36).

Notes: [a] Figures are for deployed weapons only; additional bombs and warheads may be in storage. ICBM and SLBM weapon loadings are based on START counting rules: Minuteman II, 1; Minuteman III, 3; MX, 10; Poseiden C-3, 10; Trident C-4, 8; Trident D-5, 8. Bomber loadings are based on US Air Force estimates of maximum carrying capacities: B-52G, 12 ALCMs; B-52H, 20 gravity bombs, SRAMs, or ALCMs; B-1B, 16 gravity bombs, SRAMS, or ALCMs.

[b] The United States also deploys 41 B-52Gs in a conventional role. Another 281 B-52s await conversion to conventional operations or retirement. A total of 4 B-2s have been built, and are currently serving as test aircraft.

The future of the US strategic nuclear arsenal will be shaped by three main sets of considerations. First, with the completion of the modernization efforts launched in the 1980s, the end of the Cold War, and the disintegration of the Soviet Union, there will be little need for extensive modernization in the 1990s. Lingering economic difficulties in the United States will, in any event, compel US leaders to devote more resources to domestic problems and fewer resources to defense.

Second, the United States has already pledged to terminate several strategic modernization programs. As noted earlier, the United States has promised to stop production of the MX ICBM as well as development of a mobile launcher for the MX. Development and production of the small ICBM has been cancelled. Production of a new warhead for SLBMs has been cancelled. The SRAM

program has also been cancelled. Only 640 advanced cruise missiles will be built (instead of 1,000), and only 20 B-2 bombers will be built (instead of 75). Although research and development is still continuing in many areas, little is going on in others. It is possible, for example, that a new, single-warhead will be developed as a replacement for the Minuteman, but no replacements for the Trident, B-1B, or B-2 comparatively new systems - will be forthcoming in the next 10-15 years if relations between Washington and Moscow stay on their current course.

Third, US strategic forces will be constrained by the START I and START II treaties. In order to implement the START II accord, the United States will have to retire all of its 10-warhead MX ICBMs, and it will almost certainly retire all of its ancient Minuteman II ICBMs. Minuteman IIIs will have to be down-loaded to carry only one warhead.

The United States will want to retain 18 Trident submarines in the force structure - a large fleet is more survivable than a small fleet - but in order to stay under the cap of 1,750 SLBM warheads it will have to cut the number of warheads carried by each boat in half. It could do this by reducing either the number of SLBMs per boat or the number of warheads per missile. Because it will want to maximize target coverage, the US Navy will probably opt for the latter, deploying an average of four warheads per missile (as opposed to eight warheads per missile now).

Older B-52s will be retired, and all B-52Gs and B-1Bs will be dedicated to conventional missions, thereby removing these systems from START II's jurisdiction. B-52Hs armed with ALCMs will be counted against START II ceilings, but the number of bombers that can deployed will depend on how many ALCMs each bomber will be equipped to carry. Currently, B-52Hs are equipped to carry 20 ALCMs, and they would be counted as carrying this many weapons under START II. The United States will want to deploy a large number of B-52Hs equipped with only 8-12 weapons each, but it will only be able to do so if the United States and Russia decide to allow "bomber downloading." An agreement on this issue has not yet been reached. A maximum of 20 B-2 bombers will be built (Congress might decide to build only 16-18) but at least two of these will be test and training aircraft. Each B-2 will be counted as carrying all of the 16 weapons it is equipped to carry.

The United States plans to deploy as many strategic weapons as the START II agreement will allow: 3,500. Unless an additional agreement with Russia is reached, the United States will also be able to keep additional bombs and warheads in storage, which it will almost certainly do. No agreement is yet in place that would obligate the United States and Russia to dismantle and destroy non-deployed strategic bombs and warheads.

Table 2 provides an overview of what the US strategic nuclear force structure might look like after the START II agreement is implemented. Other possibilities exist, of course.

As far as tactical nuclear weapons are concerned, the United States has withdrawn all of the ground-launched weapons previously deployed in Western Europe and East Asia. All 2,150 of these weapons are to be destroyed. The United States has also withdrawn all of the tactical nuclear weapons it used to deploy on ships and submarines. Approximately half of the total inventory of 2,200 sea-based weapons is to be destroyed. Finally, the United States has withdrawn about half of the 1,400 air-delivered tactical nuclear weapons it used to deploy in Western Europe and East Asia. No public commitment has been made to dismantle any of these weapons. Approximately 700 air-delivered tactical nuclear weapons remain deployed in Western Europe.

Table 2: A Modernized, START II US Force

System		*Number*	*Deployed Weapons*[a]
ICBM	Minuteman III[b]	500	500
SLBM	Trident C-4[c]	192	768
	Trident D-5	240	960
Bombers[d]	B-52H	48	960
	B-2	18	288
Total		998	3,476

Notes: [a] Figures are for deployed weapons only; additional bombs and warheads could be kept in storage.
[b] Assumes that: all Minuteman IIs and MXs will be retired; all Minuteman IIIs will be down-loaded to carry only 1 warhead. A single-warhead replacement for the Minuteman III could also be deployed.
[c] Assumes that: all Poseiden C-3s will be retired; 8 submarines will be equipped with a total of 192 Trident C-4s; 10 submarines will be equipped with a total of 240 Trident D-5s; all C-4s and D-5s will be down-loaded to carry only 4 warheads.
[d] Assumes that: all early-model B-52s will be retired or dedicated to conventional missions; B-52Hs will be counted as carrying 20 weapons; all B-1Bs will dedicated to conventional missions and will not count against START II ceilings; only 20 B-2s will be built, and 2 of these will serve as test and training aircraft.

Russia

In mid-1991, the Soviet Union deployed nearly 12,000 nuclear weapons in its strategic arsenal.[48] Although Russia, through the Commonwealth of Independent States, still retains some measure of operational control over the strategic forces deployed in the republics of the former Soviet Union, only 7,500 of these weapons are deployed on Russian soil.[49] Over 3,000 strategic weapons are deployed in Kazakhstan, the Ukraine, and Belorussia. In all probability, additional weapons are in storage in all four republics. Table 3 provides an overview of strategic nuclear weapons currently deployed in Russia itself.

The future of the Russian strategic arsenal will be shaped by a variety of domestic and international constraints. Russia's economic collapse and shrinking defense budgets will undoubtedly place severe constraints on any modernization plans the Russian military might have. In 1992, for example, Russia will only spend 15-20 percent of what it spent in 1991 on military procurement, and much of this will be devoted to procurement of spare parts for systems that have already been deployed. Another constraint on military modernization is that many key defense industries are located in other republics. The factories that build the SS-18 and SS-24, for example, are in the Ukraine.[50]

Another constraint on Russian policy is that leaders in Moscow, like leaders in Washington, have pledged to terminate many weapon development and procurement programs. In 1991-92, Moscow pledged to stop development of a small ICBM, new rail-car launchers for mobile ICBMs,

[48] See note 3.

[49] As noted earlier, decisions to use nuclear weapons are to be made by the President of Russia "in agreement with" the leaders of Kazakhstan, the Ukraine, and Belorussia, and "in consultation with" the leaders of the other republics of the Commonwealth of Independent States.

[50] See Rose Gottemoeller's comments in "The Bush-Yeltsin Summit: Bringing Reality to the Nuclear Balance", *Arms Control Today*, vol. 22, no. 6 (July/August 1992), pp. 18-22.

and a SRAM. Production of the Bear bomber, the Blackjack bomber, existing models of ALCMs, and existing models of SLCMs was ended.

Table 3: Current Russian Strategic Nuclear Force

System		*Number*[a]	*Deployed Weapons*[b]
ICBM	SS-11	280	280
	SS-13	40	40
	SS-17	40	160
	SS-18	204	2,040
	SS-19	170	1,020
	SS-24[c]	46	460
	SS-25	260	260
SLBM	SS-N-6 (Yankee I SSBN)	96	96
	SS-N-8 (Delta I-II)	280	280
	SS-N-18 (Delta III)	224	672
	SS-N-20 (Typhoon)	120	1,200
	SS-N-23 (Delta IV)	112	448
Bombers	Bear[d]	67	536
Total		1,939	7,492

Sources: IISS, *Military Balance, 1992-1993* (London: IISS, October 1992), pp. 71, 86, 92-93, 133, 227, 232-235; "Past and Present Strategic Nuclear Forces," *Arms Control Today*, vol. 22, no. 6 (July/August 1992), pp. 35-36).

Notes: [a] These totals do not include systems deployed in Kazakhstan, the Ukraine, or Belorussia; see Table 5 for details.
[b] These totals do not include weapons deployed in Kazakhstan, the Ukraine, or Belorussia; see Table 5 for details. Figures are for deployed weapons only; additional bombs and warheads may be in storage. ICBM and SLBM weapon loadings are based on START counting rules: SS-11, 1; SS-13, 1; SS-17, 4; SS-18, 10; SS-19, 6: SS-24, 10; SS-25, 1; SS-N-6, 1; SS-N-8, 1; SS-N-18, 3; SS-N-20, 10; SS-N-23, 4. Bear bombers are assumed to carry 8 weapons.
[c] Of this total, 36 SS-24s are rail-based, 10 are silo-based.
[d] Estimates of the number of Bear bombers in Russia vary.

Even if Kazakhstan, the Ukraine, and Belorussia eliminate all of the strategic weapons currently stationed on their territory - as they have agreed to do - Russia will have to make major changes in its strategic force structure to meet the terms of the START II agreement.

First, it will have to stop deploying multiple-warhead ICBMS, currently the backbone of its arsenal. Since the START I Treaty does not allow missiles to be downloaded by more than four warheads, Russia will have to eliminate all of its ten-warhead SS-18 and SS-24 ICBMs. Under the terms of a special provision of the START II Treaty, Russia will be allowed to convert 105 of its 170 six-warhead SS-19 ICBMs into single-warhead ICBMs. Russia will, of course, be allowed to deploy single-warhead SS-25s, which are built in Russia, or a follow-on to the SS-25. Up to 90 single-warhead ICBMs can be deployed in SS-18 silos modified to house only smaller, single-warhead missiles.

Second, Russia will have to reduce its SLBM force in order to stay under the agreement's cap on SLBM warheads. In all probability, it will do this by retiring old systems and downloading others. The SS-N-20, for example, could be downloaded from 10 to 6 warheads. Third, Russia will

probably retain the comparatively small number of Bear bombers still on Russian soil.[51] Since Bear production has been stopped and the Blackjack bombers currently in the Ukraine are unlikely to be returned to Russia, the bomber leg of the Russian triad will probably remain small.

It appears that Russia plans to deploy some 3,000 strategic nuclear weapons, although it would be permitted to deploy up to 3,500 under the terms of the START II agreement. As noted earlier, Russia will be able to keep additional bombs and warheads in storage, unless an agreement is reached to destroy non-deployed strategic weapons.

Table 4 provides an overview of what the Russian strategic nuclear force structure might look like after the START II agreement is implemented. Other options are available to Russian military planners, of course.

All of the tactical nuclear weapons deployed in the former Soviet Union have now been moved to Russia. All of the former Soviet Union's 10,000 ground-launched tactical nuclear weapons are to be destroyed. All sea-based tactical nuclear weapons are to be taken off ships and submarines and kept in storage facilities on land. About one-third of the sea-based arsenal - which totals some 2,000 weapons is to be destroyed. Approximately one-half of Moscow's arsenal of 5,000 air-delivered weapons is also to be destroyed. It is not clear at this juncture how many of these tactical weapons have already been dismantled, but many of them are said to be disarmed and awaiting further processing.

In the end, the size and shape of the Russian military will depend on political developments that are inherently unpredictable. If a hard-line faction returns to power in Moscow and embarks on a military campaign to recapture independent republics, it might abrogate arms control agreements with the West in the process. Should this come to pass, a resumption of the nuclear arms race is possible, and force structures could become larger and more advanced. If, however, political developments in Russia and political relations with the United States stay on their present courses, then reductions similar to those outlined herein will probably be instituted.

Table 4: A Modernized, START II Russian Force

System		*Number*	*Deployed Weapons*[a]
ICBM	SS-19/25[b]	800	800
SLBM	SS-N-18[c]	224	448
	SS-N-20[d]	120	720
	SS-N-23	112	448
Bombers[e]	Bear	67	536
Total		1,323	2,952

Notes: [a] Figures are for deployed weapons only; additional bombs and warheads could be kept in storage.
[b] Assumes that all ten-warhead ICBMs will have to be retired, due to the START rule that prohibits down-loading by more than 4 warheads. A single-warhead replacement for the SS-25 could also be deployed.
[c] Assumes that SS-N-18s will be down-loaded to carry only 2 warheads.
[d] Assumes that SS-N-20s will be down-loaded to carry only 6 warheads.
[e] Assumes that Blackjack bombers currently in the Ukraine will not be returned to Russia.

[51] Estimates vary on current bomber deployments in Russia.

Kazakhstan, the Ukraine, and Belorussia

When the Soviet Union disintegrated in late 1991, large numbers of Soviet nuclear weapons were deployed in a wide variety of places.[52] Most of the Soviet nuclear arsenal was based in Russia, but over 6,500 tactical nuclear weapons and over 3,000 strategic nuclear weapons were deployed in other republics. As noted earlier, all of the tactical nuclear weapons deployed outside of Russia were moved to Russia in the first four months of 1992. Few if any strategic weapons have been redeployed, however.

Fortunately, Soviet strategic nuclear weapons were based in only four republics: Russia, Kazakhstan, the Ukraine, and Belorussia. Table 5 provides an overview of the strategic weapons currently based in Kazakhstan, the Ukraine, and Belorussia. The leaders of these three republics have promised to eliminate these weapons by the end of the START treaty's seven-year implementation period.[53] Since the START treaty has not yet been ratified, these republics will have until the end of 1999 perhaps longer to get rid of the strategic weapons on their soil and thereby fulfill their international obligations.

Table 5: Nuclear Weapons in Kazakhstan, the Ukraine, and Belorussia

Country	*System*	*Number*	*Deployed Weapons*[a]
Kazakhstan	SS-18 ICBM	104	1,040
	Bear Bomber[b]	40	320
			Total 1,360
Belorussia	SS-25 ICBM[c]	80	80
			Total 80
Ukraine	SS-19 ICBM	130	780
	SS-24 ICBM[d]	46	460
	Bear Bombers	21	168
	Blackjack Bombers	20	240
			Total 1,648
Grand Total		441	3,088

Sources: IISS, *Military Balance, 1992-1993* (London: IISS, October 1992), pp. 71, 86, 92-93, 133, 227, 232-235; Steven E. Miller, "Western Diplomacy and the Soviet Nuclear Legacy," *Survival*, vol. 34, no. 3 (Autumn 1992), p. 6.

Notes: [a] Figures are for deployed weapons only; additional bombs and warheads may be in storage. ICBM weapon loadings are based on START counting rules: SS-18, 10; SS-19, 6; SS-24, 10; SS-25, 1. Bear bombers are assumed to carry 8 weapons, Blackjack bombers 12.

[b] Some US officials believe that these bombers have now been moved to Russia.

[c] Some Western experts believe that only 54 SS-25s are deployed in Belorussia.

[d] All of these SS-24s are based in silos.

What is worrisome is that these three republics are not moving quickly to denuclearize. If it only took four months to move 6,500 tactical nuclear weapons from 13 or 14 republics to Russia, why

[52] For complete details, see Miller, "Western Diplomacy," p. 6.

[53] In December 1991, the Ukraine promised to eliminate all of the strategic nuclear weapons on its soil by the end of 1994. When it signed the START protocol in May 1992, the Ukraine rescinded this commitment and stretched its denuclearization timetable to 1999.

will it take seven years to move 3,000 strategic weapons from three republics to Russia?[54] No convincing explanation for this leisurely timetable has been forthcoming.

It should be possible to move these weapons to Russia in, at most, one year.

The danger is that the longer this process takes, the more likely it is that political forces in one of these three republics will shift, and denuclearization commitments will be rescinded. It is clear that, official proclamations notwithstanding, there are political factions in Kazakhstan and the Ukraine, in particular, in favor of retaining nuclear weaponry.[55] These factions do not have the upper hand now, but there is no guarantee that they will remain out of office in the future.

Denuclearization of Kazakhstan, the Ukraine, and Belorussia is clearly in the West's interest and, indeed, in the interest of the international community in general. Considerable effort should therefore be devoted to speedy, complete implementation of the denuclearization commitments the leaders of these three republics have made.

Britain, France, and China

Table 6 provides an overview of current British, French, and Chinese nuclear forces. Changing international circumstances have complicated the decisions that leaders in Britain, France, and China have to make about the future of these forces.

The demise of the Soviet threat, in conjunction with the pledges Washington and Moscow have made to reduce their nuclear arsenals, have certainly made it harder for British, French, and Chinese leaders to justify the plans that are now being implemented to expand and modernize their nuclear arsenals. These plans were launched at a time when the Soviet Union posed a clear threat to the security interests of its neighbors and at a time when both the United States and the Soviet Union were strengthening their nuclear capabilities. Now that the Soviet Union no longer exists and Washington and Moscow are eliminating tens of thousands of nuclear weapons from their arsenals, domestic and international observers wonder how Britain, France, and China can justify continued expansion of their own forces. Some have gone so far as to question the need for independent British and French nuclear forces, given the changes that have taken place on the European strategic landscape.[56] These pressures have led Britain to make some modest arms control gestures and France to scale back some of its modernization plans.

At the same time, the two nuclear superpowers have not yet gone far enough to justify significant reductions in British, French, and Chinese nuclear forces: the United States and Russia plan to retain 3,000-3,500 strategic weapons each, as well as 2,500-3,500 tactical weapons each; Britain, France, and China each have several hundred nuclear weapons in their deployed arsenals, as well as some weapons in storage.[57] Even after the START II agreement is implemented, therefore, American and Russian nuclear forces will be 5-10 times the size of British, French, and Chinese forces. This arithmetic has led officials in these three countries to argue that the conditions are not yet appropriate for "Five Power" arms control talks. Leaders in these countries argue that

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[54] See Miller, "Western Diplomacy," pp. 21-23.

[55] See Martin Sheff, "Despite Pact, Ukraine Keeping Nuclear Weapons, Officials Say", *Washington Times*, September 18, 1992, p. 7.

[56] See "A Minimum Deterrent?", *The Independent* (London), January 30, 1992; William Wallace, "But What Are We Deterring?", *The Guardian* (London), January 30, 1992; Michael Clarke, "Time to Scuttle Plans for Trident Subs", *The Observer* (London), February 2, 1992; Michael Evans and Martin Fletcher, "Arms Cuts Cast Doubt on Logic of UK Policy", *The Times* (London), June 17, 1992; Christopher Bellamy, "Britain Out on a Limb With Weapons Plans", *The Independent* (London), June 18, 1992; Jim Hoagland, "Paris and London Have Counting to Do", *International Herald Tribune*, June 30, 1992.

[57] Little information is available in the public domain about the size of these undeployed arsenals. One Western expert estimates that China's undeployed stockpile is 2-3 times the size of its deployed arsenal. See Richard Fieldhouse, "China's Mixed Signals on Nuclear Weapons", *Bulletin of the Atomic Scientists*, vol. 47, no. 4 (May 1991), pp. 37-42.

they should not and will not join the disarmament process until the United States and Russia reduce their forces to British, French, and Chinese levels.[58]

Table 6: British, French, and Chinese Nuclear Forces

Country	*System*	*Number*	*Weapon Load*
Britain	Polaris A-3 SLBM	64	3 per missile[a]
	Tornado aircraft	114	1-2 per aircraft
	Buccaneer aircraft	23	1 per aircraft[b]
	Harrier aircraft	40	1-2 per aircraft[c]
			Total Deployed Weapons: 350-500
France	Pluton SRBM	24	1 per missile[d]
	S-3D IRBM	18	1 per missile[e]
	M-4 SLBM	64	6 per missile[f]
	Mirage IVP aircraft	15	1 per aircraft[g]
	Mirage 2000N aircraft	45	1 per aircraft[g]
	Super Etendard aircraft	38	1 per aircraft[h]
			Total Deployed Weapons: 500-650
China	CSS-2 IRBM	60	1 per missile[i]
	CSS-3 ICBM	6	1 per missile[j]
	CSS-4 ICBM	2	1 per missile[k]
	CSS-N-3 SLBM	12	1 per missile[l]
	H-5 aircraft	30	1 per aircraft
	H-6 aircraft	120	1-3 per aircraft
	Q-5 aircraft	30-50	1 per aircraft
			Total Deployed Weapons: 250-400

Sources: IISS, *Military Balance, 1992-1993* (London: IISS, October 1992), pp. 40-41, 143-147, 231-232, 236; Robert S. Norris, Richard W. Fieldhouse, Thomas B. Cochran, and William B. Arkin, "Nuclear Weapons," in *SIPRI Yearbook 1991* (Oxford: Oxford University Press, 1991), pp. 3-47; Richard Fieldhouse, "China's Mixed Signals on Nuclear Weapons," *Bulletin of the Atomic Scientists*, vol. 47, no. 4 (May 1991), pp. 37-42.

Notes:
[a] Includes 16 SLBMs on a submarine that is being refitted.
[b] An additional 38 Buccaneers are in storage.
[c] These Harriers are carrier-based.
[d] "SRBM" stands for short-range ballistic missile. The Pluton has a range of 120 kilometers.
[e] "IRBM" stands for intermediate-range ballistic missile. The S-3D has a range of 3,500 kilomaters.
[f] An additional 16 SLBMs are to be carried on a submarine currently being converted and scheduled for deployment in 1993.
[g] The Mirage IVP and Mirage 2000N can each carry 1 ASMP air-to-surface missile. An additional 13 Mirage IVPs are in storage.
[h] Each Super Etendard can carry 1 ASMP air-to-surface missile. The Super Etendard is carrier-based. An additional 19 aircraft are in storage.
[i] Some Western experts believe that 70-100 CSS-2s have been deployed.
[j] Some Western experts believe that 15-20 CSS-3s have been deployed.
[k] Some Western experts believe that up to 10 CSS-4s have been deployed.
[l] Some Western experts believe that 24 CSS-N-3s will soon be deployed on two submarines.

[58] See Nicholas D. Kristof, "China Gives No Hint of Reciprocity", *International Herald Tribune*, September 30, 1991. Also, see Zhang Ping, "State Lauds Disarming Proposals", *China Daily*, January 31, 1992; cited in John Wilson Lewis and Hua Di, "China's Ballistic Missile Programs", *International Security*, vol. 17, no. 2 (Fall 1992), pp. 5-40. Also, see the comments by French President Francois Mitterand and French Defense Minister Pierre Joxe, quoted in de Briganti and Miller, "Allies Hail U.S. Move."

The heart of the British nuclear modernization program is the Trident. The British government plans to replace its four aging ballistic-missile carrying submarines (SSBNs) with four Trident submarines, each of which will be equipped with 16 Trident D-5 SLBMs. Since each Trident D-5 can carry a maximum of eight warheads, the number of weapons in the British strategic arsenal could increase from 192 to 512. Although the British government has maintained that it does not plan to deploy a full allotment of 512 warheads, British nuclear capabilities will, in all probability, nonetheless increase when the Trident program is completed. The first of the four Trident boats was launched in March 1992, and the other three are being built. Britain also plans to replace the free-fall gravity bombs in its arsenal, perhaps with an air-to-surface missile system that would be more effective against heavily defended targets.[59]

That said, Britain has made some efforts to participate on the margins of the US-Russian arms control process. Britain responded to President Bush's September 1991 initiatives by announcing that it would deactivate its short-range Lance ballistic missiles, which were armed with US nuclear warheads, and that it, too, would stop deploying tactical nuclear weapons at sea in peacetime. In June 1992, Britain announced that it would scrap its nuclear depth charges and the short-range nuclear weapons deployed on its surface ships an estimated 25-30 weapons.[60]

France has a more wide-ranging nuclear modernization program under way mainly because, unlike Britain, it has tried to maintain a robust triad of nuclear forces. France's efforts to modernize the land-based leg of its triad have proceeded fitfully, however. In July 1991, the French government cancelled the S-45 mobile missile, originally intended to replace the 18 S-3D intermediate-range ballistic missiles (IRBMs) in the French arsenal. It is possible that a land-based version of the M-5 SLBM will be developed as a replacement for the S-3D. The M-5 is still in development, however, and is not expected to be ready for deployment until 2005. If this option is pursued, therefore, the S-3D will have to be retained in service for some time. In September 1991, the government reduced the procurement order for the Hades short-range ballistic missile, originally intended to replace the Pluton, from 120 to 30 missiles. In June 1992, the Hades was cancelled outright: with a range of only 480 km, it could reach targets in Eastern Europe but not the former Soviet Union; given the break-up of the Warsaw Pact, the Hades had little strategic value. None of the missiles that have been built will stay in service. Two squadrons of Plutons have been deactivated, reducing the size of the Pluton deployment from 40 to 24 missiles.[61]

Modernization of the sea-based leg of the French triad is proceeding more smoothly. Two Triomphant-class SSBNs are under construction, and two more are planned but not yet ordered. The first Triomphant is expected to be operational in 1995. The M-4 SLBM currently in service carries six warheads, and is expected to be replaced by the M-5, which is capable of carrying 10-12 warheads. If deployment of the M-5 proceeds as planned, the number of warheads in the sea-based leg of the French arsenal will increase from 384 to 640 or more. Development of the M-5 has been extended, however, and deployment is not expected until 2005, as noted earlier. Because the

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[59] See Michael White and David Fairhall, "Britain Resolute on Improved Deterrent", *The Guardian* (London), January 30, 1992; "Deployment of Submarines to Go Ahead", *Financial Times* (London), January 30, 1992; David White, "Dispute Over the Need for Trident Fails to Submerge", *Financial Times* (London), February 10, 1992; Anthony Bevins, "Trident Could Have Fewer Warheads", *The Independent* (London), March 4, 1992; IISS, *Military Balance, 1992-93*, p. 33.

[60] See Drozdiak, "Continent Hails U.S. Initiative"; "Foreign Leaders, Congress Hail Nuclear Cuts"; "U.K. Will Scrap Some Nuclear Arms", *International Herald Tribune*, June 16, 1992; "Maritime Nuclear Weapons to Be Scrapped", *The Independent* (London), June 16, 1992.

[61] See Alan Riding, "France Jettisons Mobile Nuclear System", *The Guardian* (London), July 23, 1991; Joseph Fitchett, "Paris Drops Hades Short-Range Missile", *International Herald Tribune*, June 13-14, 1992; Julian Nundy, "Hades Missile Goes Into the Cold", *The Independent* (London), June 13, 1992; Bruno Barrillot, "French Finesse Nuclear Future", *Bulletin of the Atomic Scientists*, vol. 48, no. 7 (September 1992), pp. 23-26; IISS, *Military Balance, 1992-1993*, p. 33.

military threat from Moscow has been dwindling, Paris announced in June 1992 that the number of SSBNs on patrol at any one time would be reduced from three to two.[62]

As for the air-breathing leg of the triad, France's Jaguar aircraft have been refitted for conventional operations only. France will maintain only three squadrons of Mirage 2000N aircraft, instead of five, and only one squadron of Super Etendard aircraft, instead of two. The 1,500-km ASLP air-to-surface missile is being developed to replace the 300-km ASMP missile starting in 1996, and the Rafale fighter-bomber is being developed to replace the Mirage IVP starting in 1998.[63]

On the arms control front, France has made no public commitment to destroy ground-launched tactical nuclear weapons or to stop peacetime deployments of sea-based tactical nuclear weapons. However, it did announce in April 1992 that it would conduct no more nuclear tests in 1992. In addition, it acceded to the nuclear Non-Proliferation Treaty (NPT) in August 1992.

Although high-profile nuclear modernization programs are under way in both Britain and France, the course of British and French nuclear policy is not set in concrete. The disappearance of the Soviet threat to Western European security has weakened the rationale for deploying independent nuclear forces, and the economic recession has made the opportunity costs associated with high levels of defense spending increasingly painful. As a result, it is possible that British and French nuclear policy could be redirected in the 1990s.

If the future of British and French nuclear forces is somewhat unclear, the future of Chinese forces is downright murky. In fact, international experts are not sure how capable the Chinese nuclear arsenal is today. For example, it is not clear how many or what kind of tactical nuclear weapons are in China's arsenal, nor is it clear if China has been able to develop multiple, independently-targetable re-entry vehicles (MIRVs) for its long-range ballistic missiles. Some believe that a supersonic bomber, a new generation of ballistic missiles, and new SSBNs are being developed, but others are uncertain.[64]

Outside observers agree, however, that China exploded a one-megaton nuclear bomb at its Lop Nor test site in Xinjiang in May 1992. This explosion, the largest ever conducted by China and one which far exceeded the 150-kiloton threshold that Washington and Moscow have pledged not to exceed in their own tests, was seen as most disruptive by the international community. As far as the West was concerned, this test was conducted at a particularly inopportune time, given that it took place in the midst of delicate negotiations with Kazakhstan, the Ukraine, and Belorussia over the future of strategic nuclear weapons in these republics.[65] The fact that this test was conducted just two months after China acceded to the NPT in March 1992 made it even more perplexing. Western and international leaders had hoped that China was moving into the nuclear arms control mainstream, but this hope now appears to be premature.

In short, given the highly secretive nature of the Chinese nuclear weapon program and the uncertain course of Chinese domestic politics, it is impossible to make any reliable predictions about the future of the Chinese nuclear arsenal.

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[62] See Barrillot, "French Finesse Nuclear Future"; IISS, *Military Balance, 1992-1993*, p. 33; "France Reduces Nuclear-Alert Status", *International Herald Tribune*, June 5, 1992.

[63] See Barrillot, "French Finesse Nuclear Future"; IISS, *Military Balance, 1992-1993*, p. 33.

[64] See IISS, *Military Balance, 1992-1993*, p. 139; Robert S. Norris, Richard W. Fieldhouse, Thomas B. Cochran, and William A. Arkin, "Nuclear Weapons," in *SIPRI Yearbook 1991* (Oxford: Oxford University Press, 1991), pp. 3-47; Fieldhouse, "China's Mixed Signals."

[65] See Joseph Fitchett, "Nuclear Test By China Startles the West", *International Herald Trinune*, May 23-24, 1992.

Israel, India, and Pakistan

Although a detailed review of the nuclear weapon programs in Israel, India, and Pakistan is beyond the scope of this paper, a few words need to be said about the status of these programs.

It is almost universally recognized that Israel possesses both nuclear weapons (or ready-to-assemble weapons) and the means to deliver these weapons. The Israeli government, however, has consistently refused to confirm that this is so. Outside estimates of the size of the Israeli nuclear arsenal vary. At the upper end of the spectrum, Seymour Hersh has claimed that Israel has an arsenal of at least 300 weapons, including 100 nuclear artillery shells and land mines. The International Institute for Strategic Studies (IISS) believes that Israel "almost certainly has a complete strategic and tactical nuclear arsenal," consisting of up to 100 bombs and warheads. Geoffrey Kemp estimates that Israel possesses only 50-60 nuclear weapons. According to the IISS, nuclear-capable delivery systems probably include the Lance surface-to-surface missile (with a range of up to 110 km), the Jericho 1 surface-to-surface missile (with a range of up to 500 km), and the Jericho 2 surface-to-surface missile (with a range of up to 1,500 km). Israel also possesses an impressive inventory of highly advanced military aircraft, some of which are believed to be capable of carrying nuclear weapons.[66]

It is hard to imagine Israel giving up or even scaling back its nuclear weapon program in the absence of a comprehensive settlement of the Arab-Israeli conflict. Such a settlement, moreover, would have to prove itself over time before Israel would be willing to consider moving toward nuclear disarmament. Even then, it might require reassurance in the form of a US security guarantee. Although Israel is unlikely to take steps that would provoke a nuclear arms race in the Middle East it has no interest in giving potential adversaries an excuse to develop nuclear capabilities of their own - neither is it likely to abandon its nuclear deterrent in the near future. Israel's commitment to retaining independent military deterrents and defenses is deep.

International experts generally believe that India also possesses nuclear weapons (or ready-to-assemble weapons). The IISS believes that India has the capacity to assemble nuclear weapons "virtually at will." Estimates of the size of the Indian arsenal vary. Published reports speculate that India possesses enough fissile material for 50-200 nuclear weapons, while US officials privately maintain that India probably has the ability to field 15-50 weapons. As far as delivery systems are concerned, India possesses a range of advanced aircraft, and it has tested both short-range and intermediate-range (up to 2,500 km) ballistic missiles. A second test of India's 2,500-km Agni ballistic missile was conducted in May 1992. Whether current Indian nuclear weapon designs are compatible with missile delivery is not clear.[67]

Pakistan is also believed to possess nuclear weapons (or ready-to-assemble weapons). In fact, Pakistan's Foreign Secretary, Shahryar Khan, confirmed in February 1992 that his country has both the components and the expertise to assemble at least one nuclear explosive device. Outside experts estimate that Pakistan has the ability to field 5-20 nuclear weapons. Pakistan, like India, has advanced aircraft in its inventory, but its ballistic missile development program is not as far along

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[66] See Seymour M. Hersh, *The Samson Option* (London: Faber and Faber, 1991); IISS, *Strategic Survey, 1991-1992* (London: IISS, May 1992), p. 202; IISS, *Military Balance, 1992-1993*, p. 111; Geoffrey Kemp, *The Control of the Middle East Arms Race* (Washington: Carnegie Endowment for International Peace, 1991), p. 71.

[67] See IISS, *Strategic Survey, 1991-1992*, p. 202; IISS, *Military Balance, 1992-1993*, pp. 131-133; Martin Navias, *Ballistic Missile Proliferation in the Third World*, Adelphi Paper No. 252 (London: IISS, Summer 1990), pp. 29-31; George D. Moffett III, "Last Remaining Hot Spot of the Cold War Asked to Cool Its Desire for Nuclear Weapons", *Christian Science Monitor*, February 14, 1992; Hamish McDonald, "Destroyer of Worlds", *Far Eastern Economic Review*, April 30, 1992, pp. 23-24; David Albright and Mark Hibbs, "India's Silent Bomb", *Bulletin of the Atomic Scientists*, vol. 48, no. 7 (September 1992), pp. 27-31.

as India's. Pakistan has only tested short-range and medium-range (up to 300 km) ballistic missiles.[68]

Pakistan has expressed a willingness to establish a nuclear-weapons free zone in South Asia. India, however, has refused to enter into discussions on South Asian nuclear disarmament, arguing that it faces a nuclear threat from China and that nuclear disarmament efforts are discriminatory as long as other states in the international system possess nuclear hardware. The deep cuts in nuclear forces that the United States and Russia have undertaken to implement, in conjunction with de-nuclearization pledges from the Ukraine, Kazakhstan, and Belorussia, will lead the United States and the international community in general to push even harder for curtailment of nuclear weapon programs in South Asia. Diplomatic pressure might not be enough to change the course of events in the region, given India's refusal to constrain its nuclear activities and Pakistan's reluctance to engage in unilateral nuclear disarmament, but there is no doubt that renewed efforts will be made to dampen and even reverse the incipient nuclear arms race on the subcontinent.[69]

The Arms Control Agenda

Although a great deal was accomplished in the last half of 1991 and the first half of 1992, much remains to be done on the nuclear arms control front.

First, the unilateral initiatives that were undertaken and the informal agreements that were made in 1991-92 should be transformed into legally-binding treaties. Unilateral initiatives and informal agreements might have been necessary steps at the time - they jump-started the arms control process and allowed Washington and Moscow to accomplish a great deal in a matter of months - but it does not follow that they are sufficient steps in the greater scheme of things. Washington and Moscow should build on the substantive frameworks now in place, and codify these initiatives and understandings as treaties. Formal treaties are less likely to be misinterpreted, less likely to be ignored, and less likely to be violated than informal commitments and understandings. In addition, formal treaties can - and should - include verification provisions.

In 1991-92, for example, Moscow made unilateral commitments to withdraw from service and subsequently dismantle large numbers of tactical nuclear weapons. The West has a vested interest in making sure that all of these weapons are accounted for and that all of the weapons scheduled for dismantlement are in fact dismantled. The West also has an interest in making sure that all of the fissile material from these weapons is stored safely and securely; international security would be jeopardized if fissile material could be diverted and made back into weapons by the Russian military, sold on the international market, or stolen by terrorists. To ensure that these things do not happen, Washington should propose that the United States and Russia establish a full-fledged verification regime for tactical nuclear weapons: officials from each country should monitor weapon inventories, dismantlement activities, and storage facilities in the other. The main reason Washington has not pushed for inspections of this kind is opposition in the US Department of Defense and US Department of Energy to the idea of allowing Russian inspectors near US nuclear facilities. This attitude does not serve US and Western interests well: Russian nuclear weapons and

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[68] See IISS, *Strategic Survey, 1991-1992*, p. 202; IISS, *Military Balance, 1992-1993*, pp. 135-136; Navias, *Ballistic Missile Proliferation in the Third World*, pp. 29-31; R. Jeffrey Smith, "Official Reveals Extent of Pakistan's Bomb-Making Program", *International Herald Tribune*, February 8-9, 1992; Emily MacFarquhar, "Breaking a Chain Reaction", *U.S. News and World Report*, March 9, 1992, pp. 42-43; Moffett, "Last Remaining Hot Spot."

[69] For an overview of recent developments, see Edward A. Gargan, "South Asia, Bucking Trend, is Nearing a Nuclear Arms Race", *International Herald Tribune*, January 22, 1992; Edward W. Desmond, "South Asia: The Nuclear Shadow", *Time*, January 27, 1992, pp. 18-21; Charles Smith, "Atomic Absurdity", *Far Eastern Economic Review*, April 30, 1992, pp. 25-26; MacFarquhar, "Breaking a Chain Reaction"; McDonald, "Destroyer of Worlds."

capabilities pose a greater threat to Western security than Russian inspectors.[70] Joint exchanges would ease security concerns in the West and allay fears in Moscow that the United States seeks nuclear superiority.[71] In short, a treaty should be drawn up on the disposition of American and Russian tactical nuclear weapons.

Second, implementation of existing commitments and agreements should be accelerated. Dismantlement of thousands of Russian tactical nuclear weapons, for example, is expected to take years, perhaps a decade or more. The West has a clear interest in expediting this process. The West, therefore, should spend whatever is necessary and provide whatever technical assistance is necessary to achieve this objective. No legitimate expense should be spared.[72] It would be a bargain from the standpoint of Western and international security, even if it cost billions of dollars, to eliminate these weapons from the strategic landscape quickly. This would be one of the best possible uses of Western defense dollars.

Implementation of agreements on strategic forces should also be implemented. It is not at all clear, for example, why the Ukraine, Kazakhstan, and Belorussia will need seven years to ship some 3,000 strategic nuclear weapons to Russia when 6,500 tactical nuclear weapons were sent to Russia in just the first four months of 1992. It should be possible to take the warheads off the ICBMs in the three republics, disable the missiles, and dispatch the warheads and bomber weapons to Russia in, at most, one year. If weapon storage facilities in Russia are full, more should be built; technical constraints should not be allowed to stand in the way of denuclearization. The longer the denuclearization process takes, the more likely it is that one of the republics will have a change of heart, with potentially disastrous consequences for the nuclear non-proliferation regime. The West, therefore, should put political and economic pressure on these republics to live up to and expedite implementation of their denuclearization commitments.

Similarly, it is not at all clear why the United States and Russia will need eleven years to implement the START II Treaty. Although the cuts embedded in the agreement are deep, it should be possible to take warheads off designated missiles and disable designated missiles and bombers in a comparatively short period of time - at most, 2-3 years. Some US officials maintain that it will not be possible to accelerate implementation of the treaty because the two countries possess limited facilities for dismantling nuclear weapons.[73] This is true, but irrelevant: the START II Treaty does not call for the dismantlement of nuclear warheads and bombs, only for limitations on deployments. The agreement could be implemented quickly by taking warheads off designated missiles and disabling designated delivery systems. If weapon storage facilities are a constraint, more should be built.

The United States should be helping Russia in this area because it is in the West's interest to implement the START II Treaty while a friendly government is in power in Moscow. In addition to providing financial and technical assistance, the United States should be matching Russian

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[70] See William J. Broad, "Nuclear Accords Bring New Fears on Arms Disposal", *New York Times*, July 6, 1992; Mary Curtius, "US Deliberately Slighting Verification in Arms Build-Down, Aide Says", *Boston Globe*, July 17, 1992.

[71] For views of critics in Moscow, see Peter Pringle, "Doubts Raised in Moscow on Arms Deal", *The Independent* (London), June 18, 1992; Fred Hiatt, "Russian Critics Call Arms Deal Betrayal", *International Herald Tribune*, June 19, 1992; George Leopold, "Russian Military May Hamper START", *Defense News*, September 7-13, 1992, pp. 1, 76; Dunbar Lockwood, "The Penchant for Peace", *Bulletin of the Atomic Scientists*, vol. 48, no. 8 (October 1992), pp. 10-11, 45.

[72] Russia maintains that the main bottleneck to dismantling weapons is a lack of secure storage space for plutonium. It would like to spend most of the $400 million appropriated by the US Congress on the construction of a hardened plutonium storage facility. The US government maintains that Russia already has many secure storage facilities and that a new, expensive one is not needed. See Dunbar Lockwood, "Ukraine Blocks Tactical Nuclear Withdrawals After Promising Start", *Arms Control Today*, vol. 22, no. 2 (March 1992), p. 31; Broad, "Nuclear Accords."

[73] The United States, for example, has the capacity to dismantle approximately 2,000 nuclear bombs per year. See Peter Grier, "The Arms Control Challenge: How to Disarm Quickly Enough", *Christian Science Monitor*, July 21, 1992; Broad, "Nuclear Accords."

denuclearization efforts every step of the way. This would send an important political signal to those in Russia who feel that their country is crumbling militarily, becoming vulnerable to the West, and being forced to live in a world run from Washington: it would demonstrate in dramatic fashion that the United States is also disarming, that the United States is not dictating the terms of the disarmament process, and that the United States is also giving up some of the accoutrements of superpower status. Some US officials maintain that the United States should proceed slowly with implementation of the START II Treaty because a hard-line regime might take over in Moscow at some point in the future; in fact, this is precisely why the United States should be moving quickly with joint implementation of the agreement.

Third, the long-term implications of deploying strategic defenses need to be assessed more carefully. Currently, there is considerable interest in the United States in deploying defenses against limited ballistic missile attacks. In the aftermath of the Gulf War - and live television coverage of Iraqi Scud missile attacks on civilian targets in Israel and Saudi Arabia - the US Congress passed the Missile Defense Act of 1991, which directed the Department of Defense to deploy a limited, ground-based ballistic missile defense system by 1996; this system would consist of 100 missiles deployed at one site and would cost $16-18 billion, according to official estimates.[74] With the break-up of the Soviet Union and the collapse in morale in the Russian military, the fear of an unauthorized attack from renegade Russian forces was added to American concerns about attacks from renegade states in the developing world. Presidents Bush and Yeltsin announced at their June 1992 summit that talks would soon commence between American and Russian officials on the possibility of deploying more extensive strategic defenses. These talks are now under way.[75]

American advocates of strategic defenses would like to push ahead with deployment of an extensive defensive system. They envision an American system that would consist of 700-1,200 ground-based missiles deployed at 5-7 sites, complemented by a constellation of 1,000 or more spaced-based Brilliant Pebbles interceptors as well as a space-based battle management system. Such a system, they maintain, would be needed to protect the entire United States against limited ballistic missile attacks. Such a system, however, would require amendment or renegotiation of the 1972 ABM Treaty, which allows the two countries to deploy a maximum of 100 ground-based interceptors at a single site.[76] Cost estimates for an extensive defensive system range from $50-100 billion.

The strategic rationale for deploying strategic defenses is that one needs to protect oneself against accidental launches, attacks from renegade forces in the former Soviet Union, and attacks from renegade states in the developing world. This is not unreasonable. The problem is that limited defenses will provide limited protection - by definition - while more extensive defenses will undermine the arms control efforts that could address these concerns more effectively.

If one is concerned about unauthorized attacks from renegade forces in the former Soviet Union, for example, the best way to address this problem is to reduce long-range nuclear forces in the former Soviet Union to extremely low levels. Moscow will be unwilling to slash its forces, however, if the United States has a technological edge in space-based defenses (it does), if the United States will be in a better position to deploy an effective space-based ballistic missile defense than Russia (it will be), and if US defenses could consequently pose a threat to Russian retaliatory capabilities (not inconceivable if offensive forces are reduced to very low levels). Russia, therefore,

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[74] See Vincent Kiernan, "SDI Plans to Deploy First Defense by 1998", *Defense News*, July 6-12, 1992, pp. 3, 21.

[75] See "US-Russian Statement on a Global Protection System"; Michael R. Gordon, "U.S. Team Going to Moscow to Push Joint Missile Defense", *New York Times*, July 12, 1992.

[76] The ABM Treaty originally allowed deployment of 200 interceptors at two sites; it was amended in 1974 to allow only 100 interceptors at a single site.

is unlikely to slash its offensive forces and agree to deployment of an extensive US defensive system at the same time.

If one is concerned about the threat from potential proliferators, the best way to address this problem is to strenthen controls on ballistic missile and nuclear proliferation. This will be difficult to do, however, if the United States and Russia retain massive arsenals of ballistic missiles armed with nuclear weapons. Ballistic missile defenses would not provide complete protection in any event: nuclear weapons could be smuggled into the United States or carried on cruise missiles.

Decisions about defensive deployments need to be thought through with great care, therefore. Policy makers in Washington should be particularly sensitive to the long-term strategic implications of deploying extensive, space-based strategic defenses. If one's goal is to maximize security, extensive defensive deployments could be counter-productive.

Fourth, existing agreements on offensive forces should be extended. In addition to eliminating all ground-launched tactical nuclear weapons, for example, the United States and Russia could eliminate all sea-based and air-delivered tactical weapons. Eliminating all sea-based tactical nuclear weapons is clearly in the US interest: the continued existence of these weapons in the Russian arsenal will simply negate the US Navy's maritime superiority.[77]

Calculations over air-delivered weapons are more complex. The main reason for retaining these weapons is the possibility that, at some point in the future, a hard-line regime in Moscow might attempt to dominate Europe: air-delivered nuclear weapons might be needed, it is said, to offset Russian conventional superiority. Others would argue, however, that even if a hard-line regime came to power in Moscow, the West would be able to rearm faster than Russia, given the state of the Russian military and economy. Even if the West needed nuclear weapons for deterrence and defense in Europe, it would have the US strategic nuclear arsenal to draw on: if needed, strategic bombers or missiles could be retargeted and given theater missions; this could be done even if strategic forces are cut significantly. In short, many would argue that the West has no clear military need for air-delivered tactical nuclear weapons.

A broader strategic argument for retaining air-delivered tactical nuclear weapons in the US arsenal and keeping some deployed in Europe is based on proliferation concerns. If Russia retains strategic nuclear weapons as well as large conventional forces and if no American nuclear weapons are stationed in Europe itself, some Europeans might begin to question the credibility of the US nuclear guarantee. Under these circumstances, non-nuclear states in Europe might want nuclear forces of their own. Germany would be the country most likely to have security concerns of this type.

It is clear that Western security would be considerably enhanced if all of Russia's tactical nuclear weapons were dismantled: the nuclear threat from Russia would be significantly reduced; the dangers posed by unauthorized nuclear attacks would be reduced; and the possibility that Russian weapons would be sold on the international arms market would be reduced. That said, Russia is unlikely to go down this path unless the United States takes comparable steps. Given that the security benefits of a tactical nuclear weapons ban could be considerable, Western leaders should be thinking more seriously about the advantages and disadvantages of moving in this direction.

Existing agreements on strategic forces should also be extended. Current agreements do not call for the United States and Russia to dismantle non-deployed strategic warheads or gravity bombs; they simply require the two sides to reduce operational deployments by some 17,000 strategic weapons by the year 2003. Many of these weapons will undoubtedly be dismantled in any event, but it would be better to come to an explicit understanding about what each side will do and when

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[77] See Ivo H. Daalder and Tim Zimmermann, "Banning Naval Nuclear Weapons", *Arms Control Today*, vol. 18, no. 9 (November 1988), pp. 17-23.

it will do it. An agreement should be reached whereby the two sides specify how many strategic warheads and bombs they will deploy; excess weapons should be dismantled, and this dismantlement process should be monitored by outside observers. If the two sides go down this path, additional dismantlement facilities should be constructed in both countries. This would be an expensive proposition, to be sure, but it is in the West's interest to help Russia dismantle its nuclear arsenal quickly.

In addition, more attention should be given to the possibility of making radical cuts in nuclear forces. At the moment, policy makers in both Washington and Moscow are still deeply attached to massive nuclear arsenals: large forces are reassuring from a security standpoint; they intimidate adversaries, even if they cannot be used; and they confer superpower status on those who possess them. Although strategic arsenals with 3,500 weapons might be small compared to the superpower arsenals of the 1980s, they will be 5-10 times the size of the British, French, and Chinese arsenals even after London, Paris, and Beijing complete their current modernization and expansion programs.

Washington and Moscow have not enunciated convincing strategic rationales for retaining arsenals of this size. With the demise of the Soviet conventional threat to Western Europe, the main reason for having strategic nuclear weapons is to deter others powers from attacking with their strategic weapons. There is, therefore, no compelling reason for having large forces. As Ivo Daalder has argued, "As long as remaining forces are invulnerable to premption and capable of riding out an attack, the actual number can be in the hundreds, rather than the thousands."[78]

US policy makers should therefore be thinking about adopting a minimal deterrence strategy, along with forces in the neighborhood of 200-500 weapons. For the United States to do this, Russia would have to do the same; British, French, Chinese, and other nuclear forces would have to be limited as well. Highly intrusive inspections would have to instituted to address concerns about cheating and breaking out of the agreement. But if these conditions could be met, a minimal deterrence posture would have much to offer. First, deep cuts would reduce first-strike capabilities and thereby further stabilize the strategic balance. Second, deep cuts would significantly reduce the dangers posed by unauthorized attacks. Third, Kazakhstan, the Ukraine, and Belorussia are more likely to implement their de-nuclearization pledges if the United States and - in particular - Russia substantially reduce their own nuclear forces. Fourth, deep cuts would would open the door to reductions in Chinese nuclear forces, which would be in both Washington's and Moscow's interest. Fifth, deep cuts would boost to nuclear non-proliferation efforts worldwide, efforts that are currently hampered by commitments to large nuclear force structures.

Conclusions

Arms controllers have long complained that the only weapons states give up in arms control negotiations are strategically insignificant weapons. This is why the United States and Soviet Union shied away from giving up much in SALT I and SALT II: each side felt that it could not significantly reduce its nuclear forces, or take any step that might give the other side an advantage.

Do not be fooled: policy makers in Washington and Moscow still believe that it is important to hang on to strategically significant weapons. But, because the world has changed in fundamental ways, fewer weapons are strategically significant today. Now that extended deterrence requirements have virtually disappeared, the main reason for having nuclear weapons is to deter other nuclear powers from attacking with their nuclear weapons. There is, therefore, no compelling reason for having large nuclear forces. Given concerns about unauthorized attacks, accidental launches, and high levels of defense spending, there are good reasons for deploying smaller forces. This is why

[78] See Daalder, "Future of Arms Control," p. 57.

Washington and Moscow have been cutting their nuclear arsenals to levels that were unimaginable even in 1990.

How far this process will go is impossible to say at this juncture. What is clear is that Washington and Moscow can - and should make even deeper cuts in their nuclear forces. If the United States and Russia retain arsenals with thousands of nuclear weapons, Britain, France, and China - whose arsenals contain hundreds of nuclear weapons - will not join the arms reduction process. Countries that have promised to give up the nuclear weapons currently stationed on their territory - Kazakhstan, the Ukraine, and Belorussia - will be more inclined to retain them, on the grounds that nuclear weapons are seen to have strategic and political value. For the same reasons, countries on the nuclear threshold, such as India, will be more inclined to acquire nuclear weapons. If the United States and Russia retain massive nuclear arsenals, which they seem inclined to do, international security will not be well-served.

Chapter 3
Responses

Vicente Berasategui

I am very happy to see you chairing this meeting. It is a matter of particular satisfaction for me to work under your leadership. In addressing the two papers that we have received this morning, I should like to note how impressed I am by the high academic level of these presentations, which I think cover two aspects of the problem of nuclear deterrence, one approaching it from a conceptual point of view and the other one I would say from a strategic point of view. They are excellent and therefore, rather than address them in detail, I would like to advance a few thoughts.

If you allow me to make a brief and general introduction. Of course we all know that deterrence in general, and not only nuclear deterrence, has been practised and is being practised in the international system everywhere. We all have Ministries of Defence at home and that has become part of the exercise of deterrence. And this is not a new concept. It comes from the Romans. We all remember that the Romans advice was *si vis pacem para bellum*. The problem has been, however, that in the case of nuclear deterrence considerable concern has been expressed in connection with its consequences. That concern has been expressed, in my view, for two basic reasons. The first one is the incredible levels that nuclear stockpiles achieved during the Cold War, which assured destruction not only for those possessing nuclear weapons but for many others. When one was talking about 50,000-55,000 warheads, that figure led everyone to the conviction - and rightly so I should say - that there might be no survival for anyone. The second point is the level of destruction that may be produced by the technology involved in nuclear weapons.

The first problem, the question of nuclear stockpiles, is being addressed at present through a number of agreements relating to nuclear disarmament, mainly between Russia and the United States. The second one, the level of destruction which may be produced by the technology of nuclear weapons, I think that for that one we have no solution at present. The possibility of a process by which nuclear weapons disappear does not seem to be within sight in the short or medium term and, quite frankly, I am not too worried about the long term because in any case I may not be here to celebrate it. But I think we should agree that nuclear deterrence is a fact of life. It is here. We face it. Then I think the first problem is how to define it, how to place it in the present context of international relations. The assumption is that nuclear weapons cannot be disinvested, they cannot disappear. Of course that also applies to other technologies, not only to nuclear weapons. But my point is that basically nuclear deterrence is a unilateral doctrine based on certain political and military assumptions. The problem is whether a unilateral doctrine has any particular role in international security, and in particular collective security. Clearly, during the Cold War we faced a situation, in spite of a number of limited conflicts, where there was actually no general war therefore, from a certain point of view, the fact of deterrence contributed to maintain peace at least in Europe. But with the end of the Cold War, we face an entirely new situation and I think quite frankly I should warn against the concept that nuclear deterrence might become a component of collective or international security. In the present circumstances it is a fact of life, it is there, but we should look at it for what it is, as I said basically a unilateral doctrine which has developed on the basis of certain political and military assumptions.

If one looks at the, let us say, nuclear complement of international security - or collective security at present, I think one could easily identify three basic elements. One is the existence of nuclear stockpiles. The second one is non-proliferation. And the third one is peaceful uses of nuclear energy covering two sub-elements: one the right to access and the other one the question

of dual technologies. If we relate nuclear deterrence to these three elements, I find it a bit difficult to assess what role it might have, except in the context of the existence of nuclear stockpiles between nuclear Powers. But that is limited to the nuclear Powers basically, and the assumption is that if you have nuclear deterrence you should have nuclear stockpiles. But then what about the other two problems, peaceful uses and non-proliferation?

In this context, one should also keep in mind that deterrence in general, and that includes nuclear deterrence, is subject to all the limitations involved in transmitting messages or in communicating warnings to other actors in international politics. The message must be right, but would it be right? This is one point. After all, before nuclear weapons were developed, as I said before, deterrence was a regular practice. It has been also regular practice at the regional level. But that did not prevent wars from happening. Not long ago, some of us were in New York and a presentation was made in one of the TV channels of a number of aspects relating to the Cuban missile crisis. I think it was a very interesting indication of how difficult it is to transmit clearly a message in a situation of crisis. The second point is that deterrence, as indicated by Professor Sur, has never been a stabilized concept and of course it cannot be because one of its components is the fact of the development and deployment of nuclear weapons, and that is a unilateral affair. We can at this stage note the fact that, being deterrence unilateral, it is difficult to imagine how we could convert it into a component of collective security. Basically this unilateral doctrine which, as I said before, is a fact of life, is based - as also recognized by Professor Sur - on a certain threat, an unilateral doctrine based on a certain threat. And then I wonder, when you look at the nuclear component, how this could work in particular in the areas of non-proliferation and peaceful uses. I think that, for a solution to these two major issues, the only way is to try to develop a consensus in which non-proliferation and peaceful uses should be addressed in the context of the duel technologies, which is relevant for non-proliferation but also in connection with the right of access. To think in different terms might only lead to political tension in the world and a number of political developments which would not be in line with the idea of collective security that we are trying to develop at the end of the Cold War. From that point of view, a dialogue is needed. How we proceed with that dialogue is a different question. There might be a role for the Conference on Disarmament or there might be other ways of doing things, but the question of the dialogue is essential and, quite frankly, I do not see how we can develop that dialogue beginning with the assumption that nuclear deterrence has any connection with these two major issues that we face. So, one may like or dislike nuclear deterrence. These are different views. But it is simply a fact of life. But then. as such, taking into account the fact that it is developed unilaterally, we should look at it very carefully when we deal with the nuclear component of collective as international security. If anything, it is a question of stockpiles, but the nuclear component of collective security is much mor than simply stockpiles. If this is so, this other question, the nuclear component of collective or international security, should be addressed.

In the presentations that we have today, there are some indications that this is a matter which needs to considered, and I could not agree more. The problem is on which basis and I think the only possible basis is through dialogue. In the CD we have been consulting on this issue. Precisely those consultations have been conducted by our Chairman today. I think that this is an important step. But if we need to clarify what is the role of deterrence in the changing circumstances that we face today, we should not lose sight of the fact that this is a concept which functions among nuclear Powers and that it addresses the existence of nuclear weapons and the question of the stockpiles. The presentation of Professor Brown has been excellent in discussing the component of those stockpiles. I think this is the right context in which we should deal with nuclear deterrence and we should not attribute to it more than what is the function of the doctrine, which has become part of the political and military policies of the nuclear Powers.

David Fischer

It there seems to be a general assumption, implicit in Professor Sur's statement, and to some extent in Mr. Lodgaard's, that because of the end of the Cold War and the collapse of the Soviet Union it is no longer possible for the former Super Powers to exercise controls and restraints, and that this is promoting disequilibria and likely to promote nuclear proliferation. I think this tenet should be questioned. Outside Eastern Europe you see almost exactly the opposite picture today. If you look at Latin America, Argentina and Brazil, which seemed 10 years ago to be racing each other - to be the first with a bomb, have both renounced nuclear weapons and put all their nuclear activities under international safeguards. Cuba, which was looked on by some as a threat to the stability of Latin America, is certainly not one today, and the Cuban nuclear programme, which was suspected by certain analysts in the United States, has come to an end. In southern Africa, South Africa, which was preparing for a nuclear test in 1977 and may have carried one out in 1979, has joined the NPT, renounced nuclear weapons and placed all its nuclear hardware under international safeguards. In the Middle East, Arabs and Israelis are sitting down for the first time in 45 years and talking to each other. The concept of a nuclear-weapons-free zone in the Middle East, which seemed to be an impossible dream a few years ago has, in Mr. Lodgaard's terminology, become something which you can respectably talk about today. The origins of the Iraqi programme had nothing to do with the Cold War, it probably started in the late 1970s or early 1980s. It is only the end of the Cold War which has made it possible to put a stop to that programme and to root out what Iraq has built up. If the Cold War had not ended, the Security Council would not have been able to adopt resolution 687 of the Security Council. Even between India and Pakistan, despite recent events, there has been some easing of nuclear tension. Certainly Indian relations with China have improved, as Chinese relations with Viet Nam have improved, and there are now prospects for peace in South-East Asia. And finally, if you look at the two Koreas, what has been achieved in the last 18 months, such as the meetings of the Heads of State or Heads of Government and the agreements which they have concluded for the denuclearization of the Korean Peninsula, would have been inconceivable five years ago.

One other point of Professor Sur's which I would like to take up was his suggestion, doubtlessly deliberately provocative, that India, Pakistan and Israel should be recognized as nuclear-weapons States, presumably under the NPT. I would think that this would undermine the very basis of the Nuclear Non-Proliferation Treaty which seeks to limit the number of nuclear-weapons States and to reverse the nuclear arms race. If India, Pakistan and Israel, why not North Korea, why not Iraq?

Alexei Arbatov

I would like to thank UNIDIR for inviting me for this Conference and the introductory opening presentations gave a lot of material to discuss, to argue about, and a lot of what was put forward in those introductory statements certainly is quite agreeable. Still I would like to pinpoint several issues which probably deserve further discussion. One is that we are always referring to the change of our times, the major change of our times, as the change from Cold War to mutual security and co-operation. It seems to me that if we limit ourselves only to this particular facet of the situation, we might meet a lot of surprises because the change from Cold War to mutual security and co-operation is typical only for relations between or among certain countries, while it is quite atypical or quite different from the change in relations between or among other countries. I think that what really is taking place is the change from bipolarity to multipolarity and that entails improvement of relations between some countries, including those that were enemies in the past. But

unfortunately it can also bring aggravation of relations among other countries. And at the same time, it seems to me, is the process that is taking place in the military strategic area, including the nuclear area, although the whole nuclear world has its own laws, has great momentum and probably will be lagging behind the developments in international politics for five years or a decade. But finally it will follow the changes which are happening in the structure of international politics and we will be facing not the transition from nuclear arms races and nuclear deterrence to something benign like nuclear disarmament, but rather a change from nuclear bipolarity to nuclear multipolarity. And the question is: what will be the conditions of nuclear multipolarity, how far nuclear multipolarity will go and what control mechanisms might be applied in order to prevent a chain reaction of nuclear proliferation?

The second observation is that when we are talking about change which has happened in the Soviet Union, and in particular change that has happened in Russia, the majority of people portray it as the shift from a totalitarian communist State to a market-economy and a political democracy. At least this is the perceived goal. Unfortunately the situation is not as simple as that. The change which is happening now in Russia, and which might happen in the future, may be a change not to a market economy, not to a democracy, but rather to quite a different system which might resemble China or some other models which we already have in history with some measure of market economy but still a very strong State. They unfortunately may also have a very strong nationalist foreign policy which might supplant communism very easily because the Soviet communist empire was more empire than communist in the several recent decades. I say this in order to emphasize the point that this bears some consequences for nuclear disarmament as well. In particular, we take for granted START I and START II. Well I do not know about START I, it might be already a reality after its ratification in Russia and the United States, but as for START II, I would not be as optimistic as some of us seem to be here. I would say even more that START II does not bear a chance of becoming a reality unless it is significantly changed. The details of the change that are required in order to implement it on the basis of the recent framework agreement are a subject for separate discussions.

My final observation is that when arguing about the scale of possible reductions in nuclear weapons and the dimensions of minimal nuclear deterrence, we often refer to quantitative levels. It seems to me that quantitative levels are a function of some much more important qualitative subjects, in particular: the targeting, implementation strategy, the redundancy, survivability, relations to conventional capabilities of opponents or potential opponents, relations to defensive systems, and relations to third country nuclear weapons. And until and unless we give at least some definition to those qualitative subjects, all discussions of whether it's half a thousand warheads or 1,000 warheads or 2,000 warheads, will be flying in the air, will be not standing on any firm ground. As soon as we agree on at least some principles relating to those qualitative issues, defining the numbers will be a much easier rather mathematical, technical task.

Sverre Lodgaard

First of all, I am happy to see Ron Lehman here. Welcome to the Conference.

I would like to raise one question, and to make one comment. First, I very much agree with Michael Brown on the desirability of codifying the recent initiatives and agreements, and on the desirability of accelerating the implementation process. Indeed, 10 years would seem a long time in view of the pace of political change and the malignant directions that change may take.

At the Lisbon meeting, Kazakhstan, Belarus and the Ukraine stated that they would accede to the NPT in the shortest possible time. Russia tried to get a more precise time-table, but without success, whereupon it stated that there would be no exchange of the instruments of ratification and

hence no entry into force of START until the accession of the three successor states to the NPT became for a fact. As we know, the Ukraine is the main problem. So my question to Alexei Arbatov - others may fill in - is where this leaves us. I might recall that while SALT II never entered into force, it was complied with: however, I do not know whether that would be a possibility under the present circumstances.

My comment has to do with the political preconditions for moving beyond the Bush-Yeltzin agreement - beyond what is now envisaged for the year 2003. I submit that we ought to plunge into that important and difficult question right away. Confining myself to the European part of the story, since 1815 Europe has tried three types of security systems: concerts of power, balance of power and nuclear deterrence. Briefly put, and much simplified, the concerts of power degenerated into balance-of-power politics which in turn ended in two world wars. After WWII, we got a system of deterrence which was based on a politically unacceptable division of Europe: militarily it was too risky; and economically it was too costly. With some partial exception for the concerts of power, none of these arrangements invites repetition.

However, for some years now, there has been a new recipe in the making - a more promising one based on EC integration within the wider framework of the CSCE - a loose and admittedly very weak framework of collective security. The Maastricht Treaty refers to the elements of collective security: to the Helsinki Final Act, the Charter of Paris, and the United Nations Charter. It does not refer to alliances. If this approach is developed and enhanced, it seems to me that the political preconditions for significant further reductions of nuclear weapons might be created. Suffice it is recall that in Europe, four of the five established nuclear weapon states are present.

However, recently we have been reminded that continued European integration is less than certain. If it does not happen, there may be no such thing as stagnation. Stagnation may mean reversal of the integration process and a return to destructive balance-of-power politics, which is likely - once more - to leave greater scope for nuclear postering.

As for the wider framework - the future of the CSCE - this raises the question of incorporating Russia into European security affairs. Historical lessons strongly suggest that Russia should be better integrated. After World War I, there were the negative experiences with those who were left out of the good company. After World War II, the integration of West Germany into Western co-operation was a positive experience. Today, declaratory policies to the effect that Russia must be integrated can be heard all over the place. Indeed, stronger links would be good from the point of view of supporting the democratic processes in Russia, which in turn are important for the cause of peace. For peace and security, it is not only international structures that matter; statistical studies of war and peace suggest that democracies are not in the habit of going to war against each other. However, while the declaratory policies call for integration of Russia, there is a lack of effective *action* policies to this effect.

I submit that this factor - the position of Russia, integrated or left on the sideline is fundamentally important from the point of view of reorganizing the political landscape in a way that can make further reductions of nuclear armaments possible, beyond the levels now envisaged for the year 2003, be it in the name of minimal deterrence or some other goal state.

Morton H. Halperin

I would like to make two points if I may. First, the project which I am working on at the Carnegie Endowment for International Peace deals with the question of the interaction between domestic politics and foreign policy in the United States. From that perspective I must say I would be astonished if American nuclear forces were modernized in the foreseeable future unless there is a sudden and dramatic worsening of the international situation comparable to the start of the Cold

War. There is simply too much pressure on the American defence budget. That pressure will grow as the American economic situation becomes clear to the new Administration, and we are also discovering that there are actual uses for military force in the current environment. And I think the Somalia operation is the beginning and not the end of the notion that American military forces should be used in a variety of situations. And those two things taken together suggest to me that there simply will not be the funds nor the support in the Pentagon for any significant modernization of the American nuclear forces.

On the question in general before us at this session of the future of the nuclear deterrent, I would suggest that one must look at the past of the nuclear deterrent in order to understand the future. We all have our own readings of the past. My view is that with the possible exception of the centre of Europe, nuclear weapons simply failed in their effort to be used for any purpose other than to deter nuclear use by others. This situation in the centre of Europe being over, the future of nuclear deterrence is essentially the same as the past, namely, despite efforts to come up with theories for how they can be used to deter other kinds of activities, they simply are not credible for use in any situation other than to deter use by others. Therefore the danger primarily continues to be what it was in the past, the inadvertent accidental or unauthorized use of nuclear weapons by one of the nuclear Powers. And from that perspective, in my view, the focus should continue to be on measures which further reduce these dangers by continuing the process that has been set in motion over the last few years bringing nuclear weapons home to the territories of the nuclear Powers, taking the nuclear weapons off alert and separating the weapons from their delivery systems. And the end goal should be neither complete nuclear disarmament, which I think is unrealistic for a variety of reasons that have already been suggested, nor what is usually thought of as minimum deterrence. But rather I think our goal should be a world in which all the nuclear weapons that exist are declared, their locations are announced, they are subject to international inspection, and that they are separated from their delivery systems in a way in which the international spectres would see any attempt to match the nuclear weapons to the delivery systems. There would be a commitment on the part of all the nuclear Powers not to match their nuclear weapons to delivery systems unless they are confronted with the threat of the use of nuclear weapons. This would be combined with guarantees, preferably through the Security Council, of no first use of nuclear weapons by the declared nuclear Powers and a commitment of those Powers to prevent any other State from either threatening or using nuclear weapons against any other country.

I think that is, in the current situation, a realistic future for nuclear deterrence - one which would reduce the risk of the use of nuclear weapons to the lowest possible level and which would pave the way for our afternoon's consideration. That is the question of how does one prevent any new countries from getting nuclear weapons and how does one ultimately walk the Indians, the Israelis and the Pakistanis back from the brink of becoming nuclear Powers.

Miljan Komatina

1. Before discussing *the role of nuclear weapons* in the post-war era, a topic that is at once simple and studded with uncertainties and paradoxes, we must evaluate the *political context* of the transitions now occurring in world society. It is around this context that are woven the often fanciful theories of the "end of history", the total triumph of democracy, the post-nuclear age, common homes and villages, (con)federations, institutionalization of international relations on the basis of law, partnership-based security systems, etc. Together with this euphoria go the contrary theories of the neo-realist school concerning the "repeat of history". A *concrete and realistic analysis* of the political, social, military and geo-political environment is therefore needed in place of the abstract

speculation on the possible short- and medium-term outcomes of the "collapse of communism" and the breakup of the USSR.

The reason for restating these platitudes lies in the offhandedness of the approaches and the facileness of the conclusions concerning the "new world order", as if the current process of change was governed by the logic of communicating vessels. Linear progress, let alone a common model or denominator capable of encompassing the extraordinary diversity of real life, is an impossibility, whence the need for focusing the discussion on the nature of this "*new world*" and its level of "*security*" in order better to understand the *role of nuclear weapons* as an essential component of the international system. A conventional, but unavoidable approach since the answer to our questions can only be found in the course of events and the contradictory developments in ideas.

2. The "*new world*". It is definitely too soon even to begin summing up the significance of the "major turning points" in international relations, particularly as the results of such changes are rarely immediate. Caution is therefore a must. That is all the more so as a preliminary, but crucial, question has still to be raised and discussed: *How is it that the liberation of political and economic life between late 1980 and early 1990 gave rise to so many negative forces and retrograde tendencies dominated by militant nationalism, geo-politics aimed at reorganizing entire regions, and religious fundamentalism*?

It behoves us to put aside the relatively abstract debate on the nature of the (dis)continuity with the "*ancien régime*" and to bear in mind that, generally speaking, progress does not lead to the breaking of the *inevitable union* between *production and destruction, liberty and repression, liberation and domination, wealth and poverty, information and disinformation, benefits and abuse of knowledge, etc.* I mention these aspects solely in order to draw attention to the superficiality of triumphalist theories, especially that of the "end of history", which deserves mention only in so far as it can be a pretext for excluding from history the nations and civilizations currently on the "fringe" of economic and technological development.

To ponder the direction, degree and rhythm of the changes in the world is not to sow doubt. The long-term outlook is probably positive, but how things will develop in the short and even the medium terms is uncertain, to say the least. The first step, therefore, is to separate the temporary dramas in order better to discern and comprehend the emerging trends and the new forces that will shape them.

To come back to concrete matters, the two post-Cold War crises - the Gulf war and the civil war in Yugoslavia - have demonstrated that the international community (whether in the global or the regional sense of the term) was neither *conceptually* (principles) nor *institutionally* (collective security) ready to forestall, control or resolve them. In fact, there is not even a *shred of agreement on a consistent programme* for meeting the new challenges, whether they are global or regional, external or internal. Events bear this out every day: the "democratic revolution" in eastern Europe has become neither post-totalitarian nor pluralistic; the old totalitarian ideologies and practices are being rehabilitated through the lasting "consensus" of nationalism and populism; the United Nations is overwhelmed, pushed aside by unilateralist policies or regional organizations; the breakup of the former multinational States under the pretext of (selectively applied) self-determination is leading to the creation of a fragile system of often artificial micro-States providing a battle ground for hegemonistic interests; economic and geopolitical rivalry is bringing to the fore new or old ethnic, minority or territorial issues; the fragmentation of the developing "rest of the world" as compared with the increasingly homogeneous post-industrial world is exacerbating the inequalities and the phenomena of dependence, etc.

Of course, there is another balance of forces neutralizing the danger of a "great war"; the beginning of the resolution of certain regional crises; the at least temporary reduction of the number of "troublemakers"; there is a process of standardization of values and behaviour; disarmament

initiatives are multiplying; a high degree of internationalization of protection of human rights, together with limitation, albeit with differing weights and measures, of often abusive national sovereignties ... These trends are more or less established, some are hardly discernible, others are merely nascent or viewed as possible under certain conditions.

The conclusion to be drawn from this would therefore seem to be that we are a long way from radical, irreversible change. The concept of the "new world order" is vague and incomplete, often unilateralist, centring around the values, practices, and interests of western civilization. The world is adjusting to the new relationships, balances and rules of the game, but is not yet ready to think and act in terms of qualitatively new criteria. The pace of this adjustment will depend largely on the choices made by the United States. From what we know of the strategy debate in that country, the United States intends to remain, if not a military Power second to none, a dominant military Power capable of putting its forces into every corner of the world in order to shape the world order in accordance with American values and interests.

There are many many other questions, which are not merely Cold War reflexes, to be asked. The euphoria born of the fall of a system that was considered the main source of instability and the illusion that that would automatically result in the system's opposite have yet to be borne out by events. Failing a critical look at the whole picture, we may find ourselves faced with a "non-system" incapable of discerning, controlling and orienting the current and future upheavals in the world.

3. Although its various aspects are less clearly put, the question of *security* remains firmly on the agenda. The risks and dangers are manifold. To mention but a few: nuclear weapons and other weapons of mass destruction, like the tendency to acquire them, remain in existence; the nuclear club remains split; modernization continues, with research and development heavily oriented towards military needs; the traffic in arms is flourishing; security is becoming increasingly unequal, with a third world suffering from a population explosion, militarization and the economic development gap; the appearance of new would-be hegemonists; the vacuum left by the breakup of the USSR, with the accompanying destabilization and breakdown of the social structure; the uncertainties over Japan's and Germany's aspirations to acquire sooner or later a strategic role consonant with their economic strength ... In short, the traditional and less traditional, currently more peripheral than central dangers are still present in the international (non-)system.

The diminution of some dangers notwithstanding, there is still no consensus on a common strategy for the maintenance of military and non-military security, which are now more closely linked than ever before. The integrative processes are not global enough: they affect at most 20 per cent of the world population. Thus, while there may be a new equilibrium with new motive forces, it is still too early to speak of a radical and sudden change in security structures and machinery. There is daily confirmation of that fact, despite the improved functioning of some aspects of collective security (the United Nations) centred primarily around American military might. The strategic dilemmas concerning common security that may arise even for some non-fringe countries are virtually unchanged. And nuclear weapons, while not shaping the world as they did during the Cold War, will long play the fundamental role in the maintenance of global stability, if not of common security.

4. *The role of nuclear weapons in the post-Cold War period.* This question is dealt with against the contradictory background of, on the one hand, the persistence of these weapons' crucial role and, on the other, the objective diminution of their operational weight and value. Nuclear weapons continue to have a complex and manifold influence as a means of preventing (and even winning) wars, upholding a certain hierarchy among States, preserving the strategic autonomy of militarily strong countries, etc. They also continue to be the least costly means of defence. Even in a situation

where they are gradually losing their absolute pre-eminence, the role of these weapons remains unequal for the various categories of countries.

At the bilateral level (United States-Russia), the non-confrontational trend and nuclear disarmament seem to be continuing, albeit with both countries keeping a substantial margin of superiority over the other nuclear Powers. What they do will also depend on what happens elsewhere and on the state of non-proliferation in general.

In Eurasia, nuclear weapons remain the main instruments of balance and stability. In Asia, the strategic dilemmas are wide open and may even become acute, especially in the triangle Russia-China-Japan, not to mention the Middle East, Southern Asia and the Far East (especially with the two Koreas). China will play a growing role and may become within a decade or two the direct rival of the global nuclear Powers, but it is already impossible to ignore it in the resolution of any nuclear problem. For Japan, with its extreme vulnerability, the dilemma will become more and more topical: how can it reconcile its global role as an economic and technological Power with its "limited sovereignty" in military matters?

In western Europe, where France continues to accord high priority to deterrence, the problem is particularly one of management of, or even joint decision-making on all aspects of the nuclear doctrine. Germany, which is increasingly the leader, seems to be inclining towards the placing of nuclear forces in some sort of "common fund", thereby equating its status with that of a nuclear Power. Failing this, there is a possibility in the long term of various temptations to become a fully fledged nuclear State.

As regards "the rest of the world", the issue raises, in the light of various regional imbalances and foci of tension and conflict, new and insufficiently studied aspects of deterrence by the weak of the strong.

However the functioning of the international system in general develops, it is too soon to focus the debate on de-nuclearization (a nuclear-free world) unlikely, not to say currently impossible - let alone on the alarmism of the period 1960/70. The solutions must be calmly sought and found in the political sphere. Any other approach would lead to what could only be partial solutions influenced by a changing political climate. Change in the role of nuclear weapons, and thus in the doctrine of deterrence and nuclear disarmament can only be slow and gradual because they are "high-resistance" processes.

5. As regards *non-proliferation*, there are several conflicting issues that will not go away. First, the non-proliferation regime has unquestionably been strengthened, while at the same time the opportunities for acquiring nuclear weapons have become more numerous, both because of expansion of the market and because of improvements in technological competence even on the part of non-industrial States. Next, there has been no fundamental change in the reasons for acquiring weapons, since the sources of the numerous conflicts and rivalries remain the same and are even multiplying.

The central question under these conditions remains that of finding the ways and means of transforming non-proliferation into an absolute rule (of law and conduct) and, above all, of applying it. Various methods of containment, including the use of military force, are possible, especially after the decision by the Security Council. But while that can be done against small States, it can hardly be used against a large or even a medium-sized country or a strategic ally (for example, Israel). There is therefore no easy answer, especially as non-proliferation is hardly likely to become total and complete in a community of nations as heterogeneous as ours.

6. *Nuclear disarmament* is tending to become a continuous, but not yet a global process. Despite the progress that has been made, the nuclear firepower is still devastating. Furthermore, no nuclear country has yet expressed any serious intention of doing without, let alone renouncing nuclear

weapons, and some of them even mean to keep their superiority. Whatever the pace of disarmament, it will not take us back to the pre-nuclear age within the foreseeable future. Disarmament therefore remains compatible with deterrence, but may alter the rules of the latter's application. It is tending to become an integral part of political processes.

7. *Deterrence*: the new political and strategic environment permits and even necessitates a thorough review of the multiple implications and various fields and levels of application of deterrence. As yet, however, there is not, even on the horizon, any major strategy to replace deterrence. What is conceivable, and even applicable, are short- or medium-term measures to neutralize the danger(s) of potentially nuclear conflict(s). The starting point is therefore that deterrence is still an integral part of global stability and resistant to radical, sudden change. As regards its use, however, it is susceptible of greater flexibility and adaptability to the new conditions of a decline in the risk of "central war". Although they are essentially political weapons, nuclear arms must retain credibility both up-stream (the awful threat of total annihilation) and downstream (maintenance of the capacity to inflict intolerable damage by ensuring the survivability of means of retaliation). The fact that adversaries, once personified, represent a less acute, less global threat does not mean that the nuclear hazard is past. The real dilemma therefore refers to the choice between de-nuclearization and the deterrence at various levels that is necessary as long as nuclear weapons exist. It is not a matter of philosophy or ethics, but an irreversible reality created by the nuclear revolution. Deterrence is in the logic of the nuclear age, for it forms a unique context for arms control. The most that can be achieved in the present circumstances is more or less co-operative management of nuclear security, but it is still too early to think in terms of internationalization or joint decision-making. That the decision-making process is national is in the "nature of things".

The concept of *minimum deterrence* is, for its part, vague and abstract and raises numerous questions concerning its definition, nature and applicability: is it a new concept of deterrence, or simply a security regime, a *modus vivendi*, a combination of disarmament measures, shifting of the threshold, deployment and restructuring of defence? Is it applicable only in relations between two nuclear (super-)States or can it be envisaged multilaterally as a security system?

Minimum deterrence seems to be the goal of the bilateral negotiations between the United States and Russia; it is based on reduction of the quantity of arms, the abolition of certain categories and the common or quasi-common management of nuclear global security. The principal question of the degree of sufficiency (how much is enough) has yet to be answered, although the "enough" is beginning to be more quantifiable than ever, at least in bilateral relations. Despite the substantial cutbacks called for in START II and by unilateral measures, neither of the two Powers is ready to change the fundamental bases of deterrence (vulnerability and survivability and all the related matters) or to undertake a search for radically new security structures.

Whatever the re-evaluation of the concept of deterrence from the theoretical standpoint, the strategy for its application is becoming more difficult to determine. The *counterforce* strategy is becoming less effective with modernization (mobile weapons, "stealth" equipment, cruise missiles, miniaturization, etc.); the *counter-civilian* strategy is not credible (because it is uncontrollable and leads to total destruction); the anti-military "*counterpower*" strategy (conventional bases, concentrations of combatants, arms industry, etc.) aimed at reducing the possibility of offensive operations has not yet been adequately studied.

Minimum deterrence could be defined as a co-operative undertaking in the search for mutual security, survivability and vulnerability at lower or the lowest possible levels. For there to be more decisive progress in this direction, there needs to be a qualitatively new international community. Without venturing into the field of prediction or dramatizing the current trend, the international community still rests on the cracks between the processes of interdependence and interaction on the

basis of the internationalization of capital and the globalization of communications on the one hand and political structures imbued with traditional styles of thought and action on the other. These trends towards unification and fragmentation revolve around a new oligarchy (the G-7 Powers), with constant marginalization of the fringe.

To conclude, the handling of the two crises mentioned at the beginning (the Gulf and Yugoslavia), the slow-down in the implementation of projects that seemed complete, the triumph of pluralistic democracy on the ruins of totalitarianism in eastern Europe and the USSR, the building of Europe in the areas of politics, finance and defence, the General Agreement on Tariffs and Trade (GATT), the absence of vision in dealing with the old and new third worlds, etc. are evidence of how far the elaboration of new concepts has fallen behind events. The process of change continues to be driven more by self-interest than by values. The world has thus put on a new face, but it has yet to become more stable, better regulated by institutions and international law. On the contrary, there is more and more evidence of the opposite.

Regina Cowen Karp

I would like to introduce some caution in the debate. We should stop equating nuclear deterrence with international security. I think we have all spent far too many years being socialized in thinking that particular way about international security. If we continue to do this, we are looking at the new international security agenda through the role of nuclear weapons and the role of nuclear deterrence rather than having the agenda determined by the security issues as they have developed during the post-Cold War years.

Secondly, we should not confuse the existence of nuclear weapons with deterrence theory. The policy implications that one might draw from the existence of nuclear weapons should not necessarily lead to maintaining and endorsing the further existence of nuclear deterrence. Rather, the agenda should be broadened to include a discussion of the role of nuclear weapons in international security.

John Simpson

My comments reinforce the comments of Morton Halperin and Regina Cowen Karp. First of all, as Professor Sur pointed out in his paper and George Questor elaborated in detail in a book some years ago, deterrence has been with us for a very long time. The real issue is how did and does nuclear deterrence differ from deterrence as we previously understood it. And it seems to me that this has been where the main philosophical debate has taken place. Nuclear deterrence was concerned with weapons of mass destruction and a situation where the ultimate threat was one of total catastrophe as against national defeat. The discussion of war fighting options has been an attempt to return nuclear deterrence to the language and understanding of deterrence that we have had in the past: to try to imply that you could use nuclear weapons and not generate a catastrophe, just generate defeat. The conclusion that most people arrived at is that you just cannot do this: that nuclear weapons are different; that they are weapons of mass destruction. And therefore there is a qualitative difference between nuclear deterrence and conventional deterrence.

My second point is that there has also been a debate about the difference over general deterrence or general nuclear deterrence and specific nuclear deterrence. The reason why we are meeting here today is because the specifics of nuclear deterrence have changed. What has been driving all the

discussion on nuclear deterrence, and for that matter the nuclear arms race, has been the East-West relationship. The situation we now find ourselves facing is one in which most of the nuclear theology, and most nuclear weaponry, appears to be totally irrelevant to the security problems of the Europe of the future. These increasingly appear to be problems of State breakdown and of ethnic groups within States conflicting with other ethnic groups. The military requirements under those circumstances are troops on the ground-peace-keeping troops. They are not nuclear missiles sitting somewhere in the middle of the Atlantic. The real problem which is now posed for us by nuclear weapons is what are these weapons actually supposed to do. Very specifically what are their targets to be, what precise function are they supposed to perform. And in terms of nuclear deterrence, who are you going to deter from doing what? Because quite clearly you cannot deter the Serbians President from doing what they may or may not be doing to Bosnians by the threat of the use of nuclear weapons.

Two things follow from this. One is that we have to start to address ourselves to the question of whether nuclear weapons and nuclear deterrence doctrines apply outside of the European and the East-West context. In doing so we have to beware of taking the whole theology that was developed in this specific context and trying to persuade others that it ought to be applicable to them. Secondly we ought to address ourselves very specifically to the role of nuclear weapons and nuclear deterrence in the European context where my feeling is that they are increasingly almost totally irrelevant.

Tibor Tóth

Nuclear deterrence is something like the tip of an iceberg. It is part, or it was considered traditionally a part, of an integrated approach to a stability preservation or to a war prevention strategy. It was a part of an integrated approach to a certain situation which its certain evolutions characterized, mainly the East-West landscape for four decades. And there were some, or there has been some, underlying presumptions. One, the most important, there were two adversary coalitions facing each other, other political, ideological and military adversary type situations characterizing the landscape, military imbalances mainly in the convention equation and geopolitical differences. As an approach to this situation, to answer those challenges which were stemming from such a situation, nuclear deterrence existed as a part of the answer because mainly since the second half of the 1960s the conventional steps of the deterrence ladder were very important or the escalation of the ladder very important. Mainly from that period of time the emphasis on co-operative measures were there as well and this was an important element for the prevention of war strategy. What we have now in this landscape is that all those presumptions are gone, totally changed. No two coalitions any more. Some of the States broken up. No political, ideological or military type of adversary situation exists between those two groups of countries. And if you take the other factors, the military stability or the military parity question, or you take the geopolitical question, there are changes which totally replace the earlier situation. What we have is probably the residual level both in quantitative and qualitative terms of the nuclear factor. By residual I mean in terms of all those unilateral cuts and disarmament steps which were due, on the one hand, to the challenges which emerged to the nuclear deterrence from the early 1980s, probably because of the technological innovations and, on the other, to the challenges which emerged probably in the late 1980s, early 1990s, due to the political situation mainly in the former Soviet Union. As a result we have a residual nuclear level both in quantitative and qualitative terms. The question is now whether we try to build around this remnant of the previous situation a new universe taking it as a centrepiece or do we accept it as an element which probably would not play the role it used to play, would not be an active part of an integrated policy, but would be an important element of damage

control for stability in the future as well. For me it's more an important element from the point of view of damage control because still this element can pose a serious threat to stability, be it in the East-West context or in the global context.

For the second point, of course we have to be realistic. Those ladders with some reductions might be there for quite a long time, so we have to manage those forces both in qualitative and in quantitative terms. I think mainly for the East-West context we need the other elements identified which are the characterizing elements of a new security situation. It is not a subject for this colloquium but without those elements, at least identified, it is very difficult to think about the future of nuclear deterrence. I would like to make an important footnote here. I do not think we will be able to until all the ingredients for seeing all the elements of a new landscape will be there. We have to develop the different elements as times goes on because we have to find answers to the nuclear force level, to nuclear strategic questions. We have to find answers to questions of stability in general, for example in Europe, we have to find answers to those new challenges which were referred to, be it ethnic questions, national questions, or big economy problems. We have to find answers to the new questions of military equations, for example, in Europe between those newly-emerging States, between the countries with new realignment patterns. We have to find some new questions from the arms control point of view, as well, before the landscape will be clear. So my important point would be first; it is very very difficult to give concrete and precise answers about the exact future of nuclear deterrence. At the same time, we cannot wait until all the answers will be ready. But we have to move along different channels and to formulate a new concept of war prevention, be it for Europe, be it between the former East and West or be it globally, and we will probably have nuclear deterrence as an important element in that concept not playing an active role any more but it should remain important from the damage control point of view.

Mahmoud Karem

I think what Serge Sur said on article 26 is important because we need a sense of orientation. We need to put our fingers on some action-oriented proposals and this is one area that needs to be further explored. Whether we should link the implementation of article 26 with a new envisioned role for the Conference on Disarmament in Geneva remains a different question. Ambassador Beresategui made a valid point there. But again I repeat that this is one further area that needs to be explored.

Second, what Dr. Brown said, and I will quote what he said on page 58 in his paper, that we should "not be fooled and that policy makers in Washington and Moscow still believe that it is important to hang on to strategically significant weapons". Again, the question that needs to be addressed here is why? This is the area that needs exploration and explanation. Is it because the threat perception remains alive and well in the minds and ethos of policy makers? I was reading a US airforce issue book of 1992 a few weeks ago and in it are two quotes in the post-Cold War era on nuclear deterrence as being a "bedrock requirement of national security" and that "an increasing number of potentially hostile States develop or purchase weapons of mass destruction which poses a significant threat to United States national interests". The message there is that the threat perception remains alive and well. And as long as the threat perception remains, we will be confining ourselves to the further study of deterrence, either the theoretical underpinnings of deterrence, as Mrs. Karp mentioned, or nuclear deterrence in the generic sense. On the other hand, I listened with interest to what Morton Halperin proposed and I understand that he was speaking in terms of a project that will soon be issued by Carnegie. I do not think that his statement, observations or thesis should be left unchallenged. I voice my concern over a solution that envisages separation of a nuclear head from its delivery system while prohibiting use, except under cases of

attack, all under the presence of an international system of inspection. To me this sounds like an interim solution similar to one advanced by a former Cabinet member of East Germany, proposing the removal of all nuclear weapons, weaponheads, delivery systems and allocating a fixed number to the Security Council to be used by the Security Council whenever the Council saw fit. Going back to Mr. Halperin's proposal, it disassembles heads but does not remove the threat emanating from nuclear weapons, and as long as article 51 in the UN Charter is there - a classic reminder of constructive ambiguity members will have the right to decide what constitutes a threat in terms of their own national security. As a result, you create an international atmosphere of pseudo-confidence and in crisis management terms that could quickly escalate and spill over into war in a relatively short period of time. The presence of an international inspection is to do what? If it is to prohibit use then this is a different story, but if it is to safeguard or legitimate the weapon, to justify or protect the ideology for possible use, then I think this is self-defeating. This, then, is no disarmament measure. I do not think that it is even an arms control or an arms limitation measure. It is an arms sedation measure if you will, one of suspended animation, or hibernation.

Gérard Errera

I should like to comment on two points mentioned by Mr. Simpson. The first is the idea that nuclear deterrence in Europe is somehow obsolete; the second in a question: can the concept of nuclear deterrence be applied outside Europe? I shall leave this second aspect aside for the moment. Concerning the first, I should like to stress the importance in the nuclear disarmament process, particularly in Europe, of the time factor. First of all, the time factor in the implementation of the American-Russian agreements. This was mentioned just now, but I think it needs to be restated. In the best of cases we will still have several thousand nuclear warheads in Russia at the beginning of the next century. The time factor too in the tidying-up of the nuclear legacy of the former Soviet Union, and that for two reasons: there is a problem in the slowness of the transfer of strategic nuclear weapons from the new republics to Russia, and a problem in the slowness of, and indeed the uncertainty as to the accession of Ukraine or Kazakhstan to the Non-Proliferation Treaty as non-nuclear States. This has two significant consequences.

The first is that it unfortunately tempers the enthusiasm with which people speak of the disappearance of threats. There has indeed been a diminution and a change in the nature of the threat to Europe as a result of the breakup of the Soviet Union and the end of the American-Soviet confrontation. But there are still capabilities and, as Mr. Serge Sur so rightly said a few moments ago, intentions are one thing and capabilities another.

The second, and no less significant consequence is that the slowness of the process of accession to the NPT by the republics born of the Soviet Union is increasing the temptation for a number of threshold States to take the plunge and obliterate the distinction between States that are legitimate nuclear Powers and those that are not. It therefore increases the temptation to legitimize what is currently illegitimate.

It is therefore to these two points that special attention must be paid during the coming months and years.

Serge Sur

First of all, it has been said that a distinction must be made between nuclear weapons and nuclear deterrence. I think that is absolutely right, and this aspect of things can never be stressed enough.

That means that nuclear weapons are far more dangerous without deterrence than with it and it must be acknowledged that the function of deterrence is above all to deter people from using nuclear weapons. That being so, deterrence is a pacifist theory.

Next, more precisely with regard to the remarks made by Ambassador Berasategui, who gave a very substantial presentation of the links between deterrence and collective security: on many points it is clear that there is a fundamental contradiction between collective security and nuclear deterrence. The international community has to live with that contradiction. There are, however, two qualifying remarks that could be made in this regard.

The first is that deterrence is not, at least in my opinion, altogether a unilateral doctrine in as much as it presupposes the existence of several partners. There is no deterrence if there is only one partner. Consequently, deterrence can be said to be a doctrine of individual security, not collective security, but a doctrine that relies on a certain harmony between the partners.

The second qualification is that the Security Council itself, in a statement dated 31 January 1992, established a certain link between deterrence and collective security, since it declared the proliferation of weapons of mass destruction - including, therefore, nuclear weapons, and mainly nuclear weapons - to be a threat to international peace. As we are aware, the Security Council is the organ of collective security. In the circumstances, a certain link is recognized between deterrence and collective security, and this stance on the part of the Security Council, which is, it may be noted, evidence of a change, is extremely interesting.

Michael Brown

First of all, let me respond to the comments that were made about US modernization efforts. It is certainly true that research and development is going to continue in the United States at a modest level, but it is also true that we are not going to see deployment of any new types of strategic systems in the near future. What we will see is a continuation of programmes that are already under way - Trident submarines and missiles will be deployed until all are on line. We will see more cruise missiles and B-2 bombers, but these programmes are old programmes that are simply being wrapped up. I cannot imagine that there will be a new bomber beyond the B-2, a new cruise missile beyond the ACM or a new ICBM in the near future.

On Alexei Arbatov observations about the prospects for START-II, I agree that the prospects for START-II are not as encouraging as people had hoped they would be last June when the framework agreement was first put together. There are very serious reservations in some quarters in Moscow about the terms of the framework. Most of us know that one of the main reservations in Moscow has to do whether or not existing multiple-warhead ICBMs can be downloaded. If they cannot be downloaded by more than 4 warheads - which is what the current agreement calls for - then Russia would be obligated to deploy large numbers of new single-warhead missiles, which would be an expensive proposition and which would require substantial overhaul of the Russian strategic force structure. For these reasons, there are reservations in Moscow about the agreement. I would be very interested in hearing Alexei elaborate on other reservations Moscow has - not just about START-II, but about the idea of deeper cuts in nuclear forces. Obviously, the political constellation of forces in Moscow will play an absolutely central role in determining where we are likely to go with nuclear arms control in the future. I would certainly be very interested in hearing Alexei expert assessment of what the political climate in Moscow is, and more specifically, what sorts of things people in Moscow feel need to be done in order to bring the START-II agreement into effect and to move beyond START II.

I would also like to make a comment that triggered by comments Morton Halperin made. He suggested that we should not be thinking in terms of general or complete disarmament because that

is unrealistic. Even minimal deterrence is unrealistic, he notes. He reminds us that the real goal of the arms control enterprise is to enhance stability and thereby to minimize the probability of war taking place. It is interesting to hear him say this, because I have just been rereading the book that he wrote with Tom Schelling some 30 years ago about the objectives of arms control: reducing the probability and consequences of war. I endorse these goals fully. The problem that we are going to face, and certainly the problem that we see in the literature more broadly, is that there is a fundamental debate about the role nuclear weapons have played in international politics so far. Some people feel that nuclear weapons have damaged international security since World War II, making war more likely, the consequences of war more horrific, and the costs of military preparations higher. Some people feel that nuclear weapons have simply been irrelevant. Finally, there is a large group in both the academic and policy making communities that feels that nuclear weapons have enhanced, not just national security, but international security. Because of this fundamental disagreement about the historical impact of nuclear weapons, reasonable men and women are going to continue to disagree about where we should go in the future. I think, though, that even given these differences there is a set of broad objectives that people could agree on. Again, this gets back to what Halperin and Schelling wrote long ago. The idea is to enhance stability, reduce the probability of war, reduce the consequences of war if it takes place, and reduce the costs of military preparations. Now, whether the best way to do this is to retain massive nuclear arsenals, which many people in Washington and Moscow want to do, move to minimal deterrence, move to international control of a small nuclear force, or move to complete disarmament is something that requires rigorous analysis. I hope that over the course of the next day and half we will be address these questions specifically, because I find a lot of the discussion in the literature to be very fuzzy. People talk in very general terms about what we should do without talking specifically about what our real objectives are and the concrete steps we can take to make the world a safer place.

Part II

Proliferation and Non-Proliferation

Chapter 4
Prospects for Nuclear Proliferation

Jasjit Singh

At this point in history, a number of fundamental factors of change are impacting on the strategic rationale of nuclear weapons. Many of the underlying assumptions of this rationale have altered; and others are in the process of transformation. These have some inevitable implications for proliferation and its management. There are two contrary ways of looking at the contemporary developments in the world affecting nuclear weapons. One is that they have increased the prospects of proliferation, thereby posing unprecedented challenges to peace and security. The other is that these developments signify a unique, and perhaps the terminal, opportunity to remove the dangers inherent in nuclear weapons and their proliferation. Both require rigorous examination. Four contemporary landmark developments can be identified in this context: demise of the Cold War; Gulf War and the apprehensions resulting from the exposure of Iraq's clandestine nuclear weapons programme; the disintegration of the Soviet Union and consequent unprecedented proliferation potential; and, the prospects for substantive reduction in nuclear weapons of the first-tier nuclear weapon states, the US and (former) Soviet Union.

The Cold War has been ascribed to the ideological conflict between the West and East. But militarisation of policies contributed in a large measure to its intensification. In this context, nuclear weapons had given a special quality to both the Cold War and the militarisation of foreign policies.[1] It was inevitable that nuclear weapons would be perceived and used both in political as well as military terms. Both rationales have now ceased to exist although the logic is sought to be perpetuated by some. And hence the awkward questions; if the American and Russian weapons are not targeted at each other any more, why do they need to be retained. Since the UK and Russia have signed a treaty of friendship, what is the rationale for their nuclear deterrent now? And so on. The problem is that for more than 40 years, nuclear weapons have been legitimised by the five nuclear weapon states (the N-5), who also happen to be the permanent members (the P-5) of UN Security Council. The nuclear, permanent five (NP-5) have sought to build up their security and international influence on the strength of nuclear weapons. In the process, they have been the cause and root of providing incentives to nuclear proliferation. Not only did they build up a massive arsenal of nuclear weapons on the logic of nuclear deterrence, but more importantly, they consistently used nuclear weapons as an instrument of foreign policy. In the process the Cold War was prolonged.[2] With the end of Cold War the military role of nuclear weapons, especially that of warfighting, has completely lost its rationale. According to a Chinese expert, "Nuclear weapon powers have an incentive to maintain their major- power status through the possession of nuclear weapons which have become a symbol of such states", especially in the context of the former Soviet Union, France and the UK "rapidly declining as world powers" with Japan and Germany, "on a rapid rise" and the US maintaining a tenuous lead.[3] China itself has lost many strategic leverages with the end of Cold War. Seeking justification for nuclear weapons in the post Cold War era will inevitably bring the political dimension of these weapons into sharper relief and focus.

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[1] Nuclear weapons and long range delivery system made continental America vulnerable for the first time not only to direct attack but also annihilation.

[2] George F. Kennan, "Who Won the Cold War? Ask Instead What was Lost", *International Herald Tribune*, 29 October 1992.

[3] Zhai Zhihai, "The Future of Nuclear Weapons: A Chinese Perspective", in Patrick J. Garrity and Steven A. Maaranen (eds), *Nuclear Weapons in a Changing World*, Plenum Press, New York, 1992, pp. 165-180.

The collapse of the USSR has increased strategic uncertainty in the world. President Bush had identified uncertainty and unpredictability as the main threats for the future. If uncertainty is seen as the greatest threat by the most powerful state in the world, the sense of vulnerability arising out of uncertainty for other states will inevitably be much higher. Unfortunately, the greater this sense of vulnerability, the higher the premium on proliferation. There are a large number of states which possess the capability to acquire nuclear weapons, and more will join the ranks in future. The collapse of the bipolar alliance system which provided security to many non-nuclear states may provide the incentive to (even industrialised) states to cross the nuclear threshold in future.[4] The search for national security and political power/influence has been at the root of incentives for nuclear weapon acquisition. Nuclear weapons provide autonomy to a state at a low cost and unprecedented assurance of territorial integrity. In a period of strategic uncertainty, it can be argued, these factors will increase the incentives for proliferation.

Iraq's invasion and annexation of Kuwait generated deep concerns about control over strategic resources that are critical to the global economy. The discovery of Iraq's clandestine nuclear weapons programme (by accident) intensified these concerns especially since Iraq was a party to the NPT - the sole non-proliferation instrumentality, and the IAEA inspections had certified Iraq's non-nuclear credentials as late as November 1990. This has heightened concerns about proliferation and the consequent search for effective non-proliferation regime(s). However there is a need to resist adopting a linear approach to "strengthen" existing mechanisms rather than take a more objective and comprehensive approach to the issues involved.

Deterrence and Proliferation Linkage

Since the inception of nuclear weapons, it has been clear that there is no credible defence against the threat they pose except through the risky process of establishing deterrence. The more recent attempts at evolving defensive capabilities through SDI (and its variations, including GPALS) hold out little hope of actually achieving their primary objective. Such defensive capabilities assume access to, and effective functioning of, an ultra-sophisticated global command, control, communication and intelligence system. Even then an operationally deployable, credible system is unlikely to be fielded in less than 10-15 years. More important, few countries would be able to afford such a system; and such countries would have access to nuclear deterrence for defence in any case. The search for a defensive system only helps to highlight the need for deterrence, and undermines non-proliferation regimes. Acquiring a small nuclear deterrent would appear to be more attractive as it is less costly and more accessible for the purposes of defence for many countries.

As it is, great emphasis has been placed by the NP-5 on nuclear deterrence in support of national defence. Deterrence and defence generate two dimensions supporting proliferation. Firstly states have felt the need to acquire nuclear weapons for national security, even against conventional military power. This was the rationale for the doctrine of massive retaliation (against the USSR). And this has been the imperative for Israel to acquire nuclear weapons. Pakistan took its decision to acquire nuclear weapons a mere five weeks after experiencing the full weight of Indian conventional military power in December 1971 and a perceived failure of its friends and allies (China and USA) to provide support. South Africa similarly felt isolated. Perceptions of eroding power, a sense of isolation, and the imperative of autonomy in solutions to national security problems have been strong incentives for the acquisition of nuclear weapons. Conversely, compensatory mechanisms (e.g. alliance with NP-5 states) have lowered the incentives. Secondly,

[4] Thomas C. Reed, "The Role of Nuclear Weapons in the New World Order", Statement presented to House Armed Services Committee, Defense Nuclear Facilities Panel on 8 April 1992, is relevant.

the logic of nuclear deterrence, and absence of other forms of credible defence, generates a ripple effect to spread nuclear weapons. The logic of nuclear weapons having kept the peace in Europe is appealing to many. Acquisition of nuclear weapons capability in relation to one state generates the imperatives of national security in another. From the USA, to the USSR, to China, the ripple effect has had its implications for India, Taiwan, and North Korea, not to speak of Japan and South Korea whose immediate concerns were met with the alliance umbrella.* Ukraine's and Kazakhstan's hesitancy to give up the nuclear option has been motivated substantively by the same factor.[5] Iran reportedly acquired two weapons from Kazakhstan[6] presumably because of a sense of vulnerability arising out of the adverse asymmetry due to states around it working on nuclear weapons programmes, and the overall nuclearised environment with US, Russian, Chinese and Pakistan's weapons. Nuclear deterrence, especially of the aggressive variety practiced and advocated by the USA and former Soviet Union, lies at the roots of proliferation - vertical, horizontal, and spatial. Deterrence, defence, and proliferation are far more deeply and intimately linked than generally acknowledged. That is why the factors and trends affecting the future of deterrence and the role of nuclear weapons would finally decide the future of proliferation.

As the world moves into the post-Cold War era, it is clear that nuclear deterrence is decaying. Deterrence through denial (the nuclear warfighting concept) has already lost its rationale, if ever there was any. Hence we have the easily arrived at agreements to withdraw, store, and/or eliminate non-strategic weapons of the fist-tier nuclear weapon states. The same logic should have applied to the non-strategic weapons of the second tier states. At the same time deterrence through punishment has already undergone a marked change. Aggressive deterrence has given way to minimal deterrence in a significant manner. NATO has not given up its option to use nuclear weapons first, but it has committed itself to use in the "last resort".

Drastic reductions in nuclear weapons stockpiles would go a long way in expediting doctrinal changes and deterrence decay. However, changes in the ideas governing the use and usability of nuclear weapons would provide the real influence in the process and rate of decay. This requires establishing stronger inhibitions against the concept of utility of nuclear weapons, and strengthening support for the process of their deligitimisation. The shifting emphasis from a military role towards a political dimension in itself helps in reducing the centrality of nuclear weapons. The challenge really will be how to reduce the political role of nuclear weapons. Deligitimisation would play an important role in this process. The experience of chemical weapons is relevant here. The Geneva Protocol (1925) declared chemical weapons as unusable although many states retained the right of use in self defence. This deligitimisation did not prevent the build up of large stockpiles by many nations, but it no doubt contributed to non-use. The threat of erosion of this delegitimisation, because of actual use (1984, 1987), the threat of use (1990-91) by Iraq, the growing linkage between chemical and nuclear deterrence especially in the Middle East, and consequent dangers of uncontrolled proliferation, contributed in no small measure to the rapid progress towards the treaty for the abolition of chemical weapons.

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* It is interesting to reconstruct circumstantial evidence leading to India's PNE on May 18, 1974: China's nuclear test in 1964, India's proposal for NPT at the UN (November 1965), unsuccessful efforts to secure nuclear guarantees in 1965, concurrently growing technological capabilities, official statements between 1965-72 indicating intentions to conduct PNE, reinforced concerns of nuclear coercion in 1971, Pakistan's January 1972 decision to acquire nuclear weapon capability, and then the decision (around October 1972) to conduct the PNE. The nature and form of the NPT which came into force in March 1970 no doubt destroyed all hopes of a politico-diplomatic solution to a critical national security problem for India.

[5] Dastan Eleukenov, "Ukrainian Nukes Hold Key to START", *Defense News*, 15-21 March 1993, pp. 19-20.

[6] "Two Nuclear Warheads Sold to Iran", *FBIS-SOV*-92-085, 1st May 1992, p. 2.

Recessed Deterrence

At the same time a new little noticed dimension of deterrence has been emerging. Many states have acquired what can only be described as threshold capabilities. In all such cases, except for Israel and Pakistan, this has taken place not necessarily due to any pursuit of a weapons programme. In fact, development of nuclear technology for peaceful purposes would, over time, inevitably provide the capabilities to acquire nuclear weapons. The controlling factor for proliferation would be political and not technical. This marks the critical difference between the nuclear weapons states (and the nuclear proliferators) who acquired nuclear technology first through a weapons acquisition process, and then proceeded to nuclear energy programmes. The case of China stands out in contrast to most threshold states. China has held nuclear weapons for nearly three decades but managed to establish the first power reactor of its own only in 1992. Its assistance to Pakistan in nuclear technology thus could only be in the weapons field so far.[7] Pakistan itself symbolises this approach. It has acquired nuclear weapons; but has not added a single MW of nuclear energy during the past 20 years after it acquired a 125 MWe power reactor from Canada in 1972.[8]

Countries like Canada, Sweden, Japan, Germany, Switzerland, Belgium, and India have well developed nuclear programmes for peaceful purposes. They do not have a weapons programme. But the nuclear technological base is more than adequate to achieve weaponisation at short notice. On the other hand, they may never cross the threshold to weaponisation. This level of capability provides these states with a *recessed deterrent* - which need not surface at all, but capability of which will have to be taken into account by any power contemplating using threat of nuclear coercion or weapons.

Israel's case is somewhat different. It does not operate power reactors. But its technological level and know-how is well known to place it in the category of states possessing recessed deterrence. A paradigm of nuclear deterrence is outlined in Table 1. Israel moved up the ladder of recessed deterrence in 1973 (reinforced in 1979) when sufficient indications were available of weaponisation and possible use; but the capability remained undeclared. Pakistan, similarly, may be seen to have created a recessed deterrence position especially since spring 1990, finally

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[7] "China gave Pak proven design for nuclear bomb: US Senator", *India Abroad News Service*, Washington, 1st November 1992.

[8] Farhatullah Babar, "Nuclear Debate in South Asia", *Regional Studies*, Islamabad, Vol. X, No. 4, Autumn 1992. By the end of this decade, India with 14 nuclear power reactors will operate 5 per cent of power reactors of non-nuclear weapon states in the world. China has no power reactor in operation and plans to build 3 in the coming years.

Number of Nuclear Power Reactors in Operation and Under Construction
(NNWS with more than 5 reactors)

	In operation	*Under construction*	*Total*
Belgium	7		7
Canada	20	2	22
Germany	26	6	32
India	7	7	14
Japan	41	10	51
South Korea	9	2	11
Spain	9		9
Sweden	12		12

Based on Data Series No. 2, Nuclear Power Reactors in the World, April 1991, IAEA, Vienna 1991.

acknowledging officially its nuclear weapons status in February 1992.[9] In all other aspects it continued to be a state with threshold capabilities. India clearly acquired recessed deterrence in the process of growth and development of its nuclear research and power programme. The credibility of this deterrence was established un-ambiguously on 18 May 1974 when India successfully tested a nuclear device whose yield was estimated to be around 12 kilotons.[10]

Table 1: Deterrence Paradigm

Capabilities	*Aggressive Deterrence*	*Minimal Deterrence*	*Recessed Deterrence*	*Re-assurance*
Unlimited destruction	USA-1945 USSR-1949	USSR-1990 WTO-1987	-	Arms control
Unacceptable punishment	UK-1954 NATO-1991	China-1967 France-1975	Israel-1973	-
Threshold state	-	China-pre 1964 Pakistan-1990 South Africa-1979	Israel-1969 India-1974 Pakistan-1986 Japan, Germany, Sweden etc.	CBM
	• first use • war fighting • open ended arms race	• no first use • limited war fighting • controlled arms race	• non-use • no war-fighting • absence of arms race	• non-possession by state • insurance against unpredictable threats

(A movement towards the right and bottom of the paradigm table would reduce the risks and dangers associated with nuclear weapons and their proliferation).

The wide variations in capabilities, doctrines, and postures in the changing global political situation demands that we move away from over-simplified generalisations that seem to have dominated the characterisation of the status of states and nuclearisation trends. Dealing with the proliferation problems will require a more differentiated approach in the future where motivations, incentives, and compulsions of each state can be looked at more closely and addressed adequately. If proliferation is to be managed effectively, steps will have to be taken to also control the ripple effect which creates the pressures for non-nuclearisation dominoes to fall.

Nuclear Proliferation

Nuclear proliferation concerns moved onto the agenda after the US became vulnerable to nuclear weapons in late 1950s. However, this was still the period when US Secretary of State Dean Rusk questioned whether non-proliferation should be an objective of US policy, and whether the US might "not want to be in a position when India or Japan would be able to respond with nuclear

[9] David Albright and Mark Hibbs, "Pakistan's Bomb: Out of the Closet", *The Bulletin of Atomic Scientists*, July/August, 1992, pp. 38-43.

[10] For details see R. Chidambram and R. Ramanna, "Some Studies on India's Peaceful Nuclear Explosion Experiment", *Peaceful Nuclear Explosions IV*, IAEA, Vienna, 1975.

weapons to a Chinese threat?"[11] On the other hand, proliferation concerns led to the negotiation and conclusion of the NPT. Countries like India, in fact, were more concerned with the danger that proliferation posed and this was reflected in the resolution moved by India (along with others) at the UN General Assembly which was passed by an overwhelming majority of votes.[12] Non-proliferation concerns of the US and USSR were related much more to countries like Germany, Italy, and Japan; and the NP-5 worked towards a regime that would deny other countries nuclear weapons while placing minimal constraints on their own programmes. The NPT that emerged was born with a degree of illegitimacy since it violated the UN General Assembly's NPT resolution (supported by the USA and USSR) in the most fundamental way.

It is often ignored that a large number of states have concerns about nuclear proliferation of magnitude and scope much higher than those of the NP-5. This was the reason Israel was compelled to launch an aerial strike on Osirak in 1981 to destroy what was believed to be a covert weapons programme. Subsequent events have tended to confirm Israeli suspicions. India's high profile stand supporting disarmament processes symbolises its approach to deal effectively with the dangers of nuclear weapons and their proliferation for Indian security. The end of Cold War and the disintegration of the USSR has placed proliferation issues high up on the agenda of international security concerns. However, it must be noted at this stage that given the new levels of uncertainties and unpredictabilities, heightened concern for proliferation which does not adequately address the issues involved would prove to be counter productive. At the same time, the higher the articulated concerns for proliferation, the greater the premium on proliferation and the process being used for politico-diplomatic leverage. This only adds to the importance of nuclear weapons as a political instrument with a non- proliferation card being layed by different categories of players with increasing efficacy in a polycentric world. In most cases, the world may well be left chasing shadows of proliferation and frighten itself into a political paranoia.

It is, therefore, extremely important to look objectively at the nature and extent of nuclear proliferation at this stage and try to assess the trends.

The five nuclear weapons states have cynically proliferated nuclear weapons during the past three decades during which the NPT has been in operation. (See Figure 1). Beyond that:

- No other state has officially acknowledged possession of nuclear weapons, except Pakistan;
- No state demonstrated a capability to detonate a nuclear device except India (in 1974) and possibly Israel (in 1979),
- No state has established a credible posture as a nuclear weapons state except Israel during these three decades.
- Three states are suspected of working on a nuclear weapons programme: Iraq, North Korea, and Iran. A much larger number of industrialised states possess capabilities to acquire nuclear weapons and associated delivery system at short notice. All these are party to the NPT.

In each of the above cases, the actual capabilities are grossly disparate; they can be characterised as being on or moving towards a threshold. If we are to address proliferation effectively we must start by defining non-proliferation aims clearly. Non-proliferation objectives were severely undermined by Cold War considerations. But it should be possible now to look at the issues more dispassionately.

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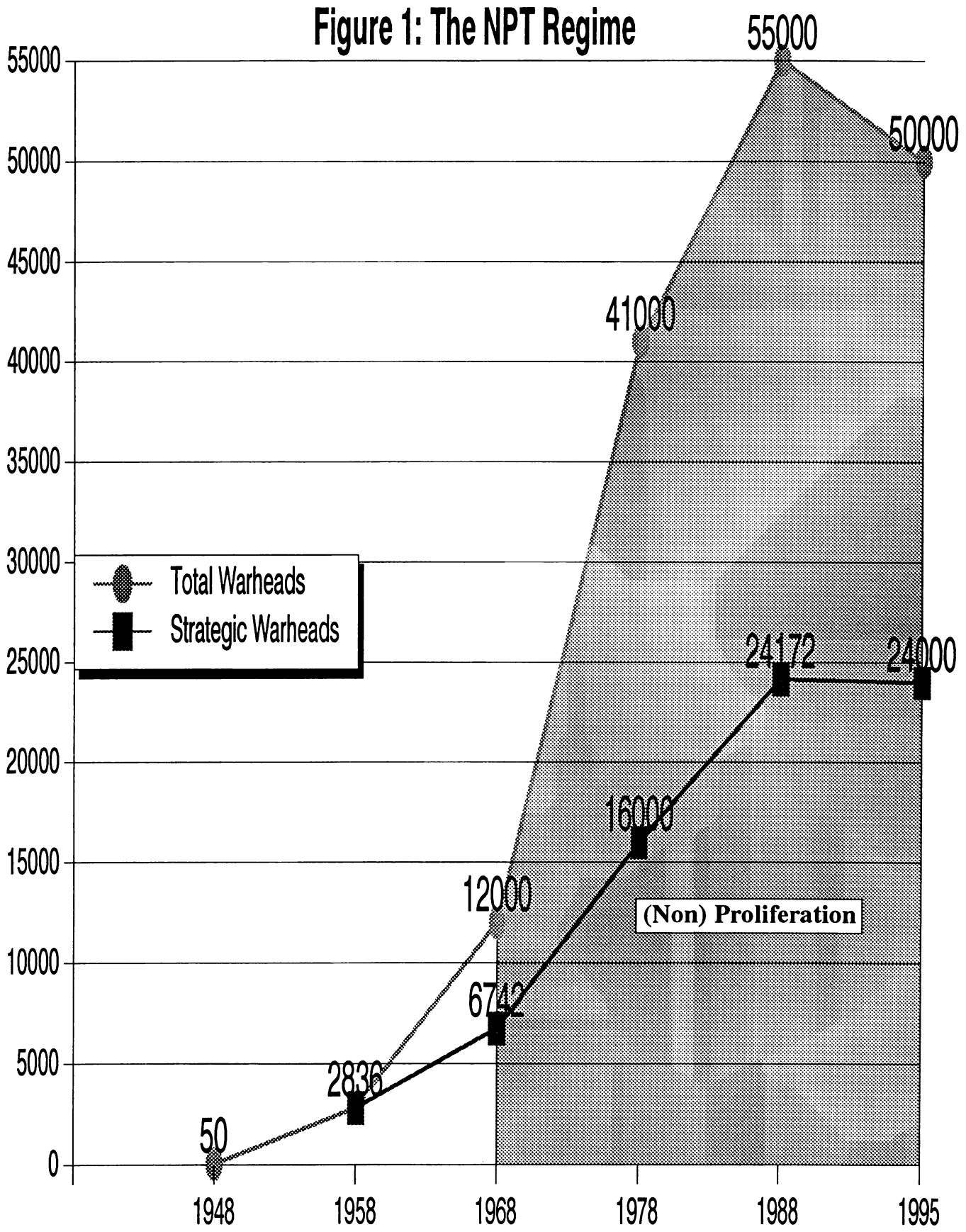
[11] Paul C. Warnke, "Nuclear Israel", *The Bulletin of the Atomic Scientist*, March 1992, p. 42.

[12] UN General Assembly Resolution 2028 (XX), 19 November 1965.



Source: IDSA Chart.

The above listing would give the impression that given the existence of over 179 states, nuclear proliferation has indeed been marginal. The optimistic view would be that since 156 states are already party to the NPT, prospects for future nuclear proliferation are almost negligible. The concerns being expressed about proliferation in the post Cold War world would then appear grossly exaggerated, with the issue of proliferation itself being used more as an instrument of foreign policy rather than being a genuine international security concern. There would be a residual issue of fixing Israel, Pakistan, and India in the nuclear equation. However this should not pose a major problem. And some form of understandings/commitments to freeze and limit the nuclear capabilities of these three states should meet even residual concerns built on worse-case scenarios.

The implications for proliferation of agreements for deep reductions in nuclear arsenals of the US and (former) Soviet Union have not yet been fully perceived. The series of agreements would lead to nearly a 70 per cent reduction in nuclear weapons of the two states by the year 2003. This should give a boost to non-proliferation and ultimate disarmament. However, the US refuses to commit to the "no-first-use" concept; and the (former) Soviet Union has already regressed from its position supporting a non-nuclear world to that of retaining them indefinitely under the doctrine of minimal deterrence for itself, and advocacy of non-proliferation to other states.

These agreements visualise withdrawal and storage/elimination of non-strategic weapons. This is particularly applicable to nuclear weapons at sea. On the other hand, it can be argued that the NPT has not proved to be an adequate instrument of non-proliferation. Iraq's case stands out as a vivid and grim example. In spite of its nuclear installations being destroyed by air strikes during the Gulf War, it was clear that the clandestine programme had not been seriously affected. Sheer accident and the factor of Iraq being a vanquished nation with international opinion against it has also permitted verification through extensive, intrusive inspections under UN authority spread over two years. These are not circumstances which are easily replicated. As it is, the knowledge and capabilities of design, material preparations, fabrication and assembling of nuclear weapons have already spread worldwide and are likely to proliferate rather than disappear. Global recession, reducing defence budgets and the contradictory requirement of high cost, high technology military systems may push states to look for the nuclear option to offset otherwise declining defence capabilities. It is reasonable to assume that a determined state could pursue a clandestine nuclear weapons programme to fruition. The sheer uncertainty of it is a source of insecurity and instability. And though concerns are currently being expressed in terms of "Third World" states, it is in fact the industrialised states that could rapidly move to weapons status without detection. The new "us-them" syndrome being propagated in the North, which seeks to construct a framework for aggressive offensive action against developing countries, unfortunately tends to obfuscate the realities.[13]

At the same time, it is also clear that unprecedented proliferation problems have been created due to the disintegration of the Soviet Union. Six major areas of concern emerge. First, grave uncertainty about control over nuclear weapons has persisted. On 21 December 1991 the leaders of 11 former Soviet republics signed the Alma-Ata Accord. It was agreed that decisions on the use of the strategic nuclear forces of the Commonwealth of Independent States (CIS) will be made by the Russian president "with the agreement" of leaders of Ukraine, Belarus, and Kazakhstan - and after "consultation" with other Commonwealth leaders. Actual control of the "nuclear button" is believed to rest with Marshal E. Shaposhnikov, the commander of CIS Strategic Deterrence Forces and President Boris Yeltsin. The former is answerable, at least in theory, to eleven states; and the chain of command of the Russian presidency is, at best, uncertain. The system does not have the reliability of NATO since there are no institutionalised political controls between Russia, Ukraine,

[13] "Defence in the 21st Century", *The Economist*, 5 September 1992.

Belarus, and Kazakhstan; and the stability of these states cannot be taken for granted. In addition, Russia has been resisting any multilateral controls even on the processes of dismantling nuclear weapons.

Secondly, the future of the domestic crisis of Russia and the internal mechanisms of control of nuclear weapons is unpredictable. In the erstwhile Soviet Union, control over nuclear weapons was maintained through a balance structure of tensions between three interlocking mutually reinforcing pillars of power - the Party, the KGB, and the military. The Communist Party is disbanded and discredited, and stable political framework has yet to gain ground. The KGB, which traditionally controlled the nuclear warheads, has undergone fundamental transformation. The military has been severely affected by the dissolution of the USSR and socio-economic problems. The West has essentially focused on strategic weapons. But nearly 17,000 non-strategic nuclear warheads and extensive stocks of nuclear material pose a more serious danger. Control over such weapons has inevitably been far more diffused, and uncertain. It was generally believed that Soviet theatre military commanders possessed delegated authority to use nuclear weapons in their jurisdiction. There is little to suggest that this has changed. Most Soviet tactical nuclear weapons do not have electronic locks. The military may rapidly lose its cohesion. Even a single warhead, if transferred to any state or non-state actors, could make a critical difference to the political and security environment in the region. The worst part is that given the problems of accurately accounting nuclear material, proliferation uncertainties now will remain, it seems almost indefinitely. Mr. Y. Prinakov, the head of Russian foreign intelligence agency, and member of its national security council, admitted that there is "definite sluggishness" and a "very serious" problem in Russia in gaining control of nuclear weapons.[14]

Thirdly, continuing socio-economic crisis in the former USSR has increased the potential for leakage of nuclear weapons technology and know-how. Nuclear brain drain could reinforce clandestine weapons programmes. New trends in ethno-religious nationalism have the potential to provide additional incentives. The overall proliferation scenario resulting from the vertical and spatial proliferation of the USSR has increased these uncertainties and dangers.

Fourthly, nuclear arms reduction agreements require over 14,200 nuclear warheads to be removed. There is no agreement to destroy these warheads. Dismantling would reduce the danger of use. But dismantling Russian surplus warheads alone would boost available world stocks of highly enriched uranium by about 1,300 tons and that of plutonium by 200 tons.[15] Many problems of storage remain. All that is certain is that in the coming years serious proliferation risks will remain from leakage of nuclear materials from the (former) Soviet Union.

Fifthly, the issue of non-proliferation norms and international behaviour in respect to violation of norms is important. The only international regime for non-proliferation is the NPT. Supplier restraint cartels only aim to control and curb the flow of technology and materials. The control of technology flow can at best only slow down the growth of know-how. With the inevitable development of science and technology, these restraints will progressively loose their relevance in the coming years. Unfortunately, no clearly identifiable and internationally accepted non-proliferation norms exist. The NP-5 have emphasised horizontal proliferation concerns while cynically proliferating vertically and spatially. The NPT essentially represents a political commitment.[16] It must perforce rely on trust and continued commitment. Technical fixes cannot replace them; nor can they provide adequate assurance of non-proliferation. But the NPT itself is ambivalent on the issue of weapons proliferation. The lacunae become clear when it is seen that a

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[14] Barbara Starr, "Russians Voice Their Proliferation Fears", *Jane's Defence Weekly*, 6 March 1993. p. 10.

[15] *US News & World Report*, 2 November 1992, p. 54.

[16] Francesco Calogero, "Nuclear Weapon Proliferation" in Carlo Schaert and David Carlton (eds), *Reducing Nuclear Arsenals*, Macmillans, London, 1991, p. 203.

state could have possessed nuclear weapons but if it did not carry out a test before January 1967 it would remain classified as a non-nuclear weapons state! What is even more important is that the NPT is silent on the whole issue of nuclear threshold capabilities.

On the other hand, it can be argued that political assessments and yardsticks of what constitute nuclear weapons, capabilities and their proliferation are well understood globally. This raises the question of international behaviour in respect to these norms. The US, for example, has subjugated its (horizontal) non-proliferation objectives almost compulsively over the years to other considerations. It is generally expected that the US would take a more firm and undiluted stand against nuclear proliferation now. However, there is little evidence of clear policies (except in dealing with Iraq) in spite of unequivocal support of the international community on the subject. For example, the emergence of Pakistan as a nuclear weapons state coincided with the winding down of the Cold War. As it is, Pakistan received substantive indirect aid and support from the USA (and Saudi Arabia) to pursue its nuclear weapons programme during the 1980s. Both provided, amongst other things, financial assistance to the extent of nearly $12 billion between 1981-91 which made it possible for Pakistan to invest resources in its nuclear weapons programme. It may be noted that Iraq's clandestine nuclear programme during the same period has been estimated to cost around $10 billion.[17] Senior US defence officials provided direct evidence of a benign attitude towards Pakistan's clandestine nuclear weapons programme.[18] The Cold War symbolically ended when the Berlin Wall came down in November 1989. Pakistan's emergence as a nuclear weapons state, including its declaratory policy in this respect, however, has attracted little negative reaction and action from the US and the international community during and after the Cold War. US and NP-5 attitudes towards Israel's nuclear weapons capability is another example.[19] The vertical proliferation by NP-5 under the NPT regime undermines what little norms exist. In the absence of clearly defined norms, and even more diffused responses to nuclear proliferation, it is surprisingly fortunate that horizontal proliferation has remained so limited.

In order to address the problem of nuclear proliferation in the coming years, it will be necessary to define the norms more clearly so that appropriate and adequate firebreaks can be created at every step. The principle on which these norms would need to be constructed should aim to:

- discourage movement towards the nuclear threshold and
- prevent movement across nuclear threshold.

This makes it necessary to:

- define different levels of threshold; and
- design differentiated disincentives to slow down the process of crossing the threshold.

One possible method of classifying different levels of thresholds would be relating them to the national expertise in nuclear science and technology and the ability to translate the know-how into operational capability for peaceful purposes and/or weaponisation. Seen in this context it may be possible to broadly identify three levels of classification defining nuclear threshold states:

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[17] Aaron Karp, "Controlling Weapon Proliferation in the 1990s: The Role of Export Controls", SWP-AP2766/English Version, September 1992, SWP, Ebenhausen, p. 20.

[18] General G. Crist, C-in-C, US CENTCOM, testimony to US Congress, March 1987.

[19] Seymour Hersh, *The Samson Option*, Random House, 1991.

1. States with proven and extensive nuclear technological base. This could be based on assessment of demonstrated capability to design, fabricate, and operate nuclear power reactors indigenously. Countries like Japan, Germany, Sweden, Canada, and India would fall into this category.
2. States with substantive nuclear know-how including capability to produce weapon-grade nuclear materials and components for explosive device. Limited experience in designing and producing nuclear power reactors.
3. States that have acquired weapon-grade materials and other components and known/reliable weapons designs along with technological capability to integrate weapons capability with delivery systems indigenously. No experience of designing and producing nuclear power reactor indigenously.
4. States working on nuclear weapons programmes, especially clandestinely, at different levels of progress. No indigenous capability to design and fabricate nuclear power reactors. Pakistan, South Africa, Iraq, North Korea, etc. fall into this category.

The above classification, obviously, is neither exhaustive nor exclusive. But it is necessary to adopt such an approach for clearer identification of thresholds and threshold capabilities so that non-proliferation measures can be suitably designed.

One of the greatest problems with the existing non-proliferation regime (as symbolised by the sole instrument - the NPT) is that there are no clearly understood and practiced incentives nor disincentives. What little incentives were introduced in the NPT (in terms of assistance in nuclear technology for peaceful purposes) have mostly fallen by the way. During the Cold War, alliance systems catered for the security imperative of states, reducing the incentive to cross the threshold for many. This factor may not be available in the future. For example, Ukraine's incentives to hold on to nuclear weapons capability are derived from national security concerns and political leverages that the capability provides.[20] This would have been irrelevant within an alliance system like the Warsaw Treaty Organisation. Similarly, the likely trends and incentives of nuclear capable states like Germany, Japan, Italy etc. in the *absence* of a security alliance with the US, or the erosion of the existing alliance, need to be borne in mind.

On the other hand, while the NPT creates restraints on proliferation, it also legitimises nuclear weapons, even if with a few. To that extent, the sole international regime tends to be counter productive.

The absence of clearly defined and firmly pursued disincentives against nuclear proliferation is a strong factor influencing proliferation. Non-proliferation objectives have not been pursued with any consistency by the international community. The NPT, having been negotiated outside the UN framework, fails to address the issue. Amongst the NP-5, China, in fact, is believed to have directly contributed to nuclear proliferation.[21] US officials have said on many occasions (since the early 1980s) that Pakistan received a proven weapon design from China. Senator John Glenn, the foremost advocate of nuclear non-proliferation in the US Congress recently reiterated this.[22] The US turned a blind eye to Israel's progress into a weapons state.[23] And the other great powers also did little by way of stopping or rolling back their weapons programme, especially after 1973. South Africa was affected adversely on account of its apartheid policies. But no anti-proliferation policies were put in place. Iraq's case is unique. In the case of Pakistan, as noted earlier, a benign approach

[20] William Potter, "A First Clinton Challenge: Ukraine's Nuclear Game", *International Herald Tribune*, 11 November 1992.

[21] In this connection also see CIA Director James Woolsey's testimony to the Senate Government Affairs Committee on 24 February 1993, pp. 26-31.

[22] *Economic Times*, 2 November 1992.

[23] Seymour Hersh, No. 17.

with a degree of direct/indirect support to its weapons programme has characterised the policies of the US, and China. The USSR had issued a demarche in June 1987; but Russia seems to have adopted a more conciliatory position once Pakistan declared its weapons status. The US did try to "roll back" Pakistan's programme, but seems to have settled for a "freeze" of capabilities. In the process Pakistan has, de-facto, declared itself as a nuclear weapons state. This, of course, raises the fundamental question of the credibility of non-proliferation policies of the NP-5. On the other hand, stiff measures were adopted against India after 1974; even now sanctions have been applied on the Indian Space Research Organisation (ISRO) by the US on highly questionable grounds. China, on the other hand, is treated with kid-gloves in spite of its policies of proliferation of nuclear weapons and ballistic missiles. Saudi Arabia, which acquired IRBMs from China in 1988 (and did not use them in the Gulf War), did not suffer negative consequences either.

While incentives need to be created for non-proliferation, clear and consistent policies and actions are necessary to combat proliferation, especially when proliferation reaches the level of declared weapons status. To be effective and acceptable, these policies must be based on the principles of transparency and universality; and they should have the authority of an international regime.

The Future of Non-proliferation

It is necessary that the issues related to proliferation be addressed afresh in the post-Cold War context and without the mindsets of the Cold War. President Bill Clinton spelt out the American goal to "reorient our nuclear policy to counter the increased threat of nuclear proliferation and to reflect the reduced threat of a massive attack from the former Soviet Union".[24] This needs to be pursued to its logical end, especially by America's first post-Cold War presidency which has a historical opportunity to not only free itself of Cold War baggage but also to restructure the nuclear threat to eliminate uncertainties. The greatest advantage that the new presidency has is that the NPT, which has long been considered the mainstay of the global non-proliferation regime, will face a crucial test in 1995. Towards this end there is a need for the US to work closely with countries acutely threatened by proliferation.

The international community has to make up its mind in the coming two years on not only the extent to which the NPT has genuinely served the objectives and articles of which it is composed, but also to see how far it will serve the needs of the future. Landmark changes have taken place during the past three years; it may be too early to come to definitive conclusions about the future of the NPT. But the question of proliferation needs to be addressed with a degree urgency.

In many ways, the treaty to abolish chemical weapons offers a sound model for future direction. It would be difficult to sustain the concept of discrimination indefinitely. There is little logic in perpetuating nuclear threats and uncertainty arising out of proliferation. The incentives for non-proliferation need to be enhanced; strong disincentives against proliferation built up. This is only possible with an international regime based on the principles of transparency and universality. A linear approach to the NPT is unlikely to meet the needs of a post Cold War future. Perpetuating the NPT without collateral changes or a total collapse of the non-proliferation regime at this juncture would lead to disastrous consequences. Disarmament measures need to be linked more firmly with non-proliferation because of the ripple effect arising out of national security concerns. The logic requires global nuclear disarmament. This must remain the objective, even if only a long-term one. Meanwhile drastic reductions in nuclear arsenals and firm curtailment in their

[24] Bill Clinton, "Refocus Military Role", *Defense News*, 26 October-1st November 1992.

deployments would be necessary. At the same time, the issue of thresholds needs closer attention and a clearer definition of threshold states is necessary.

The solution may lie in a multifaceted approach which is comprehensive, builds on existing norms and caters for future trends and uncertainties.

Working for an amendment of the NPT would not be meaningful, although a comprehensive review is necessary.[25] This should lead to the signing of a protocol (by 1995) to the NPT incorporating agreements along the following lines:

- Define proliferation norms, incentives/disincentives more clearly and classify threshold states in terms of capabilities.
- An unambiguous and firm commitment to negotiate an international treaty for the drastic reduction of nuclear weapons with the eventual aim of abolishing them (on the lines of the chemical weapons treaty).
- States to declare their nuclear weapons and fissile material stockpiles,
- States to stop production of weapon-grade material,
- Research into and testing of nuclear weapons to be terminated,
- No-first-use commitments by all nuclear weapon states (including those claiming to possess components of a bomb).
- Outlaw the use and threat of use of nuclear weapons.
- Eliminate ballistic missiles with 50 km 5,500 km range.
- Eliminate non-strategic nuclear weapons in a 10-year phased programme.
- Restrict deployment of nuclear weapons at sea to the oceans North of the Tropic of Cancer.

The drastic reduction in nuclear weapons has become more feasible now than what was perceived before the Berlin Wall fell. For some period of time, until nuclear deterrence decays and the weapons become irrelevant both for national security and as instruments of politics, residual nuclear weapons may need to be retained. The best solution would be to shift them from national control to multi-lateral international management.[26] This would also provide the necessary insurance against a rogue proliferator and/or nuclear destabilisation in any form.

The protocol will also need to establish suitable verification/inspection guidelines. These should take into account the different levels of capabilities, especially of threshold states, and make suitable distinctions between civilian and military programmes. This should remove the existing inequities and lacunae in the NPT through the addendum.

The treaty for the drastic reduction of nuclear weapons, their interim and final management is bound to be a complex and time consuming process. Meanwhile a decision on NPT extension has to be taken. It would be in the interest of international peace and security if the NPT is extended for a fixed period of 10 years to enable a new treaty to be worked out. Such a step would not be inimical to the interests of the US, or for that matter, of the other nuclear weapons states. What is necessary is an objective re-assessment of the role of nuclear weapons and the exercise of will to take advantage of this unique opportunity in history. With the first post-Cold War administration coming into power in Washington, the imperative to think afresh and beyond the mind sets of the past confrontations is even greater. At the same time it should be possible for all states to accede to the NPT protocol and give non-proliferation a real chance to succeed.

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[25] For an alternate view see Kumao Kaneko, "Wanted: Genuine Nuclear No-Proliferation Policy", *Atoms in Japan*, Vol. 3, No. 7, July 1992.

[26] For one view, see Gerard C. Smith, "Twoolsey's testimony to the Senate Government Affairs Committee on 24 February 1993, pp. 26-31.

Chapter 5
The Future of the Multilateral Non-Proliferation Regime

David Fischer

The Regime

The main multilateral components of the nuclear non-proliferation regime are:

- the NPT and the regional treaties creating nuclear-weapon-free zones (the Tlatelolco, Rarotonga and Antarctic Treaties and the treaties that, it is hoped, are in gestation in Africa, South East Asia, and the Middle East);
- the International Atomic Energy Agency as the global body responsible for verifying compliance with the provisions of the treaties prohibiting the diversion of nuclear energy from civilian to nuclear explosive uses. This function is also served in the EC non-nuclear-weapon states by EURATOM;
- since 1991, the Security Council of the United Nations on which the IAEA would rely to enforce, for instance, its inspection rights;
- the systems of controls on nuclear exports known as the Nuclear Suppliers' Guidelines (NSG).

The NPT and the Regional Treaties

The Most Divisive Issues

The key to the whole system is the NPT of 1968. The 1995 Conference, which must decide how long the NPT will be extended, is thus the crucial year for the regime.

Since the danger of proliferation will be with us permanently there is much to be said for making the Treaty a permanent institution, *i.e.* to extend it indefinitely as the G-7 and many other parties now propose to do. The end of the Cold War and the commitments of the US and Russia to drastic reductions in their nuclear arsenals have improved the prospects for such an indefinite extension. So too have the accessions of France and China to the NPT in 1991 and the change of policy in South Africa, Argentina and Brazil which has brought the first into the NPT and led Argentina and Brazil to place their entire nuclear programmes under regional and IAEA safeguards and which has greatly improved the prospects for the full entry into force of the Tlatelolco Treaty.[1] But other political developments between now and 1995 will help determine whether the goal of a permanent NPT is feasible at this stage.

Among them are the non-proliferation policies that the republics of the CIS and particularly Ukraine will follow. If the latter as well as Belarus and Kazakhstan fulfil the pledges they made in the Lisbon Protocols to the START I Treaty (to accede to the NPT as non-nuclear-weapon states in the shortest possible time) then a large number, if not all, CIS republics as well as the constituents of the former Yugoslavia, are likely to join the NPT in the next two years and become strongly supportive parties at the extension conference. In that case Russia will be pressed to fulfil

[1] The Tlatelolco Treaty will enter fully into force when Argentina, Brazil, Chile and Cuba accede it and waive certain limiting cooperation provisions. Argentina and Brazil have said they will now accede, Chile that she will follow suit and Cuba likewise. When fully in force the Treaty will cover not only the continent and islands of Latin America but also the adjacent oceans, linking it with the oceanic areas covered by the Antarctic and Rarotonga Treaties.

as quickly as possible her commitments concerning the dismantling of nuclear warheads and to place the fissile contents of the warheads under international safeguards.

On the other hand the regime may face a serious crisis if Ukraine has not acceded by the time the extension conference opens. The concerns of all her neighbours to the West as well as East will be aroused and it could shake the very foundations of the Conference if it were plunged into a controversy about how many nations should be regarded as nuclear-weapon states under Article IX.3 of the Treaty. It may prove desirable to encourage early Ukrainian, Belarussian and Kazakh accession to the NPT as non-nuclear weapon states even if the timetable for dismantling nuclear warheads on their territories is still under discussion - in other words to provide for an extended period of grace.[2]

If by 1995 the progress towards a Middle East settlement offers a clear prospect of capping the Israeli nuclear arsenal and of eventually bringing Israel into the NPT as a non-nuclear weapon state one may expect that the majority of Arab states would accept the conversion of the NPT into a permanent institution and would be ready to ratify the draft CW Convention which can enter into force, at the earliest in January 1995. The reverse is even more likely to be true - it is improbable that the Arab states will accept a permanent NPT that tolerates a nuclear-armed Israel.

A Possible Compromise

In view of the possibility that a significant group of parties would not accept an unqualifiedly permanent NPT that did not include a non-nuclear Israel or Ukraine, it may be desirable to explore alternative approaches. One would be to extend the NPT for an indefinite number of "additional fixed periods" but include in the 1995 decision an option for the parties to decide to terminate the Treaty at the end of any "additional fixed period".[3]

It may be argued that providing such an option would go beyond the authority that Article X.2 of the NPT assigns to the 1995 Conference. However, unless a termination option were included in the 1995 decision there would be non difference in practice between (for instance) a decision toe extend the Treaty for an additional fixed period of twenty-five years or for five additional fixed periods of five years each. In other words, the option set forth in Article X.2 for an extension for more than one fixed period would lose its meaning.

Other Article VI Issues

Besides the issues that may arise out of the dismemberment of the Soviet Union or the search for a Middle East settlement, the 1995 Conference will probably have to address most of the issues that traditionally arise under Articles VI, IV and III of the NPT. The progress made and in prospect for radical nuclear disarmament, the testing moratoria already in force and the fact that the prospects for a Comprehensive Test Ban Treaty (CTBT) are better than they have been since 1963, suggest that such a treaty is losing much of its significance as a measure for constraining the "improvement"

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[2] It is understood that under the START Treaty the parties have until 1999 to complete the process of dismantling.

[3] This option is examined in George Bunn, Charles van Doren and David Fischer, *Options and Opportunities: The NPT Extension Conference of 1995*, PPNN Study Two, November 1991, pp. 12-13 and 28-30, Programme for Promoting Nuclear Non-Proliferation, Mountbatten Centre, University of Southampton.

Several approaches are possible under this option, *e.g.* the final review conference during any "additional fixed period" could automatically consider whether the Treaty should continue into the next fixed period. Or the 1995 Conference might simply resolve that if a majority of the parties so requested, a special conference should be convened by the depositary governments to decide whether the Treaty should be terminated at the end of the current "additional fixed period". In either case a decision to terminate should require the votes of a majority of the parties (cf. Articles VIII.1 and X.2 of the Treaty).

of the nuclear arsenals of the nuclear-weapon states (but perhaps not as a measure for restraining proliferation).

Other perennial issues are likely to provoke discussion but not affect significantly the outcome of the Conference. They include the need for more forthright and effective "positive" and "negative" security assurances (the latter will gain importance if Russia emerges as the only nuclear-weapon state amongst the CIS), a cut-off in the production of fissile material (already achieved but not internationally verified in the US, and in prospect in Russia), "No first use" which will acquire a new significance if the leading nuclear-weapon states proceed with plans to devise warheads and missiles that could be used in conflicts with authoritarian regimes in the "Third World", and additional nuclear-weapon-free zones.

Another issue that is coming to the fore is the disposal of the plutonium and highly enriched uranium recovered from dismantled Russian and US warheads and the justification for producing even more civilian plutonium, thus adding to an already growing surplus of this dangerous material. The first large-scale transport of plutonium from France to Japan has sensitized the public and authorities of several countries that lie along potential routes for the *Akatsuki Maru* and its coastguard escort. In this context there is a revival of interest in the plans for an International Plutonium Management System, discussed by the IAEA in the late 1970s and early 1980s to give effect to Article XII.A.5 of the IAEA's Statute, and to bring all separated plutonium, civilian or military, under international lock and key.

Article IV Issues

Unless there is an early renaissance of the prospects for nuclear power in the developing countries it seems unlikely that Article IV of the NPT will attract more than routine attention. The agreement reached by the Nuclear Suppliers' Group at Warsaw in Spring 1992 to require comprehensive ("full-scope") safeguards as a condition of all nuclear supplies and to introduce export controls on more than sixty dual-use items may provoke a sharp reaction from some of the developing country parties to the Treaty and complaints will be heard from those NPT parties that find it difficult to import nuclear technology despite their membership of the Treaty.

Summing up, the prospects for making the NPT a permanent institution in 1995 depend to a substantial extent on progress made in securing CIS and particularly Ukrainian accession to the NPT as non-nuclear weapon states, in moving towards a nuclear-weapon-free zone in the Middle East, and to a lesser extent, probably, in moving towards a CTBT. If an unqualified extension is not in prospect it may be preferable to seek a consensus on an indefinite number of fixed extensions with the option to terminate the treaty at the end of any extension.

IAEA Safeguards

The future of the IAEA as a verifying agency obviously depends on what happens to the NPT. If the latter were to expire IAEA safeguards would still continue to apply in Latin America and on many nuclear plants in other parts of the world, but there would be gaping holes in the system in the Middle East, South and East Asia, Southern Africa and Eastern and Western Europe where the NPT is today the sole legal basis for the application of comprehensive safeguards. The situation would be reminiscent of the mid-1960s, except that since then the number of countries technically capable of making nuclear weapons would have grown from half a dozen to more than forty.

Since 1970 the IAEA has devoted most of its safeguards resources to monitoring the declared nuclear programmes of the industrial democracies. It is now turning its attention to detecting any clandestine nuclear weapon programmes that may exist (like that pursued by Iraq completely independently of her declared and safeguarded nuclear plants). The IAEA is beginning re-deploy

its safeguards resources away from the Western Europe where there is extensive duplication of work by it and EURATOM. The IAEA has also reaffirmed the importance of its right to conduct special inspections at *any* location, if it has reason to suspect unreported nuclear activities and its right of access to and need for comprehensive information about the nuclear activities, especially of states that are subject to comprehensive safeguards. It is setting up a universal reporting system (still voluntary) and has asked for access to data acquired by its member state concerning suspect nuclear activities. It has reaffirmed the importance of the direct link between the IAEA Board of Governors and the Security Council and its dependence on the latter for the enforcement of its inspection rights and of its ability to deal with any illegal activities it may discover.

The Role of the Security Council

On 31 January 1992 the Security Council, meeting at the level of heads of government, issued a communique in which its members declared that "the proliferation of all weapons of mass destruction constitutes a threat to international peace and security".[4] The communique drew no distinction between proliferation by parties and by non-parties to a non-proliferation treaty. But it also affirmed that "the members of the Council will take appropriate measures in the case of any violation notified to them by the IAEA" presumably a violation of IAEA safeguards which were referred to in the immediately preceding sentence.

As Professor Serge Sur pointed out, as a general rule it is for the parties to a treaty and not the Security Council to determine whether there has been a violation of the Treaty.[5] But the Security Council seems to have finessed this issue by the stand it has taken against proliferation within or without the context of the NPT. In this somewhat indirect way the Council has assumed responsibility for ensuring compliance with the NPT - of becoming the guardian angel of the Treaty, as was suggested by Dr. Genscher in February 1992.[6]

This consensus concerning the Security Council's role in relation to non-proliferation and IAEA safeguards is very recent and still fragile. Thomas Pickering, until recently US Permanent Representative at the United Nations, has cautioned against "... thinking that the Council will act in an equally forthright and aggressive way in situations that are much less clear-cut [than Iraq]" especially if the proliferating government were less reckless than Saddam Hussein was in provoking the Council.[7] The non-proliferation consensus could also collapse or be seriously eroded if there were a major reversal in the foreign policy of Russia or a negative Chinese reaction to a decision that the Council would have to take to enforce IAEA safeguards rights.

To pre-empt to the extent possible any such developments and it must be recognized that there is no way at present in which a permanent member of the Council can be deprived of its veto right it might be desirable (if politically feasible) to formalize the role of the Council in relation to the non-proliferation so as

- to spell out the principle that any further proliferation of weapons of mass destruction would be regarded as a threat to peace under Chapter VII of the United Nations Charter;[8]

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[4] United Nations Security Council, S/23500, 31 January 1992, Report No. 92-04224F.

[5] Serge Sur, *Security Council Resolution 687 of 3 April 1991 in the Gulf Affair: Problems of Restoring and Safeguarding Peace*, UNIDIR Research Paper No. 12, United Nations, New York, 1992.

[6] "Sicherheitsrat soll 'Schutzpatron' fuer Atomsperrvertrag werden", *Frankfurter Allgemeine Zeitung*, 21 February 1992.

[7] Thomas R. Pickering, "The Post Cold War Security Council: Forging an International Consensus", *Arms Control Today*, June 1992, p. 9.

[8] On this question see *ibid.*. p. 10.

- to reaffirm the role of the Security Council as the supreme international authority for ensuring compliance with treaties designed to prohibit weapons of mass destruction or prevent their wider dissemination;
- to articulate the relationship between Security Council, as the organ of the United Nations bearing the main responsibility for the maintenance of peace and security, and the IAEA[9] as the international authority for verifying compliance and determining non-compliance with safeguards agreements and with any special measures that the Security Council might take to prevent the further proliferation of nuclear weapons.

To improve its balance such a decision of the Council might reaffirm the last phrase of Article VI of the NPT to which all five permanent members are now committed, namely "to pursue negotiations in good faith ... on a treaty on general and complete disarmament under strict and effective international control" thus making it clear that non-proliferation is not merely a means of preserving the nuclear *status quo* but part of a process which the nuclear weapon states have undertaken to pursue.

To eliminate any impression that "getting the bomb" is the entrance ticket to permanent membership of the Security Council and to the right to veto its decisions, it will be desirable to include leading non-nuclear-weapon states party to the NPT (or possibly to the Tlatelolco Treaty) amongst the Council's permanent members. Germany, Japan and perhaps Brazil and Nigeria (Egypt?) would then qualify for inclusion, and India if she renounced nuclear weapons.

Transfer "Special Inspection" Authority to the Security Council?

Recently there have been suggestions that responsibility for special inspections should be removed from the IAEA and assigned to a special commission acting under the authority of the Security Council. It has been argued that the Board of Governors of the IAEA is too large and diverse for it to take effective action in an emergency and that the previous approach of the IAEA inspectorate was insufficiently confrontational. Whatever its merits this reasoning seems to ignore the fact that for forty-five years the Security Council's ability to take decisive action was at the mercy of the veto power of its permanent members, that this veto power still exists, that the membership and diversity of the Council seems likely to increase as and when it meets the growing pressure for its expansion. Moreover it would be a mistake to assign responsibility for routine safeguards and inspection to one organ of the UN system and special inspections to another, the staff required for both types of inspection is largely the same, the need for the special inspections is likely to be rather rare but may emerge as a result of routine activities and routine activities may be needed to follow up on any special inspection. The route taken in the CW Convention is in the opposite direction; responsibility for all inspection is assigned to the organization that will implement the Convention.

Another trend seems more likely to emerge in the years ahead. The verification measures appropriate to one region may not be appropriate or acceptable to another. Thus it is clear that an acceptable verification regime in the Middle East will be far more intrusive, authoritarian, and certain, swift and severe in its sanctions against non-compliance that one that would be needed or acceptable in Western Europe. An acceptable regime in South Asia or the Korean peninsula would

[9] As far as the IAEA is concerned this relationship is already specified in Articles III.B.4 and XII.C of the Statute and Article IX of the IAEA's relationship agreement with the United Nations. The latter provides that the IAEA "shall co-operate with the Security Council by furnishing it at its request such information and assistance as may be required in the exercise of it responsibility for the maintenance or restoration of international peace and security". As far as is known, there has been no corresponding formalization by the Council.

have much in common with a Middle Eastern regime. This trend towards regionalization is already becoming evident in the new agreement between IAEA and EURATOM and in the system established by Argentina and Brazil.

Controls on Nuclear Exports

After remaining essentially unchanged from 1977 until 1991, nuclear export controls have now received a new fillip. Their effectiveness will depend to a considerable extent on the success of the Nuclear Suppliers' Group in integrating the republics of the CIS into the system, on bringing in the "newly emergent suppliers" such as Argentina and Brazil, and on a far more effective enforcement of control regulations.

Export controls can only delay the spread of any technology, but this delay may be helpful by giving time for states to change their policies, as South Africa, Argentina and Brazil have done, and by keeping advanced technology out of the hands of governments that have made clear their desire to acquire nuclear weapons but that still lack the technical means to do so.

Chapter 6
Threshold States and Regional Non-Proliferation

Section I - Nuclear Threshold States: Consequences for Deterrence

Shai Feldman

This paper examines the rationale of nuclear threshold states to maintain such status. For the purpose of this examination, nuclear threshold states are defined as countries that are widely regarded as possessing an advanced nuclear potential, if not deliverable nuclear weapons, but have refrained from declaring that they have acquired such capabilities.[1] Thus, their incentives to remain at this threshold, as well as the costs entailed, will be elaborated. These will be contrasted with the incentives for crossing the threshold and becoming a declared nuclear state.

Clearly, possessing a threshold nuclear capability may well contribute to the state's over-all deterrent capacity. In considering an attack against a threshold state, potential adversaries must take into account the possibility that it possesses a nuclear capability and might exercise retaliation. Such deterrence is said to function "through uncertainty," since adversaries are deterred not by the certainty of retaliation, but rather by their inability to rule out the possibility that it would be exercised.

Enjoying such a potential is especially important for states suffering numerical inferiority. For these states, such a threshold capability comprises part of their "qualitative edge" with which they attempt to balance the quantitative superiority of their adversaries. This rationale applies to the strategic relations between India vis-a-vis China, Pakistan vis-a-vis India, Israel vis-a-vis the Arab states, and Iraq vis-a-vis Iran.

For nuclear threshold states, maintaining this status and avoiding any crossing of such threshold serves a number of purposes: first, it diminishes the likelihood of being sanctioned by countries pursuing efforts to arrest nuclear proliferation, primarily the United States. This incentive may have proved important in the case of Israel, and - until two years ago - for Pakistan as well. Indeed, in Israel's case, the nuclear threshold status is said to have assisted in obtaining conventional arms. Such arms supplies are said to have been intended to make Israel more secure and hence better able to withstand external threats without making its nuclear option explicit.

Second, remaining at the threshold status reduces the danger of encouraging a regional arms race. Specifically, it diminishes the likelihood that neighboring states would see an absolute imperative to develop a nuclear capability of their own. In this context, the relationship between domestic politics and defense policy may prove important: crossing the nuclear threshold may lead to the creation of internal pressures among neighboring states to produce nuclear weapons. Indeed, governments that seem to have decided to avoid developing such a capacity may face intolerable domestic pressures to reverse their decision once one of its neighbors crosses the threshold and adopts an overt nuclear posture. Similarly, neighboring states that have already acquired a countervailing nuclear capability might face considerable internal pressures to build up their forces.

Third, remaining at the threshold status serves the requirements of maximizing domestic consensus and support for the government's defense policy. In this context, the decision to avoid

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[1] The Ukraine, Belarus and Khazahastan do not fit this definition. Indeed, all three have acknowledged the existence of nuclear weapons on their territory. And, they have also agreed to de-nuclearize, although at this writing only the latter two have agreed on the terms and modalities under which this would be done.

crossing the threshold may serve as a compromise between those advocating the adoption of nuclear deterrence and those calling for continued reliance on conventional offense/defense. Partly, such consensus can be assured by the absence of public debate regarding the state's nuclear policy. Such a debate can be avoided only as long as the state maintains its threshold status and does not make its capability public.

In addition, maintaining the threshold status assures officials involved in these states' nuclear programs that they would continue to enjoy a high degree of "policy autonomy", by remaining largely immune to external criticism. Indeed, in some cases, crossing the threshold might propel a debate about the legitimacy of those controlling the state's nuclear potential. This is particularly the case in states where nuclear programs are still controlled by the military. In the absence of reliable information regarding the relevant nuclear activities and designs, a debate about nuclear policy cannot develop. And, in the absence of external debate, the individuals navigating nuclear policy can remain largely immune to external checks and controls.

Finally, remaining at the threshold status insures greater congruence with the prevailing trends in the international system. Partly, this refers to a growing propensity among states to step back from the nuclear threshold as illustrated in recent years by South Africa, Brazil and Argentina. Under such conditions, crossing the threshold would clearly constitute a case of "sailing against the wind."

Yet possibly of greater significance is the growing similarity between the attributes of the threshold status and the nuclear postures of the recognized nuclear powers. This point, suggested to me by Jérôme Paolini of the Institut Français des Relations Internationales, argues that with the end of the Cold War, all five nuclear powers have lost their ability to define their adversaries and to formulate a clear nuclear deterrence doctrine directed at these adversaries. In this sense they would increasingly resemble the postures of nuclear threshold states that - as an inherent component of their ambiguous status - have refrained from formulating a doctrine for their nuclear capabilities.

In addition, the superpowers are currently pursuing a policy of accelerated nuclear disarmament. This is best illustrated by the conclusion of the START-II treaty. Inevitably, this would lead the nuclear powers to postures that are more consistent with what is widely regarded as "minimal deterrence." In this sense as well they would increasingly resemble the postures of threshold states that do not have the capacity for more than minimal deterrence. From the standpoint of the latter, maintaining congruence with what seems to be the prevailing trend among the nuclear powers involves enjoying the comfort of membership in an increasingly respectable club.

Yet sooner or later, nuclear threshold states may face growing pressures to consider crossing the threshold. The most important such pressures may result from the acquisition of a nuclear capability by a neighboring state. Such acquisition may breed an imperative to make deterrent threats clearer and sharper, in order to avoid the danger that their nuclear-armed neighbors might miscalculate. More generally, the desire to make deterrence more credible will propel an effort to reduce ambiguity by crossing the threshold and adopting an explicit nuclear posture.

More generally, the imperative of "nuclear management" - namely, reducing post-proliferation risks - may induce the need to conduct a "nuclear dialogue" among neighboring states. This might require that they be more specific about the nuclear capabilities at their disposal. Thus, in effect, they would be propelled to cross the threshold. More recently, India and Pakistan seem to demonstrate the ability to conduct such a dialogue without crossing the threshold. But there is considerable doubt as to how far the two governments can proceed with such a dialogue without becoming more explicit about their nuclear capabilities. In other words, it is not clear what would remain of their threshold status once they engage in serious dialogue about the implications of these capabilities.

Two other related disadvantages associated with maintaining a threshold status evolve from the resulting inability to define specific threats: the diminished capacity to deter specific challenges and

the resulting danger that an adversary would launch hostilities through miscalculation. In the latter sense, the threshold status comprises a major obstacle to crisis stability.

Another disadvantage of remaining at the threshold status involves the associated inability to socialize the public with respect to the deterrent effect of the nuclear capability possessed and the diminished importance of more "traditional" components of national power such as territory. Consequently the ability to persuade the public that a more flexible approach regarding such components - that sometimes comprise the core of their conflict with neighboring states - may provide an important incentive to abandon threshold status.

Paradoxically, the desire to advance regional arms control may prove another source of pressure to cross the threshold status. In the past, a commonly accepted data base comprised a prerequisite to arms control: limitations could be discussed only after the parties had agreed on what was being limited. This may be the case in the future as well, forcing threshold states to become explicit about the nuclear capabilities at their disposal. Thus, one Egyptian proposal to establish a "freeze" on the production of nuclear weapons-grade material in the Middle East required that Israel make public "the size of its nuclear stockpile."

Arms control may threaten the threshold status of a number of states in yet another respect. Toward the 1995 Nuclear Non-Proliferation Treaty Review Conference when the treaty is to be re-ratified there might be a need to consider the wisdom of continuing the facade entailed. This refers to the fact that the Treaty recognizes only five nuclear states and completely ignores the existence of capabilities that remain at the threshold. This not only sheds doubt regarding the credibility of the regime, but also limits the capacity to make nuclear threshold states effective partners to the non-proliferation efforts.

In closing, three points deserve emphasis: First, despite the ambiguities involved, considerable deterrent effect can be derived in the nuclear realm even if the state remains at the threshold. Second, as a state's nuclear capability progresses from ambiguity to clarity, the costs of crossing the threshold diminish. This is the case because as the regional and international environment gradually adjusts itself to the possession of such a capability, and the explicitness resulting from crossing the threshold would not shock the environment.

Yet even a gradual advance toward nuclear clarity would not eliminate the significant costs entailed in crossing the threshold - primarily the penalties likely to be levied by the powers opposed to proliferation. At the same time, once a state has moved considerably down the path from nuclear ambiguity to nuclear clarity, there are far fewer reasons to cross the threshold. This is because much of the deterrent effect that can be derived from the possession of nuclear weapons would have already been obtained without crossing the threshold.

Finally, it must be recognized that as long as the five acknowledged nuclear powers remain committed to possessing a nuclear deterrent capability, it would not be possible to persuade all other countries to refrain from attempting the same, either at or across the threshold. Thus, for example, if the United States remains committed to maintaining credible nuclear deterrence despite the fact that it no longer faces an existential threat, it would be impossible to persuade all other states - many of whom are still confronted by mortal dangers - that they should abandon the quest for an implicit or explicit nuclear deterrent.

Section II - Middle East

Mahmoud Karem

I too was struggling with the topic under consideration and I think that the best thing to do in order to tackle this topic is to concentrate on the Middle East from an Arab-Israeli perspective. And this is exactly what I will do.

A few days ago there was a conference in Cairo on the peace process. Two questions were put to the panellists from the floor. These questions carry a sense of direction or orientation from a rising public opinion, not only in Egypt, but in many Arab countries, of what to do with the future and how to tackle arms control measures within the context of the peace talks. The two questions posed were: *one*, why speak so much of arms control measures, why bother with initiatives such as the establishment of a Nuclear-Weapon-Free Zone in the Middle East and Weapons of Mass Destruction when no sign of progress or reciprocity is coming from the other side; and the *second* question was from a young political science student who said that amidst this so-called atmosphere of confidence, openness and transparency, would you expect the other side to be talking in terms of arms control and whether we thought that something like that could take place in Israel. I responded to both and told the young man of a conference that took place on 11 November in Tel Aviv, organized by the Israeli Association of Physicians for Prevention of Nuclear War. I read him two resolutions of that Conference, one of them calling for the shut down of Dimona and the other on the renunciation of the use of nuclear weapons. Having said that, I would like to address the multi-facets of security structure that exists today within the Middle East from a regional point of view. Several points need to be listed in this regard.

First, from a regional perspective, the opposing security structures, concepts and perceptions remain. Luckily we have a multilateral framework and we hope that in the future progress within this context will take place. But as we speak, these opposing security structures and concepts remain - including nuclear deterrence policies, and in the regional perspective. When you tie that opposing structure to an unresolved political crisis, such as the Arab-Israeli conflict, you get a clearer sense of the urgency that dominates the region. The second point of view is that the Middle East region is entering into another level of analysis, that of a qualitative rather than a quantitative desire for arms. This syndrome of seeking a "qualitative edge" deepens this sense of anxiety among many countries in the region. We are witnessing, for example, Israel reaching outer space and launching satellites. I have no need to list all the measures, but some of them include the development of a new anti-missile system (Arrow), Israel's inclusion into the System of Global Protection against limited strikes GPALS etc... Tied to an undeclared nuclear posture of psychological deterrence and an unresolved political crisis between Israel and countries in the region, this exacerbates the already tense situation. We in the Arab world also take issue with the thesis that Israel's policy of nuclear ambiguity rests on sufficient rationality and is valid enough to live and cohabitate with. Many questioned that notion of rationality and asked why is it permissable for Israel to retain that posture of nuclear ambiguity and why is it possible to accept the argumentation that they possess rationality and would therefore be free to maintain that posture. That kind of premise leads to the assumption that Arabs are not rational.

The third point is the insecurity of the region emanating from the emergency of new threats, from certain actors, which have traditionally been busy with other volatile situations and now have found themselves in a position to flex their muscles and are ready to export certain hegemonistic ideologies. This new element has introduced itself into the intricacies of maintaining security within the volatile setting of the Middle East region. Now, having said that, I would like now to present a few action-oriented thoughts, ideas, may be proposals, on how to proceed in dealing with the security preoccupations, particularly in the nuclear field in the Middle East. The point of departure

that I would like to present, simply stated, is that the most reasonable and most concrete format (machinery) would be through the multilateral peace talks that have taken place, to increase confidence among the parties within these talks. I personally believe that it is important to leave the parties to decide for themselves and to agree among themselves on what to do and to achieve or to arrive on their own, by the measures which they would like to pursue. But there are certain ideas which need to be explored and certain responsibilities that need to be identified, not only from an intraregional standpoint but also from an extraregional perspective. From an intraregional perspective we can list a few measures and perhaps cross check them with obligations from extraregional powers. The first was mentioned by David Fischer a few minutes ago on security assurances. Security assurances to non nuclear weapons states in the post-Cold War era is a notion that is gaining momentum. Attesting to that is President Bush's announcement before the forty-seventh General Assembly on security assurances and on the need to further not only the notion of positive assurances but also negative security assurances. This is a new element, especially if juxtaposed against the well-known traditional United States perspective on the issue. Now whether the combination of both security and positive assurances would be the appropriate format or whether certain tailor made assurances taking into consideration the special characteristics of the Middle East would be the proper way out remains to be seen. Would it be possible to think of a declaration issued by the five permanent members of the Security Council not to place, not use against, and not to stockpile nuclear weapons in the Middle East? This of course would be deposited with the Security Council. The formation, the drawing of that declaration of course, as I mentioned earlier, would be tailor-made to the Middle East and would be intended to take into consideration the anxieties of the country concerned.

The second point is the agreement on the definition of that regional zone, be it a zone free of weapons of mass destruction or a zone free of nuclear weapons. On the definition of the zone, it is important to begin with core countries and to leave periphery ones to a later stage in order not to complicate the process. In this respect, as much as we need the support of intraregional countries, we should also marshall or ensure the support of extraregional powers in this regard. For instance, for understandable reasons, Pakistan should not be included in the definition of the Middle East, since its security preoccupations are directed elsewhere. The third lesson that needs to be drawn is to avoid the imposition of a western model security approach for Middle Eastern countries. The fact that confidence-building measures, Helsinki Accords, CSCE measures, have been successful in the European theatre does not necessarily mean that they should be carried *in extenso* and emulated to the Middle East. Some lessons may be useful, but not all lessons would be and should be applicable to the Middle East. Again, the basic characteristics as well as the distinct cultural milieu of the Middle East, and the basic political characteristics of the Middle East should be borne in mind. I think the fourth point would be to encourage the verification and safeguards mechanisms - including special and mutual inspection of nuclear installations in addition to those that have just been referred to by David Fischer and which seem to be gaining more and more momentum within, and under the aegis of the International Atomic Energy Agency. Why is that useful? Because safeguards deal with confidence-building measures that would dissipate fears between certain parties. They also strengthen the primacy and full-fledged objectives of the non-proliferation regime. The application of tailor-made safeguards within the context of a NWFZ in the Middle East would be one area that needs to be further explored. Maintain the close link between confidence-building measures and arms control. They should both go hand in hand and in tandem. One should not preclude the other, one should not overtake nor be at the expense of the other. This is one particular syndrome the multilateral Middle East peace talks on arms control is suffering from, and we hope that in the future an acceptable formula will be found in order to merge the security concerns of all parties whereby the application of collateral confidence-building measures between the parties would be also coupled with genuine progress in disarmament measures. I conclude with one final thought

perceiving a more vital and proactive, not reactive, role accorded to the highest political organ of the United Nations, namely the Security Council, in accordance with article 26 of the UN Charter.

Again, I say, awaiting full-fledged accession to the Non-Proliferation Treaty, would it not be possible to consider a declaration from certain states in the Middle East, by dispatching a letter of intent to the Security Council honouring certain commitments, such as a commitment not to station, produce or test nuclear weapons, to accede in the future to the Non-Proliferation Treaty and place nuclear activities under IAEA safeguards. I think the lesson of France is very useful because even before joining the NPT, France has been on record in saying that it will behave within the norms of the NPT. In this regard, these states may also declare this commitment to embark on the practical steps to realize the objectives of freeing the Middle East from all types of weapons of mass destruction.

In addition, States members of the Security Council may agree on a specific role assigned to the Security Council in accordance with article 26 of the UN Charter by depositing these declarations with the Council, issuing a statement acknowledging these declarations, and reinforcing the need for achieving mutual security for all the parties while realizing the objectives of a NWFZ in the Middle East as well as a zone free from weapons of mass destruction.

Concomitantly, we may build upon the Bush initiative of May 1991 calling for the application in the Middle East of a verifiable ban on nuclear weapons related material. It is interesting to note that this initiative also mentions "Acquisition" and the need to address it; thereby underscoring it as one grave problem. Call should be made for credible security assurances from nuclear weapons states to states members of a nuclear weapon free zone in the Middle East. The support of the role of the IAEA is necessary in its application of safeguards in the Middle East Resolution 601 of October 1992; by applying full scope safeguards on all nuclear installations and activities in the region. What remains to be seen is an agreement on the organizational measures and the appropriate framework of the translation of those ideas into practical reality.

Chapter 7
Responses

Gérard Errera

In view of the thrust and substantiality of the statements that have been made, it would be good if speakers were kind enough to try to deal with two complementary, but relatively different categories of questions that have arisen during the discussion. Those categories are as follows.

The first comprises what might be called the pair nuclear deterrence/nuclear non-proliferation. Is there or is there not a contradiction between the fact that the possession of nuclear weapons on the basis of the concept of deterrence has generally been equated with stability in the north of the planet in the context of East-West relations, whereas the proliferation of such weapons is equated with destabilization and threat in the south of the planet? Obviously, hidden behind this question is the acceptance or otherwise of the fundamental distinction that is embodied in the Non-Proliferation Treaty between the five legitimate nuclear Powers and the others. A further hidden question is, I feel, that of the acceptance or rejection of the distinction made this morning by a number of speakers, including Mr. Sur, between the existence or possession of weapons and the concept of deterrence.

Another aspect of this first category of questions is this: deterrence was naturally conceived in an East-West context. Is it or is it not possible to conceive of nuclear deterrence *vis-à-vis* the countries of the South, or, more precisely for our topic, is there a possibility of effective or conceivable nuclear deterrence *vis-à-vis* the proliferators in the South? So much for the first category of questions.

The second category of questions concerns the future of the non-proliferation regime in the sense referred to by Mr. David Fisher and Mr. Mahmoud Karem, namely the extension of the Non-Proliferation Treaty; the switch, which may or may not be desirable, from unilateral to mutually-agreed regimes; what additional guarantees for the signatories of the Treaty in terms of access to technologies, in terms of security assurances; what incentives for non-signatories to accede.

Miguel Marin-Bosch

I will not touch on the first question because I think it is more an exercise in acrobatics. The whole question of deterrence is passé. The whole question of trying to justify the possession of nuclear weapons in terms of deterrence, if it ever was valid, is certainly no longer valid now. We will probably never see another nuclear arms race as the one we have seen up until now, that is to say, up to 50,000 nuclear warheads. In the future things will be a lot more manageable. And, if we have to be thankful for 35 or 40 years of a nuclear arms race, that is one of the lessons all of us learned, and certainly one the Russians and the Americans have learned as well.

I agree with Mr. Lodgaard when he says that we are in a period of grace and I am very thankful to him for reminding us of the goal of general and complete disarmament. We tend to forget all of these things here. I am not going to recite the litany of the hopeful elements at the present time for the NPT, or the list of dangers. What I do want to say is that weapons of mass destruction have been here for the better part of this century. The United States took no less than 50 years to ratify the Geneva Protocol. In 1969 the United States decided to forgo biological weapons, it decided that it did not want them and that no one should have them. So it decided that we would have a BW treaty and that is what we have. As a result of the Gulf War, although there

were elements in the US administration that were for a chemical weapons ban, the US military came to the conclusion that they did not need chemical weapons and that no one should have them. Therefore, we have the acceleration in the last year of the chemical weapons convention negotiation and the happy ending which was the passing of the resolution recently in the United Nations and the ceremony here in Paris on 13 January. I doubt that they will come to the same conclusion with regard to nuclear weapons; that is to say, that they do not need them and that no one should have them. But I hope that that day will come. And I know that for 20 years into the nuclear era the United States never spoke of the elimination of nuclear weapons. It took a Governor from Georgia, running for President in 1976, to utter those words, "the *elimination* of nuclear weapons," and I hope that in the near future another Governor will come back to that theme of coming to grips with the fact that we must look for a nuclear free world.

In the 1960s we had a very good dialogue, especially in Geneva, regarding this whole question of proliferation. That dialogue, unfortunately, was truncated with the entry into force of the NPT and the division of the world into the good guys and the bad guys. The good guys were not the ones who wear turbans, Mr. Singh, but the ones who had signed the Treaty and the bad guys were the guys who were out of the Treaty. Now, for some reason, many of those people who had resisted this Treaty, including the Chinese, the French and many others, have come along and the number of countries outside of this régime is very small. They are significant countries, but it is a small number. And I do not think we are going to get anywhere by saying that the régime has to be strengthened by everyone signing the Treaty, nor do I think we are going to get anywhere by following Mr. Boutros-Ghali's or the G7 recommendation that it should be extended indefinitely. I think that would be spiting ourselves. The important thing is, as the colleague from Israel, Mr. Felman, said, that we have to put an end to this façade. We cannot go on into the 21st Century with a series of countries, including many industrialized States, as Mr. Singh reminded us, who are "hour-away" nuclear countries, or "day-away" or "week-away", it does not matter. This cannot be tolerated any more. Independently of the 1995 Review Conference, we have to sit down as of now with the haves, the have-nots, the want to be's, the already are's, and discuss all of these issues regarding nuclear weapons, regarding the proliferation of technologies, regarding plutonium, etc., and come up with something. One thing that we all agreed with here is that a world with fewer and, some of us would hope, with no nuclear weapons is a far better world than the one we are in now. This is the kind of movement that we have to take up. I would hope that the States parties to the NPT will see that, will come up with a strong dialogue as of now and not wait until 1995 to discuss these issues, and will from the first preparatory committee this coming year begin to discuss these issues with countries that are not parties to the NPT. I think it behooves the whole international community.

Morton H. Halperin

My comments are really very consistent with, and follow naturally from, what was just said. We were reminded this morning that proliferation is not more dangerous than it was before, but I think there are several reasons why it is appropriate for the international community to pay more attention to it, apart from the fact that military strategists have less to do after the collapse of the Soviet Union and are therefore looking for new topics. First of all, the danger that the world will be destroyed by nuclear weapons, given the ending of the Cold War, comes much more from the possibility that other countries will get nuclear weapons. And second, as we all know, the end of the Cold War creates the possibility for international co-operation to deal with the problem of nuclear proliferation. I think that this is an opportunity that needs to be seized and must begin, as several people have already suggested, by a clear statement from the American Government

renouncing nuclear weapons, indicating that the United States does not see any value in them, that it would prefer to live a world without nuclear weapons and its does not believe that America's security interests depend on the United States possessing nuclear weapons or seeking to use them for any purpose. What can follow, instead of arms controls measures that have been discussed for a long time, including a CTB, a production cut-off, is rather the kind strategic agreement that I talked about this morning and the no first use agreement. It is worth remembering that the no first use pledge that was made during this regime of a democratic government from the South in fact now applies to almost every country in the world. The United States has promised not to use nuclear weapons against a signatory of the NPT as long as that country is not engaged in aggression supported by a nuclear-Power. Given the collapse of the Soviet Union that is in fact a no first use pledge to almost every country in the world. I think we need to go beyond that to a regime out of the Security Council which builds on the previous Security Council resolutions. It must declare that non-proliferation, non-possession, non-use and non-threat of the use of nuclear weapons as binding international law, binding on all States. The Security Council should declare that any threat of the use nuclear weapons, or any further development of nuclear capabilities by any State through testing, production, or mating weapons to delivery systems, would be a threat to international peace and security with which the Security Council would react in appropriate ways. We would then have to deal with the neo-nuclear States, like India, Pakistan and Israel, but that seems to me a problem that should be tackled once this overall structure is in place.

Ronald F. Lehman

As a former START negotiator, I was troubled to hear the statement that the START I and, what some people call, the START II treaties may be in trouble and that the START II Agreement may have to be renegotiated. This was not pleasant to hear. I fear it may well be true, but we will know within the next few weeks as to what the real situation is. I hope though that, whether we resolve these issues this week, next week or in the next few months, the tremendous progress that has been made in reversing what we sometimes call vertical proliferation will continue. I came in this morning and I heard the statement that Mort alluded to, which was that the proliferation threat is less today than it once was. I think if you speak in terms of the number of countries that are of concern, this may be true. On the other hand, those countries that remain of concern have further advanced their programmes. There are reasons to believe that time is running out on the Korean peninsula, in South Asia and in the Middle East. One need only look at the situation with respect to Iraq to realize how close things can come.

If time is running out, I think we need to keep our focus on the real proliferation concerns - the possibility that weapons of mass destruction, including nuclear weapons, will be introduced into very troubled regions and that one could see nuclear arms races develop or the use of nuclear arms in a regional crisis. We must not divert our attention away from the most immediate dangers.

The NPT offered something of a brand bargain. In the context of the exchange of the peaceful benefits of nuclear energy, those States or parties that had nuclear weapons would reduce them and work towards what is the policy of the United States by law, which is complete and general disarmament. Those States that were parties that did not have nuclear weapons would not seek them. There are now about 155 parties to the NPT. It is a regime that works, that we can build upon. It is true that there are several countries which are not parties to the NPT, and some of those are called threshold States or other euphemisms. They have very advanced programmes and could probably do whatever they want to do whenever they decide to do it.

Today you have heard a call for the truth. I favour that, but I do not think that declaring new nuclear weapon States or creating special categories for States is a particularly good thing. I think

it is very counterproductive. To the contrary, the truth is that we recognize that some States cannot and will not join the NPT in the near term, but we should work towards the time in which all States can. That will be the kind of international norm that Mort is talking about. The Security Council is already talking practically in those terms. I think people ought to recognize that. The world has grown increasingly intolerant of the notion that a nation can proliferate weapons of mass destruction. In that world it is important that we look at real steps that can move so-called threshold States away from the nuclear abyss. There are models for how to do that. Our Korean colleagues have begun a very difficult process but in a rather dynamic way that one might call an "NPT plus", where they are making an effort on a bilateral basis to strengthen the regime. We, the United States, have decided not to produce fissile material for nuclear explosive purposes. If States that are not party to the NPT were to put a freeze on the production of their fissile material, such that any such activities would be under IAEA inspections, it would not be the same thing as joining the NPT but it would be a way to at least stop the momentum in the wrong direction and create circumstances to move in the right direction.

In time one could imagine a situation not unlike what is happening with both the United States and Russia where, as we eliminate nuclear weapons, the material will increasingly be introduced into the industrial stockpile and come increasingly under the kind of scrutiny and control we would like. That process will continue. Other States could do that in the future, including those that are not parties to the NPT, and for their own reasons would not join the NPT. In time, we may end up with a situation, not unlike that in South Africa, where nations become a party to the NPT but where there may be some uncertainties about exactly how much fissile material is there. Certainly, such States could protect themselves and provide themselves with a kind existential deterrent, recessed deterrent or something of this nature, just by virtue of the fact that uncertainty exists. There would also be the ability to act on behalf of their supreme national interests in a crisis. Clearly that world would be better than one in which we declare nuclear weapon States, where we have a rush to gain the status and a momentum for defense programmes through a process which would generate regional nuclear arms races.

In short, we would argue very strongly for the parties of the NPT to act on the NPT extension on the basis of the way the parties themselves feel about it, not on what those outside it may wish to do. Rather let us work with those outside the Treaty to try to work towards a better, safer environment, but let us not sacrifice the NPT in the process. Now I would like to address the first question you raised. Sometimes when we discuss nuclear deterrence and the north, south, east, west dimensions of it, you get the impression that people think that back in 1945 the United States and the Soviet Union sat down and said "let's create a new world order based on nuclear weapons and what we will have is mutual deterrence and we will finally find those weapons that are so horrible that war will be prevented". It did not happen that way. Nuclear weapons were created to end the war that was ongoing, a World War. That is the reality. That they then existed on both sides of a bi-polar Cold War is also a reality. But I would urge that we recognize that one can not simply go out and declare nuclear weapons to have no consequences so that people will think that they are not worth pursuing. They have consequences, they are very dangerous deadly weapons and we have to deal with that real threat.

My Government has never been enthusiastic about basing the future of stability on pledges of no first use, especially in a context in which the parties themselves cannot be relied upon to live up to those pledges. We have made some such pledges, we will continue to make such pledges and I believe my Government will live up to its pledges. The reality, however, is that over time we are going to have to address the real regional security concerns and the political natures of regimes that pursue nuclear weapons. In time, that means that hopefully those nations that are pursuing these options can put that aside. Those of us who already have nuclear weapons can continue the march

towards reducing the threat posed by these weapons and, by law, their ultimate elimination, which will not be in the near term. Great progress has been made and I think more can be made.

Emeka Ayo Azikiwe

After listening to some of the presentations and comments, I start wondering whether the 1995 extension or review conference is really of any use. I must say that, for some of us (the non-nuclear weapons States) this creates a dilemma and of course one starts questioning the utility of the NPT. I should imagine that any treaty of a universal nature should ensure that, apart from the five nuclear weapons States, the other threshold countries should endeavour to accede to the Treaty. The Treaty should try as much as possible to accommodate those countries. Obviously some of these threshold countries consider nuclear weapons as a means to word off possible aggression. Obviously each region has its own peculiarities and I entirely agree with Dr. Karem that perhaps a way should be found to promote dialogue in some of the regions. Having said this, I am afraid that if we are to avoid the situation that confronted us in the 1990 Review Conference, we have to act fairly fast, instead of waiting until 1995, in trying to see how to accommodate the wishes and concerns of all the State Parties. In this regard, perhaps it is noteworthy that most nuclear weapons States that are party to the NPT have really not fulfilled all their obligations. On security assurances, the unilateral declarations from the nuclear weapons States are not legally binding in nature. These Security Council resolutions do not address fully the need for negative security assurances.

Michael Brown

Since I spoke at length this morning I will make my remarks brief. More specifically, I want to respond to a couple of the comments that Ambassador Marin Bosch made at the beginning of our session this afternoon. The Ambassador observed that deterrence is becoming passe and that it can no longer be used to justify possession of nuclear weapons. I wish that were true, but I think that it is important to keep a distinction in mind. It is certainly true as far as the five powers with the largest nuclear arsenals are concerned, that tensions among them are declining; if relations between Russia and the United States and France and Britain continue to improve, as everyone hopes they will, it will be harder and harder to justify the retention of very large nuclear arsenals because many military requirements that existed in the past will gradually disappear. What I find interesting, though, is that when I talk to people in various parts of the world where nuclear weapons are in the process of being developed, security arguments are used again and again for having and establishing nuclear arsenals. Certainly, many people in Israel feel that there are legitimate security concerns which justify the existence of Israeli nuclear capabilities. I gave a series of lectures in India earlier this year and I was struck by the forcefulness with which people argued that India needed to have a nuclear option because China has nuclear weapons. People in Pakistan argue that, because India has nuclear weapons, it needs to have a nuclear option as well. It would not surprise me if more and more Ukrainian officials argue that, given the historic relationship between Russia and the Ukraine and given Russia's conventional and military superiority, that Ukraine needs to have nuclear weapons as well. So, in some parts of the world deterrence is not just the official rationale for having nuclear weapons, it is the response to what people see as legitimate security concerns. As long as these problems exist, as long as perceptions of these problems are shaped in this way, states will continue to want to have nuclear weapons and they will justify them in terms of having a deterrence posture.

The second comment that the Ambassador made has to do with the US-Soviet arms race. I agree that we are unlikely to see an arms race like that again, simply because it is hard for me to imagine two states spending as much money as the United States and the Soviet Union did on large nuclear stockpiles. That arms race was unique in that it was very intense and it was very expensive. I would argue, though, that in an odd sort of way it was a relatively safe arms race. It was orderly because from the early 1960s onward the two sides had extensive reconnaissance capabilities. Each knew what the other was up to. Both had secure retaliatory capabilities, so they did not have to worry about facing an overwhelming first strike, and because their arsenals eventually became so huge, any additions to the nuclear arsenals were on the margins, the nuclear balance was hard to upset in any big way. There were three times when the US-Soviet arms race was particularly tense, and these three times coincided with perceptions that the military balance was about to change in a dramatic way: during the bomber gap scare of the mid-1950s, when intelligence was poor about Soviet military capabilities; during the missile gap scare of the late 1950s, when it seemed that a technological breakthrough was about to revolutionize the arms race; and in the mid-1980s, when the Reagan administration announced its strategic defense initiative. In these three cases, it seemed that the nuclear balance would be upset or could be upset. This made for a particularly tense period of time. On the whole, though, it was a relatively safe arms race. In the future we are likely to see nuclear arms races in various parts of the world. We are seeing one today in South Asia, and it is possible that Ukraine will engage in a campaign in the future to build its own nuclear capabilities. These arms races might be small arms races by historical standards, but they might be a lot more dangerous than the US-Soviet arms race because intelligence is going to be poor, because there is a history and a legacy of conflict between the parties, and because the potential for open hostilities is great. So, I hope that the arms races of the future are the best of both worlds - that is, relatively cheap and relatively safe. I suspect and fear that they will be relatively small but comparatively dangerous.

Yong-Sup Han

I would like to add our Korean experience to the political dimension of non-proliferation. Herein involved are two issues: security and economic interests. When we discovered that North Korea was developing nuclear weapons and building up a massive reprocessing plant, we were in a serious dilemma. We had to prevent the North Korean nuclear weapons programme and its reprocessing plant while having to keep open our nuclear option of having a nuclear reprocessing plant to maximize the usage of spent fuels. After weighing security benefits and economic losses, we have decided to forgo the option of a nuclear reprocessing plant because the economic losses that will incur from no nuclear reprocessing will be outweighed by security benefits that will come from the complete prevention of the North Korean nuclear weapons programme. South Korea's action was part of a unilateral strategy to induce North Korea to follow suit. Unless North Korea's reprocessing plant, that was clear to be dedicated to extracting weapon-grade plutonium, was prevented, a likely chain reaction provoking proliferation in the Northeast Asian region might have been serious. Last year South Korea succeeded in getting North Korea's concession on the point that North Korea would neither possess reprocessing plant, which is one of the main features of the Denuclearization Agreements of the Korean Peninsula of 31 December 1991. This was an effort to strengthen the NPT regime. South Korean strategy also succeeded because of strong international support mainly coming from the United States, Japan, Russia and later, China.

We have laid out two strategies to ensure North Korea's compliance with the Denuclearization Agreements: one is to make North Korea accept IAEA inspections and the other is to make North Korea accept bilateral inspections between the two Koreas. IAEA inspections have been made four

times during 1992 without substantial results, but negotiations for bilateral inspections are still on-going. What the Korean case tells us is that the nuclear option could be abandoned to increase security interests and to reduce uncertainty regarding threats of going nuclear. Some States want to keep the nuclear option open for security interests. South Korea has given up even the peaceful-use technology of reprocessing to prevent the other Korea from developing nuclear weapons. Such a strategy of inducing co-operation from the militarily confronting states can be emulated in other part of the world. This is a good case for other nuclear threshold States to follow to strengthen the NPT regime. However, we had better remember the economic losses that South Korea will entail in a longer term. To those States which forgo the option of nuclear reprocessing plants and uranium enrichment facilities for the strengthening of the non-proliferation regime, policy options to compensate for the economic losses should be devised and institutionalized. The policy options could be in the form of supporting reprocessing activities in the reprocessing plants of other countries at cheaper costs or of an international system to provide nuclear reprocessing services provided by the IAEA and the Nuclear Suppliers' Group.

Walter Gehr

It seems to me that the discussion that has been going on all day has been conducted - not exclusively, of course, but in large part - by people from countries that have nuclear weapons on the one hand and from countries that would like to have them on the other.

That is not my case. Austria not only does not have the right to possess nuclear weapons, but has no intention of possessing them. It is for that reason, among others, that we have signed the NPT. In fact, Austria's situation is a special one, because the country has also opted by referendum to forego the nuclear option in the civilian sphere. Moreover, after the Chernobyl accident, even the spokesperson of the Association of Austrian Industrialists came out against nuclear power.

Why do I say this? Simply to point out that we are as much opposed to the weapons as to nuclear testing. In this context, we think that the NPT, by distinguishing between the nuclear-weapon and non-nuclear-weapon countries, is perhaps an unfair treaty, as Ambassador Marin Bosch has claimed, but we think that, over and beyond the moral concerns, it is above all an instrument of order. For a small country, order and legal guarantees are of vital importance in international life. For us, the weakening, let alone the dismantling of the NPT would mean greater insecurity. That is why Austria will also opt for the indefinite extension of the NPT. We are well aware that disorder in the nuclear sphere can also be the political effect of a rise in tension between the northern and southern hemispheres. Such a deterioration in relations could have fatal consequences for the proper operation of the NPT. That is perhaps a commonplace, but, for all their faults, commonplaces are often true.

John Simpson

I have a very rapid observation and a question. The observation is that there seems to be something of an inconsistency, if not a contradiction, between the idea of security assurances on the one hand, which appear to rest on a basis of some type of nuclear deterrent, and Article 6 of the NPT on the other hand, which appears to suggest that non-proliferation should be furthered by nuclear disarmament. Underlying this is a general problem of the link between security on the one hand and how to reinforce non-proliferation on the other. This is an issue which needs to be addressed in a rather more profound way than it has been addressed to date. The question is to Jasjit Singh and

that is whether he attributes no value whatsoever to political commitments. The nub of his argument about recessed nuclear weapon States is that the political commitments that States have made under the NPT are relatively worthless, as they are operating on the intentions side of the spectrum, not the capabilities side. This seems to suggest that our ability to prevent proliferation is dependent on the intervening variable of energy policies and how far nuclear energy in the future is going to be developed. Is he also suggesting that the whole basis of the non-proliferation regime should be altered to reinforce the technical elements of it. In particular is he advocating moving the key distinction from one between peaceful and non-peaceful uses, or military explosive and other non-explosive uses, to a ban on all reprocessing of fuel and enrichment of uranium. I think that is the implication of his remarks, as that would be the only way that one can see at the moment for strengthening the technical basis of the regime.

Mahmoud Karem

I think there is a general sense of direction that is emerging in the Middle East for the first time and it should be encouraged. I listed in the second part of my intervention a host of measures which I thought would be suitable, perhaps facilitating, in encouraging certain parties to take steps that are direly needed and which will be welcomed by many parties in our own region. We are approaching key dates such as the 1995 Review/Extension Conference. What needs to be done? I think this is the message that should be underscored since we are discussing the future of deterrence, the future of the non-proliferation regime and, in fact, the future of international peace and security. From the discussion we have had this afternoon, I can identify a few areas that need to be further explored. They must be explored thoroughly because there is very little time. And I say thoroughly because the 1990 example of the failure of the Fourth Review Conference of the NPT should not be repeated - at stake is the future of the non-proliferation regime. Some of these points include:

1. The need to identify an acceptable contract with nuclear threshold countries and to begin engaging them in a dialogue on non-proliferation matters. The dialogue is needed between parties and non-parties, in order encourage non-parties to express their views, to find a format for them, to express their views before the convening of the 1995 Conference.
2. Forging an international consensus on security assurances in order to plug a loophole in the NPT before 1995, in light of accession by France and China and the end of the Cold War.
3. Underscoring the responsibilities of nuclear and non nuclear weapons states in accordance with articles 1 and 2 of the NPT, in the wake of illicit trafficking of nuclear material and identification of a new code of export controls; especially to volatile regions.
4. The prospects of a Comprehensive Test Ban Treaty.

Jasjit Singh

I am grateful to Ambassador Lehman for pointing out a very fundamental truth, that nuclear weapons were meant for compliance and not deterrence. They were meant to end a War and not really for deterrence. Deterrence was a logic that was given to nuclear weapons *after* they were used. That is the theme of my paper. In fact, the framework of that deterrence does not exist, especially now that the main conflictual East-West period is over. Only compliance remains now; and that compliance impinges, not only on matters of security, but also on matters of political

autonomy of States and their sovereignty. It is disturbing to hear that states will continue imposing their will in different ways and forms on other States, and nuclear weapons will play a role in that process. The basis of sustaining nuclear weapons, however, needs serious re-examination in the post-Cold War world. Ambassador Lehman mentioned that START was facing difficulties. That is exactly the point. The disarmament process is in difficulties, and yet there is unwillingness to think in terms of other than the Cold War logic. The NPT itself requires rethinking and reworking. And that answers John Simpson's points partly. In fact, my argument is that political commitments under the NPT, for example those in article 6, have not been honoured. This is the difficulty. And the only answer we hear is that there is no intention to think beyond a simple "us-them" syndrome - we are the NPT members, you are the non-NPT members, within the NPT membership we are the nuclear weapons haves and you are have-nots when we say we must have a dialogue. In the process, we are loosing sight of the fundamentals and defeating our own purpose. Last but not least, regional security concerns are important; but the countries that are most affected by the regional security concerns are the regional states. Surely they should have a right to think in terms of how best to find solutions to their security problems. On one side, we see right here that parts of Europe are burning. Why is not the same concern expressed about the existence of nuclear weapons in an environment of tension and nuclear proliferation in the CSCE states? How does another country, short of the threshold but not crossing it - as in the case of India for the last 18 years endanger international security? Besides political commitment, the issue of political attitudes, beliefs, and behaviour is equally important. If the political behaviour relies on the use of nuclear weapons, not only as a weapon of military utility, but more as a political instrument in trying to define the nature of relationships and in using nuclear issues, even in terms of diplomacy extending into transfer of non-nuclear technology - a process highly damaging for the development of developing countries, then we have to re-examine afresh the whole range of issues. My argument is that technical fixes by themselves cannot provide the solutions: we need to rely on political commitments, and commitments have been made for the last 25 years to negotiate total nuclear disarmament; new unprecedented opportunity to fulfil these commitments in a more positive manner has now emerged because of the altered international political architecture. We must not loose this historic opportunity.

David Fischer

Thank you Mr. Chairman. One of my questions was really much the same as John Simpson's, I do not see what purpose would be served by classifying countries according to their place on a nuclear capability ladder. Canada could have made the bomb in the 1950s but it had no political incentive to do so. I agree with much that Ambassador Marin Bosch has said, except on one crucial point, I do not see why the NPT should not be indefinitely extended. Surely for instance it is in the interests of the African States that the legal constraints on South Africa's nuclear programme should be permanent. Surely it is in the interests of the States of the Far East that the constraints on the nuclear programmes of North and South Korea, Taiwan and perhaps even Japan, should be indefinitely extended.

Part III

Conditions for Minimal Deterrence

Chapter 8
Questioning Minimal Deterrence

Yves Boyer

Nuclear deterrence has yet to be adapted to the geo-strategic context of the aftermath of the Cold War. While nuclear weapons continue to play a vital role in the military policy of the five officially recognized nuclear Powers, an unprecedented reduction of their stocks of weapons is taking shape, just as, at least in the West, a far-reaching review in beginning of the circumstances in which they can be used. All this is the result of the confrontation between East and West a situation which Boris Yeltsin summed up when he said that American cities were no longer the target of Russian intercontinental missiles and that the United States was no longer the potential enemy, while in Washington President Bush was taking the first decision since 1945 to halt the production of nuclear weapons in his country. In the absence of an immediate and obvious threat, everything seems, in the West as no doubt in Russia, to call in question the purpose of nuclear deterrence. Since it is at one and the same time an attitude, operational plans and a weapons system, nuclear deterrence does not readily lend itself to simplification, it is not something on which one can easily get a handle. Intangible and unclassifiable, it is sometimes put forward as a revolutionary breakthrough in the strategy and terms of military confrontation, and sometimes viewed as a digression within the strategic order and destined as such to wither away in the global restructuring following upon the end of the Cold War. From what one can see now of the political future, this latter assertion is unrealistic and illusory. The current questioning of nuclear deterrence implies something other than its withering away. There is no post-nuclear in strategy. The instrument, "the bomb" is there and continues to impose itself both on strategists and on political decision-makers. To quote one theoretician of French nuclear strategy, General Poirier, nuclear strategy is "an art in which we are the novices and which awaits its masters". Nuclear deterrence is not withering away and the posture of minimum deterrence, towards which progress would seem to be being made, is not synonymous with relegating the nuclear instrument to a secondary role. There is a whole series of reasons demonstrating this. I would like briefly to mention two of them.

First of all, even though new declaratory policies are making themselves felt and are expected, or indeed called for, the nuclear instrument remains the central element in the defence of the vital interests of the nuclear Powers. In the United States, the new strategy drawn up in the early 1990s within the framework of the "Base Force Plan", envisages a reduction in the format of the American nuclear arsenal. But the No. 1 priority of the American strategy is to maintain a modern, viable and diversified strategic arsenal. In the case of France, we are witnessing a reduction in the volume of the country's nuclear arsenal. Accordingly, spending on nuclear equipment in going to decline from one third to a quarter of the budget for defence equipment within a few years. However, a very significant improvement in quality is also to be seen. There are other factors which belie the idea that the nuclear element is withering away, such as the attraction that the bomb continues to exert. Despite the accession of a very large number of States to the Non-Proliferation Treaty, there is on the part of many of them, a keen, barely hidden desire, if not actually to possess the bomb, at least to cross the technological threshold that would enable them to develop or produce it should the need arise. In this case there could be said to be a kind of minimum deterrence based on a presumption of possession that would significantly affect the calculations of a possible aggressor within range of the supposedly nuclear Power. In this I fully concur with what Mr. Singh said yesterday about "recessed deterrence". The crossing of the technological threshold which I have just mentioned is all the more conceivable in that the technological constraints capable of holding back nuclear

proliferation are increasingly few in number. That is particularly true for both "first generation" and "second generation" weapons. The technological constraints are obviously more numerous and harder to overcome in the case of the most modern weapons, namely those of what is termed the two-stage sixth generation, which are noteworthy for their miniaturization, hardening and stealthiness and their quite extraordinary mass-to-energy ratio. The equivalent of several thousand tonnes of explosives is now concentrated in warheads weighing a few hundred kilos.

It is in this context of the perenniality of nuclear weapons that we should examine the adjustment of nuclear deterrence to the radical geostrategic changes that the world has been experiencing in the past three to four years. How will the deterrent posture of the nuclear States be redefined? Will we see the adoption of a posture of minimum deterrence? What meaning should be given to that concept, in view of the fact that the value of nuclear deterrence varies according to whether the period is one of peace, crisis or war?

First of all, I believe that the examination must begin from the legacy. The legacy, in strategic terms, is a posture. When there was a specific enemy, the posture of nuclear deterrence (attitude, operational plans) was closely linked to the dialectic of threat and counter-threat or offence and defence in relation to that enemy. In the context of nuclear strategy as it was during the Cold War period, it would be more correct to speak of damage limitation than of defence, although this term has acquired a new meaning and dimension with the revival of the strategic defence programmes, such as SDI and, more recently, GPALS. The East-West dialectic, threats and counter-threats, had, if one thinks only of the respective nuclear postures of the United States and the former Soviet Union, led to a situation of highly unstable strategic equilibrium. This instability fostered a rivalry in respect of arms that was reflected in a nuclear arms race, an unrestrained nuclear arms race leading to the spectacular proliferation of nuclear-weapon systems. According to American estimates, the United States built almost 60,000 atomic weapons between 1945 and 1985, and in 1985 it had almost 25,000 and the USSR almost 37,000 warheads. The situation was unstable in that very rapidly, and particularly from the 1960s on, the vulnerability of the deterrent devices to a pre-emptive first strike emerged as a major factor in the strategic relationship between the nuclear players, and particularly between the United States and the Soviet Union.

For them deterrence was based on complex calculations assessing the kill probability of warheads against potential targets. The prevailing idea, at least in the United States, was that a portion of the Soviet ICBMs could destroy all the American ICBMs and the bomber bases, leaving the Soviet Union sufficient unused resources to deter the United States from replying and escalating the conflict, except in the suicidal hypothesis of an attack against Soviet cities. Control of the escalation became an essential factor in defining the respective nuclear postures of the two super-Powers and contributed to the acceleration of the proliferation of systems and warheads. The point was reached at which capabilities were sufficient to destroy the planet several times over. This "overkill" capability was also accentuated by the methodology used in defining deployment plans. To take, for example, the operational plan for the American nuclear forces, the SIOP ("Single Integrated Operational Plan"), its execution depends on integration of the number of payloads, the hardening of targets, the possible defence of targets, their size, the timing of the strike, the requisite level of destruction, targets requiring several payloads to ensure destruction, mobility of targets and the availability of weapons. All this led to overdevelopment of the nuclear arsenal. It led to a maximalist posture in terms of warheads (25,000 to 35,000), but at the same time deterrence was perceived as unstable and minimal, at least during periods of crisis, each party regarding its vulnerability as an incentive to fire first.

With the disappearance of East-West confrontation the terms of existence of nuclear deterrence have changed radically. Will it, then, be possible to achieve a minimum deterrence which is more stable than that which prevailed during the Cold War, but with far fewer resources?

With regard to the medium nuclear Powers, and particularly France, minimum deterrence can be said to be the official policy. In France, no distinction is made between the terms "minimum deterrence" and "strict sufficiency", which means a posture of always having sufficient resources to inflict on the potential adversary losses cancelling out the gains his aggression could bring him. With regard to the two major nuclear Powers, a considerable reduction in warheads is in prospect. Mr. Brown referred to this yesterday, with the United States and Russia having 3,500 strategic warheads by 2000-2003. Progress is unquestionably being made towards minimum deterrence in comparison with the situation during the Cold War.

That said, I would like to draw attention to a number of points which seem to me essential in reflecting on the changes in nuclear postures resulting from the possible adoption of a posture of minimum deterrence. Firstly, our perception of nuclear deterrence largely and rightly derives from its purely declaratory aspect, which explains and justifies the "wherefore" of a nuclear arsenal and the "how" of its use. This aspect is very relevant to public opinion, and it is quite obvious that the public perceives the role of nuclear deterrence less clearly than it used to, now that the specific enemy has disappeared with the collapse of the USSR. Whole sections of this declaratory policy therefore need to be rewritten. That is a huge challenge for the leaders of the nuclear countries, who may none the less find in the idea of minimum deterrence a concept capable of maintaining a minimal consensus on nuclear deterrence. It is all the easier for them to subscribe to that concept as, at a time when there is no longer any specific enemy, the prime requirement is to maintain a posture of strategic vigilance. In other words, waiting status, in that there are no strategic goals because no enemy to deter. As regards declarations this posture makes it possible to proclaim the idea of minimum deterrence. It also permits the reduction of on-line nuclear capacities and the placing of certain weapons in storage - that is what has happened, for example, in France with the HADES tactical missile, which has been put in a posture of engineering and operational stand-by with the storing of the missiles. At the same time, this waiting posture, this strategic vigilance implies the monitoring of scientific developments, a technology watch aimed at the qualitative improvement of systems in order to maintain the technological credibility of nuclear deterrence, and in that respect is very shortly going to confront the nuclear Powers with the problem of choosing whether or not to resume nuclear testing.

Secondly, there is now what might be considered an invisible, or at any rate an underestimated factor in the make-up of modern nuclear arsenals, and this invisible or underestimated aspect has acquired cardinal importance. I am referring to the whole electronic environment for the support and use of weapons, and in particular to the systems known in French as SIC (*systèmes d'information et de commandement*) and in the United States and Great Britain as C^3I. These C^3I systems have a very considerable force multiplying effect. They confer upon nuclear forces flexibility and effectiveness, I was going to say intelligence, out of all proportion to what existed even at the beginning of the 1980s. These tools are now an integral part of the arsenals of the western and Russian nuclear Powers, so that minimum deterrence has to be assessed in the light not only of the calibre of the arsenal and the number of warheads, but also of these force-multiplying instruments. These force-multiplying instruments have other effects. They play a part in the modification of our analytical tools by largely erasing, for example, the traditional distinction between the tactical use and the strategic use of weapons. Likewise by enabling the execution of strikes of a strategic nature to ultra-sophisticated, awesomely accurate conventional means that modify our perception of the phenomenon of deterrence. In other words, a posture of minimum deterrence may also disguise the existence of a nuclear capability that is formidably effective and extremely flexible in use.

I would conclude with two remarks. Firstly, hidden behind the idea and the notion of minimum deterrence are a number of ambiguities or misunderstandings. It is very easy to conceive of minimum deterrence in relation to a previous state of affairs, namely that of the Cold War,

which was noteworthy for the arms race and the phenomenon of overkill. In that case, in the context of minimum deterrence, the nuclear arsenal is restructured so as best to defend vital interests, or perhaps protect certain allies. It is controlled by a sophisticated C^3I system. The political authorities retain a range of options extending from MAD (Mutually assured destruction), which corresponds to the traditional inhibitory role of nuclear deterrence, to the limited use of force in a geopolitical context simultaneously characterized by the proliferation of crises and the dwindling of the spectre of general confrontation with a now unspecified enemy. Accordingly, a posture of minimum deterrence may imply a redefinition of the conditions in which nuclear arms may be used, particularly in the context of a crisis. As far as France is concerned, while displaying a posture of minimum deterrence, but also in order to be able, in the event of a crisis, to give a reminder of their resolve to an adversary who might commit an error of judgement or begin to act irrationally, the national authorities seem to be contemplating various structural and doctrinal adjustments. They are apparently thinking of acquiring conventional or nuclear weapon systems capable of more flexible use than those reserved for large-scale strikes. These systems deter through the precision of the strike rather than through the threat of a general nuclear exchange. Another idea is to acquire systems enabling deterrence to be restored during a crisis by means of a "warning shot" used in some appropriate way, for example with a view to destabilizing a country's economy. This idea has been put forward by the Commander-in-Chief of the *force océanique stratégique* (FOSD). A high-altitude warning shot would be fired with the intention of disrupting a country's economy by electromagnetic pulse effects.

Public opinion would not necessarily or inevitably be hostile to such ideas in the event of a major crisis. To take what happened in the case of the war against Iraq, when the war seemed imminent a number of public opinion polls showed a change in public opinion concerning the use of nuclear weapons in the context of the looming conflict. That was the case particularly if allied losses were to reach really considerable proportions. In the United States itself, a Gallup poll in January 1991 showed the percentage of those favouring the use of nuclear weapons in such an event as being between 24 and 45 per cent. In Europe, when the question was put whether a chemical attack by the Iraqis should be met by a nuclear response, it was found, according to a poll published by *The European* in February 1991, that 33 per cent of Europeans and 49 per cent of Americans favoured this option.

Alternatively, minimum deterrence could be approached solely from the point of view of the number of devices on which it was intended to be based. The state that the only criterion would be the number of warheads - some proponents of the concept of minimum deterrence suggest a figure of 100 - would imply targeting them on the potential enemy's most valued sites in order to obtain the maximum deterrent effect. In that case the only possible course is to choose urban targets. Paradoxically, nuclear strategy would regress. That would cause very considerable moral problems and run counter to the sought-after objectives regarding the rebuilding of public consensus in favour of nuclear deterrence.

Chapter 9
Outer Space and Nuclear Deterrence: Problems and Prospects

Péricles Gasparini Alves

Military doctrines have changed with time and their developments have been shaped by several factors such as political and military circumstances. But they have also been influenced by the levels of attained and planned technologies for weapons and their respective systems. Outer space applications have played an increasing role in the formulation and revision of such doctrines, and the issue of nuclear deterrence seems not to be an exception. At present, both space- and ground-based devices are key elements of nuclear weapons systems, but the changing nature of high technology raises a number of questions as to the future role of outer space in international security issues, such as nuclear deterrence. Among pertinent questions are the ways in which outer space applications could be conceived within nuclear deterrence by the different nuclear powers. Considering the present rethinking of military doctrines, it is also important to question what role outer space applications could play in an eventual implementation of minimal deterrence; namely, in what ways could applications in that environment help render this form of deterrence conceptually sound and its implementation technically feasible.

In this context, it seems appropriate and timely to discuss how the development of new outer space applications could influence efforts to strengthen military postures in a world of diminishing numbers of nuclear weapons. In a more general sense, militarization of outer space has for long been seen mainly in the light of military uses of artificial satellites for various applications by different countries, but present developments in outer space capabilities (including ground-based devices) which are conducive to the weaponization of that environment introduce a new dimension to the debate on nuclear deterrence. Of particular importance in this debate is the issue of ballistic missile defence (BMD), as well as the level of its compatibility with the doctrine of deterrence in its present form or in any re-shaped model with considerably lower numbers of nuclear weapons. In addition, other pertinent questions call for an inquiry on whether the role of outer space would be the same for every nuclear capable state, or yet, if this role would differ according to the state or group of states.

The main objective of this paper is therefore to assess the fundamental role that outer space applications play in the doctrine of nuclear deterrence, in particular as regards strategic nuclear forces. This will be done by addressing technical and technological issues, but also legal and conceptual implications derived from new applications of outer space technologies which could affect both military doctrines and the very essence of the preclusion of nuclear war.

I. The Role of Outer Space Applications in Nuclear Deterrence

The military use of outer space applications has been multifarious since the origin of the *space era* in the late 1950s and care should be taken to identify the role these applications play in nuclear deterrence. In the first place, their nature and scope are quite specific and should not be confused with general support for other ground-force operations. Secondly, international agreements on outer space have restricted the field of outer space applications related to nuclear deterrence, thus influencing and limiting development of a number of potential applications and the principle in which outer space technologies are employed in the implementation of nuclear deterrence.

1. Employment of Outer Space Applications

Outer space applications for nuclear deterrence have been conceived taking into account the different means of nuclear weapons delivery on the one hand, and space- and ground-based detection and weapons' support devices on the other hand. Major nuclear power states have developed an array of satellites for dedicated military missions related to strategic reconnaissance and intelligence data collection capabilities to enhance deterrence (see Table I). For example, while reconnaissance satellites have been used to detect and/or identify Inter-Continental Ballistic Missile (ICBM) silo bases, as well as other ground- and sea-based mobile missiles, an early-warning satellite application has been used to detect a potential first strike of ballistic missiles (BMs). In addition to detection and identification missions, outer space applications would also, in the event deterrence fails, provide missile flight data (data on weather and other atmospheric conditions) and guidance in order to optimize the performance of weapons and weapons systems in the event of retaliatory missions, or to hinder an adversary's incoming missile telemetry data.

In principle, as well as in practice, outer space applications have been important or even central in providing technical parameters within which the use of nuclear weapons are framed, both in a deterrent stage and in a post-deterrent (in case of retaliation) stage. However, this capability is not unique, but coupled with a few other technical means such as ground- and air-based radars and other devices.

Table I

Basic Outer Space Applications Related to Deterrence Capability

Application	Principal Assignment
• General Reconnaissance	- Area surveillance and close-look: photographic image, monitor military radio communications, missile telemetry-radio signals, and naval vessels (special ELINT devices, Pgc).
• Ocean surveillance	- Locate surface ships: determine their nature and direction. Satellites using *passive sensors* can also detect IR and MW radiations, submarine missile launching and detection (special ELINT devices, Pgc, radars).
• Early-Warning	- Monitor the heat of rocket plume to detect the launching of ballistic missiles (infra-red sensors).
• Geodetic	- Determine the Earth's gravitational field, well-detailed maps and the location on the globe of cities, towns and villages to improve the accuracy of intercontinental or cruse missiles.
• Navigation	- Atmospheric measurements to determine optimal missile trajectory (e.g., water vapour content and wind velocity along a missile's possible trajectory).
• Meteorology	- Supply real time global and local visibility and IR images (weather conditions) - Pgc, infra-red sensors).
• Communications	- Communications, Command, Control and Intelligence (C^3I) applications

Sensors: **IR**= infra-red, **MW**= microwave, **NRD**= nuclear radiation detector, **TIR**= thermal infra-red; **Pgc**= Photographic camera; **ELINT**= Electronic Intelligence; **ELINT Devices**= Infra-red sensors, radars, etc...

Source: Data on satellite application and assignment complied by the author partly in the light of information given in "The Implications of Establishing an International Satellite Monitoring Agency", Department of Disarmament Affairs - Report of the Secretary-General, United Nations, New York, 1983; *Space Weapons: The Arms Control Dilemma*. Bhupendra Jasani (ed.). London: Taylor & Francis, 1984; Bhupendra Jasani, *Space and International Security*, Whitehall: Royal United Services Institute for Defence Studies, 1987, and others.

2. Legal Constraints

The above military applications of outer space are usually seen as instrumental in maintaining the stability of nuclear deterrence and have therefore not been legally constrained. However, other potential military applications in that environment related to major weapons and weapons systems which could play a key role in deterrence have faced some legal restrictions both on the multilateral and bilateral levels.[1] Among major constraints are prohibitions in the 1967 Outer Space Treaty for the placing or testing of nuclear weapons or any other kinds of weapons of mass destruction in outer space. What this Treaty has not prohibited, however, is the placing and testing of weapons or weapon systems based on other principles such as conventional payloads or directed energy payloads.

Other major prohibitions include the American/Soviet 1972 Anti-Ballistic Missile (ABM) Treaty which limit some specific types of weapons and their systems designed to counter strategic ballistic missiles or their elements in flight trajectory. These restrictions cover the development, testing, and deployment of ABM systems or components in terms of interceptor missiles, launchers, and radars which are sea-based, air-based, space-based or mobile and land-based. The ABM Treaty represents a clear recognition on both sides that widespread anti-ballistic missile defence had little chance as a viable system. This was particularly the case in light of developments in Multiple Independently Targetable-Re-entry Vehicles (MIRVs) at the time, coupled with the threat that the deployment of ABM defences posed to a perceived stability between the United States and the former Soviet Union - supposedly acquired by nuclear deterrence. This was also complicated by technical assessments on ABM defences at the time that required interceptor missiles to be nuclear-charged,[2] a route which did not find much support but which, in fact, further stimulated advocates of ABM limitations. Nevertheless, ABM research is not prohibited and certain development and deployment of other types of weaponry in Earth orbit have also escaped bilateral legal constraints.

For better or for worse, the future of outer space applications related to nuclear deterrence should be seen in the background of this legal regime. The main question is whether developments in ballistic missile defence are in compliance with present restrictions, and to what extent new outer space applications would affect nuclear deterrence both conceptually and in practice.

II. Prospects for Near-Future Developments

The changing international environment and far-reaching bilateral and unilateral nuclear disarmaments have evoked the renewal of discussions on future levels of nuclear arsenals. The possibility of nuclear weapons states to move away from massive nuclear stockpiles and numerous MIRV capabilities may increase as this century draws to an end, although doubts still remain as to how such a deterrence doctrine would be re-shaped. Clearly, a reassessment of the major elements and mechanisms of deterrence has inherent implications for outer space applications. Given present developments, it does not seem appropriate to make an appraisal of the role that outer space applications could play in the context of an all-out war. This was perhaps a relevant exercise in the past, but it risks inhibiting new thinking regarding the real problems facing the relationship between deterrence and outer space at present.

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[1] For example, see a discussion in UNIDIR publications *Disarmament: Problems Related to Outer Space*, UNIDIR, New York, United Nations Publication, 1987; *Prevention of an Arms Race in Outer Space: A Guide to Discussions at the Conference on Disarmament*, by Péricles Gasparini Alves, New York: UNIDIR, 1991.

[2] *1992 Report to Congress on the Strategic Defense Initiative*, Strategic Defense Initiative Organization, Washington, D.C., June 1992, p. 2-2.

Instead, it seems more important at this stage to briefly address the status of the aforementioned relationship for the remainder of the present decade. The main objective is to analyze the ways and means in which outer space applications could affect the perceived stability of deterrence. In particular, one must take into consideration that continuous launch and detection/tracking capabilities are important means of establishing reliable deterrence, not only prior to an engagement but also in a rapidly growing crisis or prolonged contingencies.

1. Nuclear Deterrence: Outer Space Support Capabilities

United States

Major trends in American capabilities cover both space and ground devices. The first case basically includes three types of satellites, namely: signal intelligence, navigation and early-warning spacecraft.[3] In the first case, considerable changes are expected to occur in imagery satellites, where KH-11 [Key-Hole] spacecraft will be phased out and replaced by KH-12/KH-11+ satellites - the number of which in orbit will be double (four satellites) by the year 2000. In addition, the number of Lacrosse spacecraft is expected to triple (six satellites). Estimates also indicate that the number of electronic intelligence satellites, such as the Magnum spacecraft, will double to four spacecraft, while that of White Cloud satellites will remain the same at 16. As for navigation satellites, NAVSTAR will be completely operational with a constatation of 24 spacecraft by the same period. The greatest change will occur in the de-commissioning of the five Defence Support Programme (DSP) satellites used to provide early-warning of missile tests and attacks. DSP will be replaced by five new technology satellites Boost Surveillance and Tracking Satellites (BSTS) - which are able not only to detect the launch of ballistic missiles and track them through their flight, but also to assess the size of boosters on the vehicle and to help with the target acquisition for ballistic missile defence. Other changes also include the upgrading of ground-based BM early-warning and satellite tracking radars.

These trends show a policy of maintenance, if not increase, of space support capabilities and could be seen as contradictory to the demand for fewer nuclear weapons in the field. However, this is not necessarily true since these undertakings were initiated in the mid- to late 1980s when strategic nuclear disarmament had not yet gained the momentum it has today. In addition, part of this capability is also devoted to outer space applications other than deterrence.

Russian Federation

Present Russian capabilities concerning military outer space applications related to deterrence are to some extent a product of the fragmentation of the Soviet strategic deterrent forces and its space industry. Although this fragmentation is still an ongoing process,[4] it seems safe to state that the Russian Federation's defence and space agency will in the end inherit most of these former Soviet capabilities (e.g., ballistic missile, ABM facility, detection/tracking and launching sites, manufacturing capability and human resources). Orbiting satellites with BM launch detection capability (nine), photographic reconnaissance (two), and electronic intelligence spacecraft (11) are still listed under Russian strategic defence warning systems in Western sources.[5] One of three Over-The-Horizon-Backscatter (OTH-B) and few of the eight long range early-warning ABM-

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[3] For detailed references, see *U.S. Cost of Verification and Compliance Under Pending Arms Treaties*, Congress of the United States Budget Office, Washington, D.C., September 1990, pp. 46, 65-66; *The Military Balance: 1992-1993*, International Institute for Strategic Studies, London: Brassy's, 1992, pp. 18-19.

[4] See a discussion in Mikail Ya. Marov, "The New Challenge for Space Russia," *Space Policy*, vol. 8, nº 3, August 1992, pp. 269-79; "... As Soviet Union develops its commercial image," *New Scientist*, 16 Dec. 1989, p. 12. Quoted in Pike, *op. cit.*, pp. 136-41.

[5] *The Military Balance: 1992-1993, op. cit.*, p. 93.

associated phased-array radars remain in Russian territory, as well as all of the 11 Hen House-series radars and the Pillbox phased-array radars.

Nevertheless, it should be singled out that some key former Soviet early-warning and space launch facilities and manufacturing capabilities are located in other former Soviet republics. Although, facilities related to strategic deterrent forces are known to be under CIS [Commonwealth of Independent States] control,[6] and this seems not to be seen as a major obstacle to the conducting of Russian reconnaissance and early-warning operations to support deterrent capabilities.

Byelorus, Kazakstan, Ukraine

It is well known that Byelorus, Kazakstan, and the Ukraine have engaged in the joint control of the use of strategic weapons, and that the "withdrawal" of these weapons from their territories has been already scheduled to be completed during the present decade. In the interim, the operation of deterrent-related outer space applications and ground-based devices are presumably assured by the CIS, although Russian Federation administration may well be overwhelming. However, the fact remains that for a few years, hundreds of ground-based and air-launched nuclear weapons will be deployed in their territories and possible future instability may create grounds for concern. This would be more important in the event that these weapons remain deployed for a period of time much longer than generally expected, or worse yet, in the context of a lack of adequate command and control which could result from an eventual rupture of relations with Russia and the CIS.

In such a case, outer space applications related to deterrence in these three republics could be tributary to independent capabilities remaining in their territories. The Ukraine has reportedly two OTH-B radars and one ABM-associated phased-array.[7] In addition, it has major manufacturing facilities for space launchers (the Tsiklon and the Zenit rockets), as well as electronic intelligence and early-warning application satellites and radars, of which the naval EORSAT spacecraft has been singled out.[8] Kazakstan has inherited the Baiconur Cosmodrome, now renamed the Tyuratam Cosmodrome, and the long-range phased-array Sary Shagan radar.[9] As far as Byelarus is concerned, this former Soviet Republic is known to possess manufacturing facilities for early-warning radars in Gomel.[10]

Different manufacturing capabilities are therefore spread out in these three territories, none of which seems to possess a combination of satellites and ground launching/tracking facilities, although the Ukraine may well be an exception. However, all of these newly independent Republics have different missiles which could be converted into space launchers (SS-18, SS-19, SS-24, SS-25) after some modification. Yet given their respective stockpile, conversion, operation and satellite mounting problems, this option does not seem to be too realistic. To this is added the need to manufacture a variety of satellites for military applications, and here too, technical and financial problems are quite intricate. This situation certainly affects the ability of these nuclear powers to utilize outer space applications to gather key information on events occurring, or about to occur, over-the-horizon related to nuclear deterrence.

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[6] John Pike, Sarah Lang and Eric Stambler, "Military Use of Outer Space," *World Armaments and Disarmament*, SIPRI Yearbook 1992, Stockholm International Peace Institute, Oxford University Press, 1991, pp. 139-141.

[7] *The Military Balance: 1992-1993, op. cit.*, p. 93.

[8] Pike, *op. cit.*, p. 140.

[9] *The Military Balance: 1992-1993, op. cit.*, p. 93.

[10] *Loc. cit.*; Pike, *loc. cit.*

Table II

Possession of Basic Space- and Ground-Based Technologies and Devices Susceptible to be Used in Relation to Deterrent Capability¶

Country	CAPABILITIES								
	Vehicles			Space- & Ground-Based Devices					
	Ballistic Missile	Other Vehicles	Launch Site‡	Early Warning	Earth Obser.	Elect. Intel.	Meteo-rology	Navig. ation	Ground Site
•Byelorus	●	.	..	◊			.	..	..
•China	●	■/□	Δ	♦/◊	●	O	●	..	●
•France	●	■/□	∇	♦	●	O	●	O	●
•India	●	■/□	Δ		●	..	●	..	..
•Israel	●	■/□	∇	..	..	..		..	●
•Kazakstan	●	..	∇	◊	..	..	..	..	.
•Pakistan	●	(■)/□		..	..	.	..		..
•Russia	●	■/□	Δ	♦/◊	●	♦/◊	●	●	●
•Ukraine	●	■/(□)	.	◊	O	♦			●
•United Kingdom	●	⊗	..	◊	O	♦	O	O	●
•United States	●	■/□	Δ	♦/◊	●	♦/◊	●	●	●

¶= Some vehicles, satellites, and their corresponding launch and tracking sites may not appear due the absence of their official acknowledgment on the part of states; ‡= May include sounding rocket or missile ranges. ●= Possession of devices or facilities; O= Known to possess technology and/or manufacturing capabilities; ♦= Satellite; ◊= Ground-based radar facility; ⊗= Programme development or production cancelled; ■= Space launcher or technology; □= Sounding Rocket or technology; ∇= Two or less; Δ= Three or more; .. = Data unavailable or inapplicable; ( )= Unverified data.

Source: Data compiled by the author partially in light of information given in Paul B. Stares, "The Military Uses of Space After the Cold War," *Australia and Space*, Desmond Ball and Helen Wilson (eds), Strategic and Defence Studies Centre, Canberra, 1992; John Pike, Sarah Lang and Eric Stambler, "Military Use of Outer Space," *World Armaments and Disarmament*, SIPRI Yearbook 1992, Stockholm International Peace Institute, Oxford University Press, 1991, pp. 121-146.; Péricles Gasparini Alves, *Access to Outer Space Technologies: Implications for International Security*, UNIDIR, United Nations Publications, New York, Forthcoming 1993.

China

Little is actually known about Chinese satellites related to nuclear deterrence. However, among reported changes will be the termination of the FSW-1 photographic intelligence satellite series, which will be replaced by a larger FSW-2 model.[11] No improvements, however, seem to be expected on the Chinese phased-array BM early-warning radar in the near-future.

[11] Hua-bao, L., "The Chinese Recoverable Satellite Program," Paper Presented at the 40th Congress of the International Astronaltical Federation, Malaga, Spain, 7-12 Oct. 1989. Cited in John Pike, "Military Use of Outer Space," *World Armaments and Disarmament: SIPRI Yearbook 1991*, Oxford University Press, 1991, p. 74.

France

French reconnaissance for strategic nuclear forces is believed to be largely undertaken by airborne means and via the use of civil Earth observation satellite data. However, this practice is expected to change in light of deployment of the Helios satellite network for reconnaissance with optical systems including infra-red sensors, electronic intelligence, and possibly, in a more distance future, Synthetic Aperture Radar (SAR).[12] This trend is emphasized by reports on the possible development of the *Zenon* and the *Osiris* satellites for electronic intelligence and radar-imaging, respectively.[13]

United Kingdom

The case of the United Kingdom is quite apart from the other nuclear powers, since it seems to be the only nuclear power sharing sensitive nuclear deterrence-related data with the United States at present. On one account, the United Kingdom is believed to have some degree of access to American space-borne BM early-warning data. In addition, Britain is also known to share ground-based radar dada derived from the radar station at Fylingdales, which is scheduled for update[14] soon.

Other States

Nuclear deterrence is often thought of and discussed in terms of the above avowed nuclear powers, yet it seems appropriate here to extend our reflections to an eventual role of outer space applications in deterrence doctrines covering other potential nuclear powers such as India, Israel, Pakistan, and South Africa. In terms of nuclear deterrence, much will depend on their ability to acquire and maintain updated information on the preparation of a strike. India and Israel have very advanced outer space programmes possessing sounding rocket and low orbit space launchers, while Pakistan reportedly made a space launch in 1989. All three states have been engaged in satellite manufacturing capabilities to varying degrees.

However, it is unlikely that satellites for dedicated deterrence capabilities would be manufactured and tested during the present decade. In addition, one may question if the traditional role of outer space applications in nuclear deterrence is applicable to any one of these or other nuclear threshold states. For instance, the levels of their potential arsenals are likely to be much lower than present levels. Moreover, their geopolitical circumstances are also quite different. In most cases, it seems that less space dependent detection (aircrafts/radars) and delivery systems (aircrafts) would play a more important role in nuclear deterrence.

2. Minimal Deterrence: A New Role for Outer Space Applications?

The criteria for a reassessment of deterrence with lower numbers of nuclear weapons determine the future role that outer space would be required to play in this doctrine. This role would be defined according to various factors, in particular, that of the detection and targeting of the remaining nuclear arsenals. In both cases, a doctrine of minimal deterrence would not necessarily demand less involvement of outer space technologies or applications as is sometimes argued. Nor, it appears, would it be the case for a doctrine emphasizing large target areas such as cities - as opposed to ballistic missile basing-modes and specific military installations as targets. The determining factors in such a contingency is not only the weapons' accuracy *per se*, but also the structure of the

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[12] See Sergio A. Rossi, "La Politica Military Spaziale Europea e l'Italia," *Affari Esteri*, anno XIX, n°. 76, autunno 1987, pp. 529-30.

[13] *The Military Balance: 1992-1993, op. cit.*, p. 35.

[14] *Ibid.*, p. 61.

weapons systems themselves which would be a product, among others, of the doctrine's reference to first and/or second strike capabilities.

One of the major issues in this debate is perhaps the notion that nuclear weapons would not have specific targets in peace time, but instead the doctrine would provide for the ability to adapt policies of targeting definitions during a crisis situation. A targetless doctrine would have considerable implications for the role of reconnaissance and early-warning satellites, since these applications are conditioned by target location and precise satellite orbits and passes. The tendency would be to direct operations to specific weapons' arsenals of potential (a) adversaries, (b) unauthorized launches, and (c) accidental launches. While the first possibility is quite precise and follows the reasoning of prevailing nuclear deterrence, the last two possibilities may fall outside the framework of this doctrine. A few comments are therefore in order. First, it is not minimal deterrence proper that would affect the role of outer space applications, but rather the notion of no pre-defined targets in peace time. Second, in principle, the possibility of unauthorised and accidental launches would call for surveillance of nuclear arsenals of potential adversaries and allies alike which could, in practice, saturate present and foreseeable support application capabilities. Third, but not least, minimal deterrence could provide new employments and tasks for outer space applications, but it would probably not introduce a new role for those applications in deterrence.

III. Offensive or Defensive Doctrines?

The relationship between outer space and minimal deterrence cannot be assessed only in terms of past and present technology-applications, and mention should be made to developments in ballistic missile defence doctrines and systems. Since 1983, after President Reagan's announcement on the Strategic Defence Initiative (SDI), a new thinking has dominated the debates on nuclear deterrence whereby the role of outer space in this doctrine could change considerably. The debate centred on the premiss that the deployment of an anti-ballistic missile system would render nuclear weapons impotent and obsolete.[15] More precisely, the role of outer space applications would therefore change from the basic *support* of potential offensive operations to the *support* of potential defensive operations and the *actual conduct* of operations in terms of space-strike or space-based missile interception (detection, tracking, and interception).

Defence in the strategic sense is by itself not new, but it has so far been confined to passive measures such as ballistic missile silo hardening and mobility. Active defence such as anti-ballistic missiles has, as already discussed, been largely legally restrained and in practice only systematically deployed by the former Soviet Union and the Russian Federation. However, strategic defence is an active form of defence which contains a number of built-in doctrinal and technical problems, including major inconsistencies with the nuclear deterrence doctrine. In addition, its implementation calls into question the maintenance of the existing bilateral legal regime on outer space.

1. Conceptual Problems

The fundamental objective of the present nuclear doctrine is to deter a potential enemy from initiating an attack by fear of massive retaliation in kind, but the originally proposed SDI contemplated changing this situation by introducing the capability for defending against an attack. This inovation, it was argued, would cause deterrence by offensive means to be inapplicable, since

[15] "President Reagan's National Security Address, 23 March 1983, Washington D.C.", *Daily Bulletin*, US Mission, Geneva/US Embassy, Bern, Supplement, No. 10, 24 March 1983.

strategic defence would substantially increase an adversary's attack uncertainty.[16] For various technological, financial and other reasons the implementation of an SDI system has been highly questioned. In addition, such a defensive system presents some inconsistencies with the notion of deterrence, especially considering the objectives of the 1972 ABM Treaty. Later reflections on the SDI concept and the 1991 presidential refocusing of the programme have led to the development of the Global Protection Against Limited Strikes (GPALS) concept,[17] which did not call for the establishment of a space shield which would replace offensive strategic forces by posing a threat to retaliatory capabilities, but invoked a combination of both strategic offensive force and defence systems.

While future offensive capabilities are planned to have some modifications, in particular in the structure of its traditional triad, ballistic defence is supposed to include ground- and space-based interceptors and sensors to provide protection against what is described as being "...by definition undeterrable -- accident and unauthorized launches ... They also can provide protection against limited, deliberate ballistic missile strikes which may threaten regional stability..."[18] In addition, the argument is made that the defence against a limited and unauthorized strike, combined with deterrent capabilities, could, in the final analysis, prevent potential adversaries from deploying ballistic missiles in regional crises to deter the United States and its Allies. The latter contention is a critical point in this discussion. The United States has been engaged in discussions with NATO Allies on GPALS and the objectives of a limited deployment of a ballistic missile defence, where it argues "...that such defense would not threaten existing deterrents..."[19] In addition, a study completed by SDIO's Strategic Red Team concluded, among other things, that "...a recognition that the traditional model of deterrence may no longer apply or may prove unreliable with regard to the behaviour of ballistic missile-equipped Third World nations."[20] This possible contingency comforts proponents of a perceived need to develop tactical/theatre defences (e.g., PAC-3 and HAWK interceptors, and SPY-1 radar upgrades, and THAAD interceptor development),[21] which would lay outside the framework of strategic deterrence. Although the argument has been made that theatre defences coupled with conventional counter-offensive operations would extend to deter the deployment and utilization of theatre ballistic missiles - whatever their payload, the question remains if defence would become part and parcel of nuclear deterrence, where space- and ground-based ballistic missile defence would be conceived to support not only theatre, but also strategic defence operations.

Other conceptual problems may be added to the above discussion. Outer space technologies have so far been employed in support of offensive operations and considered to assist potential missions of missile interception. However, the development of weapons technologies may in the future go a step further to permit the deployment of other types of weapons. For example, how would contention of offensive space-to-ground roles (e.g., missile silos, major military facilities) affect the deterrence doctrine or an eventual shift from deterrence to defence? This is more questionable given the need to push research efforts to reach greater capabilities of ballistic missile interception in their

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[16] *1991 Report to Congress on the Strategic Defense Initiative*, Strategic Defense Initiative Organization, Washington, D.C., May 1991, p. 1-7.

[17] See President Bush "State of the Union Address," *Daily Bulletin*, US Mission, Geneva/US Embassy, Bern, 29 January 1991, p. 24; *Briefing On The Refocused Strategic Defense Initiative: Global Protection Against Limited Strikes (GPALS)*, Washington, D.C., Department of Defense, Strategic Defense Initiative, 12 February 1991.

[18] *1992 Report to Congress on the Strategic Defense Initiative, op. cit.*, p. 1-3. The proposed system is designed to provide protection up to 200 ballistic missile warheads.

[19] *Ibid*, p. 1-5.

[20] *Ibid.*, p. 7-2.

[21] PAC-3: PATRIOT Anti-Tactical Missile Capability Three, HAWK: Homing-All-The-Way-Killer, SPY-1: Navy radar, THAAD: Theatre High Altitude Area Defence.

boost phase, as in the case of the Brilliant Pebbles space-based interceptor concept. Would there be a new emphais on offensive capabilities, especially if future space-based interceptors are quickly re-targetable directed energy weapons? This and other fundamental questions seem to remain open for discussion.

2. Legal Implications

Certain BMD technology validation experiments and deployments are quite controversial, some of which lay on a vary thin and shaded line on the division of treaty-permitted and non-permitted activities; the ABM Treaty is in the centre of discussions since present R&D covers non-nuclear defences.[22] In 1991, the American Congress adopted the Missile Defence Act, which established the goal of deploying an anti-ballistic missile system to provide defence for the United States territory against a limited strike, while maintaining strategic stability.[23] The deployment of a limited ground-based ABM defence at a single site would be in compliance with the ABM Treaty (given treaty limits are respected). However, would this be the case with a deployment of an advanced theatre ballistic missile defence scheduled for the mid-1990s? Constraints in tactical or theatre defence were not in the spirit or the objectives of the ABM Treaty, which defined an ABM system as a system to counter strategic ballistic missiles. Nevertheless, development of ABM components for such limited and regional defence involves space-based sensors and their substitutes which themselves may have some implications for ABM Treaty limits. Hence, for proponents of ballistic missile defence, the major objective of a modification of the ABM Treaty - or the negotiating of a new one in the form of a bilateral Defence and Space Treaty - would therefore probably be to free such devices from present legal restrictions and to reach agreement on the distinction between ABM and Anti-Tactical Ballistic Missile Defence (ATBM) defences and their variations in order to ensure the deployment of defence against ballistic missiles in multiple sites.

In the first case, expected areas of modifications would cover restrictions on the number of ABM interceptors and their locations, which have been designed for a specific purpose in the 1970s and at present would hinder the deployment of a system which would be aimed at the defence of the entire United States territory. If the ceiling on the number of interceptors permitted for deployment is not removed all together, modifications would then be aimed at establishing a higher ceiling, which at present allow for the defence of a limited number of incoming warheads in a specific geographical area.[24] Central to such negotiations would also be the prohibition on space-based ABM sensors and interceptors. While the latter has not been authorized by the American Congress as an initial component of missile defence, the former has been endorsed for deployment.

Nevertheless, unlike the United States, Russia is not pressing for any modification of the ABM Treaty, a negotiation which is not widely supported in certain military and political quarters. While Russian Federation President Yeltsin has accepted the notion of some degree of co-operation with the United States on ballistic missile defences,[25] this has been limited to discussions on the sharing of ballistic missile early-warning information, possibly through the establishment of an early-

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[22] See a discussion in *Ibid.*, p. 1-8; Willian S. Cohen, "Limited Defence under a Modified ABM Treaty," *Disarmament*, Volume XV, N°. 1, 1992, pp. 17-20.

[23] *1992 Report to Congress on the Strategic Defense Initiative, op. cit.*, p. 1-8.

[24] At present, anti-ballistic missile defence could be deployed at Grand Forks, North Dakota. However, this location is not seen by the SDI Organization (SDIO) as the most appropriate option, especially for a multiple site deployment. SDIO further noted that the number of sites required to provide defence coverage against the full range of GPALS threats may range from three to five in the continental United States, one in Alaska, and one in Hawaii (see *Ibid.*, p. 2-10), and it is therefore likely that American/Russian discussions would be overwhelmed by a pressing need to change the location of the present permitted site.

[25] See "U.S., Russia Consult on Global Protection System," Joint Statement 620, *Department of State*, Washington D.C., 14, July 1992.

warning centre. However, co-operation could also take the form, as reportedly proposed by the Russian military in March 1992, of a joint military space tracking network test using radars and other devices, with the aim of exchanging their data on upper atmosphere/spacecraft decay and reentry characteristics. With different priorities, as Table III illustrates, the United States has pursued a two-track approach and a step by step policy aimed at involving other countries, including the Russian Federation, in activities which would lead from the sharing of early-warning data to the operation of BMD systems. It is not likely that Russia would engage in the development of a global defence system, but it is not to be excluded that R&D on tactical ballistic defences be stepped-up. This would follow the rationale of discussion on the possibility that Moscow would deploy a limited defence system.[26]

Table III

United States Proposed Multilateral Co-operation on Ballistic Missile Defence

STAGE	APPROACH A Missile Launch Detection	APPROCH B Missile Defence Systems
• Step 1	- Sharing data: -- United States and NATO -- United States and the Russian Federation	- Improve theatre Ballistic Missile Defence - Technology exchange
• Step 2	- Establishment of a Joint Ballistic Missile Early-Warning Centre -- American/Russian Centre; -- American/Russian/NATO Centre	- Joint participation in the development of concepts and programmes on Ballistic Missile Defence
• Step 3	- Joint operation of Ballistic Missile Defence	

The lack of an agreement between the United States and Russia in modifying key areas of ballistic defence could cause American withdrawal from the ABM Treaty. This may be argued on the grounds that the United States has decided to develop a new military strategy in light of present and foreseeable developments in ballistic missiles, and that the limitations on the Treaty and its 1974 Protocol impede the United States to deploy *adequate* defence for both continental and contiguous United States territory. However, if reports on possible Russian development and deployment of limited ballistic defence prove to be accurate, withdrawal may not be seen as unilateral, but could also be judged to be in the interest of both parties and undertaken jointly. Such an option would formalize a co-ordinated termination of the Treaty, while at the same time providing the groundwork for joint development of more ambitions ballistic missile defence systems, which from the Russian standpoint should not include space-based interceptors. This is unlikely, however, if the Russians conclude that their defence system is not comparable to, or their technology less technically reliable and/or more costly than, that which would be deployed by the Americans.

Either unilateral or bilateral withdrawal would provide little prospects to establish new limitations on ballistic missile defence capabilities, especially considering that the United States has planned to deploy space-based sensors by the late 1990s and advances that space-based interceptors could be available for deployment by the year 2000.[27] Between now and then, the debate on the role of outer space applications in nuclear deterrence should gain increasing momentum due to a pressing

[26] *The Military Balance: 1992-1993, op. cit.*, p. 33.

[27] *1992 Report to Congress on the Strategic Defense Initiative, op. cit.*, p. 1-9.

need for clarifying the many obscure areas of permitted and non-permitted activities. Furthermore, the type, magnitude, and role of weapons and weapons systems to be deployed have inherent implications for the decades-old nuclear deterrence and the very strategic stability among nuclear powers specificly, and for international security in general.

Conclusion

The present decade has seen many changes in the international security environment and nuclear deterrence is an important issue in this regard. It seems inappropriate - if not premature - to conclude this paper with a list of possible events and prospective outcomes with respect to the relationship between outer space and nuclear deterrence. However, the above discussion is so important for the debate on the future of nuclear deterrence that three specific issues related to near-future developments merit special attention here.

The first remark to be made is that outer space has played an important role in weapons' support for deterrent capabilities. However, this role has differed according to the nuclear weapons state, since not all of them have the same level of technology, nor do they find themselves in the same geopolitical circumstances. This situation may not have affected nuclear deterrence either in principle or in practice, but future developments in outer space capabilities will certainly increase this technology gap, thus allowing certain nuclear weapons states to assign new roles for outer space applications.

Second, minimal deterrence is an evolving concept and the role that outer space applications may play in its final formulation remains, to a large extent, speculative. However, this role should be a product of various criteria such as international political and military developments, the level of nuclear and other major weapons arsenals, as well as the level of weapons and weapon systems technologies. Nonetheless, present and planned technological developments may influence minimal deterrence, but it is unlikely that this will result in any new major role for outer space applications.

Third, but not least, is the relationship between offensive and defensive doctrines. The scale-down of SDI goals from the strategic to the theatre and tactical levels may have diminished critics on the proposals' technological and financial requirements, but it has certainly not lessened the conceptual inconsistency between offensive and defensive nuclear doctrines. GPALS is intended to fulfil the same function *vis-à-vis* the perceived new level of threat that the original SDI proposal was intended to as far as a potential Soviet attack was concerned. The main problem is that, beyond the issue of limited-nuclear-war, the rationale of nuclear deterrence based on offensive force was argued on the notion that nuclear weapons were unlikely to be used for fear of retaliation in kind. In contrast, strategic defence does not claim automatic nuclear retaliation, and one may question if such an approach would leave more room for a possible use of nuclear weapons.

Furthermore, nuclear deterrence is not perceived as being an uniform doctrine by all nuclear powers, nor is it seen as having the same impact on every potential adversary. This brings the very essence of nuclear deterrence into question, especially when a ballistic missile strike does not threaten the survivability of strategic forces and command and control capabilities such as in distant conflicts. What is the fundamental role of nuclear deterrence in a non-traditional East-West scenario? In other words, what is the political utility of strategic forces in a self-admitted no-deterrence situation?

Chapter 10
The Debate on Minimal Deterrence

Section I - *Alexei Arbatov*

Revitalization of debates on minimal nuclear deterrence at the present time is induced by the end of the Cold War and a number of unilateral and bilateral actions by the great powers to curtail nuclear arms race and reduce nuclear weapons arsenals. In this context, several questions have to be addressed.

- I -

The USSR, and after December 1991 - Russia, and the US have withdrawn to their national territories and started to dismantle more than 90% of their most destabilizing and inadequately controlled tactical nuclear weapons. Both sides unilaterally have cancelled or stopped most of their strategic modernization programs. Together with three other republics of the former Soviet Union they have started the ratification process in the case of the US actually finished) of the 1991 START Treaty, and are now conducting talks on the finalization of the 1992 Framework Agreement and reaching a new treaty on roughly a 70% reduction of strategic forces: START-2.

Both states stopped production of fissile materials for the military purposes, curtailed warheads assembly and are planning to co-operate on nuclear munitions dismantling, safe storage and utilization. In the Fall of 1992 by the resolution of the US Congress the United States finally have joined Russian moratorium on nuclear tests. France, Britain and China are not testing either and all five nuclear powers are now members of the Nuclear Non-Proliferation Treaty.

All these benign changes are encouraging politicians and strategic experts of the world to once again think about the old idea of minimal (or finite) nuclear deterrence, its contemporary meaning, requirements and feasibility.

From the very beginning this concept was an intellectual compromise between, on the one hand, recognition of the absurdity and dangers of the enormous arsenals of nuclear overkill, acquired by the US and the USSR by mid-1960s, and on the other hand, realization of great political, strategic and technical obstacles on the way to complete nuclear disarmament.

However, it seems that in the present debates, as before, too heavy emphasis is made on the numbers of nuclear forces as a criterion of minimal or surplus nuclear deterrence. Numbers are only a function of other properties of the concept, although historically qualitative nuclear arms race had acquired "mad momentum of its own" till the beginning of 1980s, while strategic and political doctrines were often adopted to the world of nuclear surplus. Still in trying to formulate a new policy, based not on momentum but on rationality, the numbers have to be treated in the last turn.

The following problems have to be solved in the first place, and they are only indirectly addressed by partisans of different viewpoints. Meanwhile they have to be scrutinized head-on when for the first time in four decades this doctrine is discussed in practical and not only theoretical terms.

First, what should be the tasks of minimal deterrent nuclear forces, and in this connection, what are their targets, methods of employment and expected effectiveness? Hitting population centers deliberately, as suggested by some experts, requires small numbers of deliverable warheads. Poor accuracy and easy ways of forces employment (*i.e.* timing, coordination, strike options etc.) are acceptable. In short this strategy is very cheap. But it has obvious political and moral deficiencies,

especially in times of cordial political relations and growing partnership between former mortal rivals.

It has to be kept in mind, that in the 1950s targeting of population was a matter of necessity in view of bad accuracy, long flight-time and inadequate target intelligence capabilities of strategic forces. Population has not been targeted deliberately by either Super Power for a long time, although big collateral fatalities were always expected from counterforce and counterindustrial strikes. Still, openly coming back to counterpopulation strategy as a matter of conscious political choice, with the contemporary sophisticated weapons, might be quite a dubious proposition for any state leader.

Likewise, launch-on-warning concept for the same target coverage requires much smaller forces and less robust command and control system, than purely second-strike strategy. But on the other hand, the former greatly increases the risk of accidental nuclear war and requires high alert rates in contradiction to relaxed political climate. The ultimate paradox is that some Russian critics, reconciling themselves with the prospect of having small and vulnerable forces, are suggesting a shift to first-strike doctrine. This is an extreme example of inherent contradictions of the doctrine of minimal deterrence, when good political intentions through peculiar strategic and technical implementation may lead to just opposite results.

Second, US and Russian reductions to the levels of minimal deterrence would inevitably bring the problem of third nuclear powers to the forefront of strategic policies. Third powers' joining arms control talks would be necessary, but that is not actually the biggest problem. The real issue is definition of US and Russian strategic requirements in a multipolar nuclear balance. If the Super Powers insist on the "British naval paradigm" (having nuclear forces at least not smaller than those of all third powers taken together), third nuclear states would hardly join reductions. Their programs would be driving Super Powers' force levels upward from the minimal deterrence.

Solving the new problems of multipolar nuclear balance, in which political moves and alliance patterns may once again affect military capabilities, is a great challenge. The way it is answered would define both: strategic prospects of minimal deterrence and feasibility of multilateral strategic arms control.

Third, further nuclear proliferation in the world may produce impact on the issue in two ways. Directly, it may raise perceived strategic requirements of the third nuclear powers and even those of the US and Russia. Greater retargeting flexibility, subkiloton munitions, new cheaper strategic and tactical delivery systems may lead them exactly away from the logic and force structures of minimal deterrence.

Indirectly, proliferation would encourage development and deployment of anti-missile systems by the nuclear powers. Strategic defense will inadvertently affect their own strategic relations and force postures. Even now, implementation of the Framework Agreement to reduce forces to 3000-3500 warheads (that is allegedly much higher, than minimal deterrence) is conditioned by Russian military on preservation of the ABM Treaty of 1972. This is incompatible with the testing and deployment of US limited ABM system (GPALS), supposedly designed against proliferating missiles of the Third World.

Fourth is the development by great powers of sophisticated long-range, precision-guided conventional weapons. They are designed primarily for the Gulf-type contingencies, but may be hypothetically employed against strategic forces of nuclear powers in counterforce strikes. Minimal deterrence forces, even if sufficiently survivable against nuclear missile strike, might be vulnerable to more protracted conventional attacks. This may inflate strategic requirements far above any finite deterrence levels.

There are three main conclusions from the above considerations. One: moving towards minimal deterrence nuclear levels is not a bilateral strategic problem, but rather a complex mixture of

bilateral and multilateral political and military issues, extending far beyond the framework of traditional strategic balance and stability.

Another conclusion is that even bilateral problems are not confined to an arbitrary choice of a damage level and warhead number, sufficient for minimal deterrence. It requires many value judgments on hard political, moral, strategic and economic issues and trade-offs to reconcile this abstract concept with resistant and controversial reality.

Finally, in order to reach the stated goal, an informed political guidance will be necessary not only on arms control agreements and general force levels, but on the up to now secluded and arcane subjects of targeting, strike planing and technical characteristics of weapons and command-control systems.

- II -

Now, two major problems. One is minimum deterrence and the other is the problems with the framework agreement which is sometimes called the framework of the START II agreement between Russia and the United States. As for the first subject, minimum deterrence is a concept which originated during the Cold War. From the very beginning it was an intellectual compromise between the recognition of the impossibility of complete nuclear disarmament on the one hand and the absurdity and provocative nature of huge nuclear overkill arsenals on the other. During the time of huge nuclear arsenals, polar confrontation and arms races, which was mostly oriented towards enhancement of counterforce capabilities between the United States and the Soviet Union, the minimum deterrence concept looked like a very attractive goal. In the present situation when political relations, geo-political patterns and the changes which happened in the Soviet Union are so unexpected and dramatic, it seems to me that revival of the good old idea of minimum deterrence for quite different relations is hardly feasible and hardly realistic. There are several major problems with minimum deterrence.

The first is that minimum deterrence, by way of trying to come to the lowest levels of nuclear weapons as possible, envisions mostly or absolutely counter-value targeting, that is targeting of urban industrial centres. These are the easiest targets to destroy with nuclear weapons and the concentration of population and industry in urban industrial centres is very high for the Soviet Union, the United States, Western Europe and Japan. In this sense, destroying 60, 70 or even 80 per cent of urban industrial assets requires very few nuclear weapons, between 200 and 300. During a time of counterforce strategies, this looked like a very attractive idea. But now the US and Russia are proclaiming that they are no longer enemies and they are even hoping that we will become allies, at least in some foreign policy areas. It is really bizarre to suggest retargetting nuclear weapons deliberately on the other's populations. The fact is that in the past, in the beginning of the 50s, urban targeting was a matter of necessity because reconnaissance capabilities, flight time of weapons and accuracy were all insufficient. But presently when we have ample reconnaissance capabilities, very short flight times, great accuracy, urban industrial targeting is a deliberate choice which is directed at killing as much of the civilian population as possible. No political leader, either in the United States, Russia or Western Europe would dare to advocate openly this kind of targeting for the sake of coming to minimum deterrence. This has to be done openly and deliberately in order for minimum deterrence to work.

Another obstacle is that minimum deterrence envisioned very low levels of forces. This could drive each side to an automatic or semi-automatic retaliation strategy. Since force levels would be so low, their vulnerability or expected vulnerability would be rather high, so a launch on warning strategy would look the most economic. But again, in the situation of quite different political relations, insisting on automatic response is both confusing, unjustified from the political point of view and dangerous in the sense that it might increase the threat of accidental or inadvertent nuclear

escalation. This threat might grow in a situation of multiple nuclear powers and potential nuclear and ballistic missile proliferation. In a situation of potential nuclear ballistic missile proliferation, launch on warning is no longer an option because it is too dangerous. The problem of vulnerability has different faces because now, with the precision-guided conventional long-range systems, it is not only vulnerable due to nuclear weapons but also it is vulnerable due to conventional systems, especially for Russia. This is now becoming one of the major subjects, vulnerability of strategic forces due to conventional systems. It is a difficult and quite different dilemma of how to take into account forces of at least five nuclear Powers. If the United States and Russia insist on having as much forces as the sum of the other three nuclear Powers, this would hardly be acceptable for those nuclear Powers as a basis of their joining nuclear arms control negotiations. On the other hand, giving each of the five an equal share in this multilateral equation also is hardly justifiable, if only for the reason that not all of them are targeting each other. For instance, Great Britain is not targeting the United States and China is not targeting France. We cannot come up with such simple automatic solutions for this problem. The problems of defence put another brake on our consideration of minimum deterrence.

The second point concerns the doubts about the feasibility of minimum deterrence, in a new situation, a new political relation and especially in a multipolar nuclear world. This does not mean that we cannot reduce nuclear forces. We somehow seem to assume the fact that the nuclear forces of Russian, Ukraine, Belarus, Kazakhstan and the United States are still almost at the same levels that they were in the middle of the 80s. Since we are psychologically so different now, we tend to forget that we have not even started to implement START I, so there is no doubt that we can go along the way of implementing START I without taking into account all the aforementioned considerations because they would become relevant only at much lower levels of nuclear forces of the two former Super Powers. In general, START II can be implemented also without taking into account these considerations but with some important reservations. In its present form, START II is hardly acceptable for Russia. Yeltsin agreed on START II in Washington this year but nevertheless, you know that our President is not always very consistent in his policy. I think that that agreement was made in a very hasty manner, just like his commitment to go to Japan in any circumstances. This was done two days before he cancelled his visit. Still, the framework agreement is basically a good and stabilizing arms control framework, provided that some additional provisions are negotiated.

First of all, Russia believes that the ceilings are still too high. It does not see any justification in establishing a ceiling as high as 3,500 nuclear warheads. If we undertake all the technical, political and strategic efforts to reduce to 3,500, we could reduce to lower, at actually the same price and at the same cost. In this sense, 2,000 to 2,500 seems a much more attractive level. I hope with the new administration in the United States, reductions of the ceilings will become easier.

Another point is that the combination of the relatively high ceilings of START II and the prohibition of multiple warhead ICBMs makes it extremely expensive to implement that treaty and to attain these subceilings for Russia. At present, Russia has little more than 300 single warhead ICBMs. This means that in order to fill the quota, Russia will have to deploy as many as 1,000 to 1,400 single warhead ICBMs at a tremendous cost, especially in the present economic situation. This might compromise the idea of a stable deterrent and deep reductions. The people of Russia will hardly be enthusiastic about START II when they are told (and they will be told very soon) that the implementation of START II, in addition to the costs of dismantling existing weapons, elimination and conversion will cost them from 40 to 50 billion roubles for the deployment of 1,000 or more single warhead missiles. The reduction of the ceilings would make it easier for Russia to fill the quota without creating large imbalances in quantitative levels between Russia and the United States. We cannot, in the present political situation, justify the idea that Russia may feel satisfied with a much lower level, with 50 per cent lower level in forces, than the United States.

So in this respect, apart from lowering the ceilings and lowering the quota, which inadvertently will be a quota for ICBM deployment, some additional things are important. First is elimination of cellars. Russia is obliged to eliminate all heavy missiles and that is a concession of an historically tremendous scale. But having made that concession, Russia is entitled to ask for some exceptions, for instance, to retain another crop of those heavy missiles which is not covered by START I but is covered by START II. That means 154 cellars. Why does Russia need them? They are needed because deploying single warhead missiles only on mobile platforms will be extremely expensive, so Russia will deploy some part of them in fixed cellars, but building additional fixed cellars will also be very expensive. So why not use the existing cellars of the heavy missiles which are in Russia and which will be eliminated by way of their conversion into cellars for light single warhead missiles while all inspection capabilities will be possible? The same argument goes for the reduction of numbers of warheads, or downloading. Russia has 170 SS19 missiles and we have 36 mobile SS24 missiles in Russia. Mobile missiles actually are not destabilizing, even when moved they are as stable as fixed ICBMs.

The limitations placed on the United States are not sufficient. In particular, limitations on the counterforce capability of the Trident 2 missiles are not sufficient. With deployment of 18 Trident submarines with D5 Trident 2 missiles deployed even on 10 of them, even if the first eight will not be retrofitted with D5 missiles, this still provides the United States with a very high counterforce capability against remaining Russian forces and a very high breakout capability. They will have the capability of carrying up to eight warheads while in reality will be equipped with only four. But this opinion is not only my sincere opinion but it is also the sincere opinion of the Russian strategic market forces. Some additional limitations on D5s are essential to make this treaty acceptable for Russia. Different solutions are possible, for instance, limit the number of D5 missiles.

The final observation which relates not only to START II but to further possible measures is that we could set a much quicker pace to implement START II if we agree on some cheaper and easier way of nuclear weapons reduction. In particular, downloading to zero the missiles which are earmarked for elimination in a very short period of time and storing those warheads under mutual control is a very good solution to accelerate the pace of reduction - not to wait until 2003 but to make it within two years. Second, it would make it much cheaper because downloading missiles is much cheaper than eliminating and converting missiles, cellars and submarines. And finally it will also solve the problem of those missiles which are deployed outside of Russia. If within one year all nuclear warheads are dismantled from the missiles deployed in Ukraine and Kazahkstan and stored on Russian territory, or even on their territory but under Russian and American permanent monitoring and inspection, this potentially explosive issue will be greatly removed from the agenda. Ukraine will get its negative control over the launch of the weapons but at the same time will never be able to acquire positive control because those missiles will no longer carry nuclear warheads.

As for the future, downloading to zero and actually bringing strategic forces closer to the status of tactical nuclear forces which are not always on high alert is a very promising idea. In this way Russia and the United States could go down to as low as 500 warheads deployed permanently in their forces with the rest being stored maybe under mutual inspection while also involving certain nuclear Powers. Missiles and aircraft which are without nuclear warheads will be more like conventional dual purpose systems which will no longer be considered a part of combat-ready arsenals but rather will be a part of reserve forces. In this way we could find a solution to this tremendous problem of a multilateral nuclear equation in which each of the five nuclear Powers will be apportioned approximately equal numbers of combat-ready nuclear warheads with the provision that the United States and Russia will preserve certain non combat-ready reserves, but forces with delivery vehicles and nuclear warheads decoupled and under the control of all five nuclear Powers.

Section II - *Regina Cowen Karp*

The debate about minimum deterrence in the post-Cold War era has primarily focused on lowering nuclear force levels and restructuring strategic forces. There has not been a general reassessment of the principle of deterrence upon which many force structure decisions are based; nor has there been a coherent attempt to reevaluate the role of nuclear weapons in a profoundly changed international security environment. In the absence of these reconsiderations, the debate about minimum deterrence has turned into asking the question of how small existing East-West nuclear arsenals can become without sacrificing strategic stability. This questions makes several implicit assumptions about the nature of international security after the Cold War. These assumptions are questionable and require explanation.

The first assumption made is that minimum deterrence in the post-Cold War, post-Soviet age should be understood in the same way that deterrence was during the Cold War. Deterrence is still viewed as the organising principle of international security and the main challenge to it is to achieve it at lower nuclear force levels. This assumption predisposes the debate on minimum deterrence towards a discussion of deterrence-related issues rather than the concept of deterrence itself. Thus the debate revolves around the old and familiar issues of deterrence credibility, force survivability, force mixes and targeting requirements. In comparison, few attempts are made to understand the complex new security situation that has emerged since the end of the Soviet Union and the end of the Cold War and to explore the role nuclear weapons should play in this new political context.

The second assumption concerns the linkages being made between numbers of nuclear weapons and strategic stability. Strategists are generally quick to agree that the new political environment does not warrant the large nuclear arsenals of the Cold War. They are, however, less united when it comes to agreeing on how small nuclear forces should be and what their role might be in the future. How many nuclear weapons are enough and what should they be for? Again, the debate shows many Cold War vestiges. The focus is on whether or not mutual assured destruction requirements should guide the debate about force levels; the perceived risks of having small but inflexible nuclear forces, and the relationship between a small nuclear force and extended deterrence requirements. There is comparatively little discussion about the extent to which the experience of managing nuclear weapons during the Cold War is relevant to the post-Cold War security situation.

A related problem emerges from the prevailing understanding of the concept of "strategic" which has survived the end of the Cold War almost unchanged. The concept is traditionally narrow, addressing a very specific East-West context that now no longer exists. In order to remain useful it needs to be revised. The familiar East-West context has ceased to exist the US-Soviet strategic balance is no longer the primary indicator of international security. Instead, nuclear proliferation and the safety of nuclear weapons in the former Soviet Union are at the top of the new international agenda. A broader definition of strategic stability would reflect the new agenda and the new policy concerns and indicate that the stability of the international system is no longer solely dependent on nuclear force ratios. Taken together, the questions surrounding the size of the nuclear arsenals under conditions of minimum deterrence cannot be resolved unless there is a concomitant agreement about how nuclear weapons can contribute to dealing with the new security problems.

The third assumption in the minimum deterrence debate concerns the continued acceptance of the utility of deterrence. Everything that is known about nuclear deterrence, what it requires and how it works, stems from our experience of Cold War deterrence conditions. Those who continue to believe that deterrence presents a useful way of organising international security also believe that nuclear deterrence has general applicability, irrespective of the fact that the concept was devised and translated into policy during the height of the Cold War. In this view, the concept of deterrence remains untarnished by the demise of the Soviet Union and the end of the Cold War and has lost none of its applicability in the post-Cold War era. The validity of this view is questionable.

Nuclear deterrence was specifically tailored to meet the Soviet threat. It was developed in response to both general and specific perceptions about the nature of the Soviet Union, its intentions and capabilities. US nuclear forces were built up to credibly counter the Soviet threat across a whole spectrum of perceived contingencies, conventional and nuclear. The conditions that informed deterrence requirements no longer persist and it is now possible to put nuclear deterrence into perspective. What emerges is an appreciation of Cold War deterrence as a unique phenomenon, inseparable from the politics of the Cold War and of questionable relevance to organising a new international security order.

The fourth assumption in the debate about minimum deterrence is guided by the expectation of a critical threshold below which strategic stability would be uncertain. There could be problems of verifying small nuclear arsenals, countries might come to see a political and military advantage in cheating or may be tempted to rapidly break out of a minimum deterrence situation. To be sure, it would be difficult to verify small nuclear forces confidently (from a technical point of view it is indeed easier to verify the absence of nuclear weapons), and cheating and break-out are possible.

Fears about these possibilities arise if minimum deterrence is envisaged without due regard to the political context that will have to exist in order to make small deterrent forces effective. If states fear that others might be on the verge of a rapid build-up of nuclear forces, or that countries might combine their forces in a hostile alliance, the likelihood of any one state acceding to a minimum deterrence system is remote. If the political context that underpins minimum deterrence consists of adversarial relationships, minimum deterrence will be short lived or, more likely, never be achieved. In order to make minimum deterrence credible as a security policy, attention needs to be given to increasing the incentives for countries to want to adopt it and keep to it. Rather than focusing on critical thresholds of force size assuming that states would want to cheat, the discussion should address how political relations need to change to make minimum deterrence an attractive security option.

The fifth assumption in the debate about minimum deterrence relates to the issue of nuclear proliferation. The debate is conducted almost exclusively within what used to be the East-West context. It is about reducing existing nuclear arsenals. Few conceptual linkages are made between the former East-West arsenals and the nuclear capabilities of other states. While it can be argued that large reductions in nuclear weapons by the United States and Russia send important signals to third countries and potential proliferators, their effect on these countries is questionable. Minimum deterrence still endorses the principle of deterrence and the utility of nuclear weapons for national security. Minimum deterrence between the United States and Russia is thus unlikely to persuade potential proliferators from acquiring a nuclear capability. In this sense, the size of the US and Russian arsenals is secondary to the principal adherence of the two states to deterrence.

At a very general level, a review of the assumptions that guide the debate about minimum deterrence shows that this debate sees its primary task as that of reducing former East-West nuclear arsenals to a level that can be called minimum deterrence. More specifically, there is no agreement as to what level of forces might constitute minimum deterrence. There is the perception that the fundamental changes brought about by the end of the Cold War do not impinge upon the utility of deterrence. And, there is a tendency to assume that the Cold War experience with managing deterrence is valid for the security challenges of the post-Cold War world.

This approach to minimum deterrence is misguided for several reasons. First, minimum deterrence should not be understood solely as the successive build-down of nuclear weapons. Rather, the debate needs to focus on the role of nuclear weapons in international security after the Cold War and the political circumstance that would have to underpin a minimum deterrence relationship. Without a discussion of the present usefulness of nuclear weapons and how they can be accommodated in an international system that has moved rapidly away from the certainties of

the Cold War, the debate about minimum deterrence continues to be concerned with the security requirements of a by-gone era.

Section III - *Tibor Tóth*

I would like to divide my comments into two parts. The first will address the issue of the changing nature of deterrence from a general point of view. In the second part I will see what might be the role, if there is any, for multilateral disarmament in managing nuclear weapons.

- I -

As for the changing nature of nuclear deterrence, nuclear deterrence is a particular answer to a security challenge and has been considered and treated as a part of an integrated stability - preservation strategy or a war - prevention strategy. We should try to define deterrence in two periods of time. One is before the 1990s and the second is after the early 1990s. There is no question that nuclear deterrence has undergone many changes and readjustments in the four decades before the early 1990s, but they were only quantitative changes, a different mixture of the different components of this war prevention strategy, characterized at that period of time. Yet the basic pillars or the basic postulates of deterrence remained unchanged and those basic pillars are conceived in the East-West confrontation perspective. This was in answer to a coalition type of adversary relationship. There was a military imbalance on which deterrence existed and the geo-political differences defined the way in which nuclear deterrence worked.

As a result of all the changes which took part in the late 80s and early 90s, all pillars of deterrence have gone but the deterrence postures, which include the East-West type of confrontation, the coalition type of adversary relationship, the military imbalances and probably the geo-political differences as well. We have inherited at the same time nuclear postures and a deterrence posture characterized by qualitative and quantitative elements which have undergone changes as well, but deterrence remains. So if I take the well-known cartoon about the press conference, the spokesman says the answer is "yes; what was the question?". So deterrence is still the answer, but what was the question. I think the question is quite different. We have new security challenges and in one of the basic elements there is transition, mainly in my part of the world. This is characterized by basic economic, ideological and political readjustments with quite some difficulties which accompany the process because of those difficulties, tensions, which emerge in different forms be it ethnic or religious and result in wars which are on-going. National and sub-national wars are going on in Europe. In that sense we could say that deterrence, in its war prevention function, was a failure. Of course, one can argue that deterrence had been intended for war prevention at the coalition level, so in a way the operation was successful. The patient is dead, we have a new situation; national and sub-national type of conflicts and we have still have a heritage of deterrence postures which do not address that level of the problem. This is one element of the new security challenges. The other element, with a certain generalization or a sweeping generalization, is the Persian Gulf type of conflict situation.

A third element, a third challenge, might be the proliferation pressures which we discussed yesterday and which are well known by everyone. So these are the new challenges. In a way there were early indicators already in the 1980s of these challenges. There were indicators even within the East-West context of some emerging national and sub-national tensions related to issues of minority questions, to ethnic questions and to border questions. There has been proliferation pressures even in the East-West context. There were some countries toying with the idea of

acquiring some very limited, but nuclear, capabilities even in the 1980s. There were early indicators of the type of conflict which is characterized as the Persian Gulf type of conflicts.

Based on those assumptions there is a need for a new integrated strategy for enhancing stability, a new strategy for preventing. And probably in that new grand design there will be no central role any more for nuclear deterrence. We have to be realistic of course. Nuclear arsenals will be there for quite some time in the future, and nuclear capabilities will be considered by those powers who do retain them as an important element of their own security and for a wider security. At the same time, and this is my first assumption, nuclear deterrence will not play the role it has played up to the late 1980s. It will be a very important element for security, however, because any mismanagement of existing nuclear arsenals or any mismanagement in the nuclear postures might create grave damages. So in a way, the management of nuclear arsenals for the future could be considered as an important damage control operation as well for international security.

- II -

I would like to take up multilateral arms control in the second half of my presentation and, to be probably overly practical, to put forward some concrete ideas from the point of view of the Conference on Disarmament and those disarmament and security related negotiations which are going on in Geneva.

First of all, my assumption is that besides bilateral efforts and those efforts carried out by nuclear weapon States, the multilateral forum for disarmament can do some useful work. For this, there is a need to renew those fora, both in terms of the issues they are considering and in terms of the format in which they are carrying out there work. It should not be a revolution, it should be an evolution of renewal. We need, first of all, phased measures of disarmament. Some sort of a peaceful disarmament, no big dinosaurs of disarmament measures because they might not survive the 20 years which is needed for the chemical weapons convention. As for the format, we need a very flexible, multilayered format where a combination of negotiations, more informal, exploratory discussions, with a fully fleshed, more limited format can be combined. We need that flexibility. We have to think about the composition of negotiating fora, not in terms of the traditional discussion whether it should be expanded or not, but in terms of an issue where, for example, the three countries most frequently mentioned during these two days, the Ukraine, Belarus and Kazakhstan, are not integrated in those disarmament negotiations. I think it is an issue which is very serious.

In terms of the concrete questions, there are two issues which are extremely important from the arms control point of view and the possible role of multilateral disarmament in managing nuclear capabilities and deterrent postures. These are the questions of the Comprehensive Test-Ban and the Nuclear Proliferation Treaty. There are some additional measures which might play a useful role; these are outer space, non-proliferation and transparence in armaments.

First of all on CTB. The issue of CTB will be the most widely discussed in the forthcoming period. There is a need for combining the general political discussion with some early efforts to produce some results. As for early results I see the following possibilities. One of the less known and more successful stories in the Conference in Disarmament is the work carried out on the seismological verification in the field of the comprehensive test ban. There is a realistic possibility that pretty soon negotiations could start on other components of the verification system. There were some early contacts on those elements and such a negotiating process could be considered as a precursor to more full-fledged negotiations if they ensue. The question is whether those negotiations will start or not - it should be a process which keeps in perspective the end result. At the same time it should be again a phased peace process, probably in the first instance focusing on the reduction of the number and the yield of nuclear explosives.

As for the Non-Proliferation Treaty, substance cannot be defined in itself without having a closer look at the format. There are two important elements which might be critical for the success of the forthcoming review conference in 1995. One is preparation. The preparation which characterized previous conferences is a blueprint for a failure. It is too limited compared to the significance of the issues. We need more substantial preparation in the course of the preparatory stages of the conference. Another key element is the personal factor. We have to be very careful about finding the right people to guide States parties in this crucial review conference. As for the substance which is related to the NPT, there are three issues: nuclear disarmament, negative security guarantees and the protection of peaceful nuclear facilities.

As for nuclear disarmament, the notion of a loose flexible format for the CD might be extremely important. One should not exclude the possibility that the nuclear-weapon States might wish to enter into a contact on the margin of the CD in Geneva on those elements which they consider as basic ingredients for negotiations on the reduction of their nuclear arsenals. For that we need a rather flexible format for our own negotiations where we can channel any information or resources stemming from those negotiations.

As for negative security guarantees, there is a need for negotiations on them. I am very reserved on the early success of those negotiations. The landscape for those negotiations has totally changed. None of the earlier premises are there because of old important changes. We have for example, in my part of Europe, all the components which are important for negative security assurances has undergone important changes. So there is a need to raise the issue in time to take it up, and to take it up in a manner which might produce some results. Here again, phased results might be a recipe for success.

Many participants question the importance of the protection of peaceful nuclear facilities. There is a need to have a quiet look at this question to put aside all the objections and to put aside for a time all the arguments in favour of it. We have to consider the situation at present in the areas of the world where those nuclear facilities are present and where different types of conflicts are going on. Where is the possibility of a conflict that might entail any sort of attack on those facilities and is there any legal or arms control answer to those challenges. Outer space might be a complementary measure which might be helpful in managing deterrence. Here again we need realistic measures. One could think about the verification type of measures and the transparency type of measures.

As for non-proliferation, we do have existing regimes. In certain aspects they are effective. In certain aspects they are not. There are around seven or eight existing regimes - the major problem at this stage is that there are insiders and outsiders. The problem for the outsiders is that among them there are newly emerging suppliers. There is a need to think about that - whether the best solution is to integrate them in the existing structures. At the same time one could envisage a loose format for discussions both between outsiders and insiders and a loose discussion on those issues which go beyond the limits of any existing regime.

As for transparency in armaments, it is a very useful and promising element, mainly in terms of data reporting and notifications. This is an element which probably will become the most important element of the nineties for disarmament. In my opinion dual-use capabilities in the wide sense will be the issue for the 1990s. So probably the world will move away from single use capabilities to dual-use capabilities with all the complicated problems of a legitimacy for certain activities and the threats proposed by those capabilities.

Chapter 11
Responses

Hou Zhitong

I would like to make some personal comments on certain aspects of nuclear disarmament.

1. The Chinese Government always stands for complete prohibition and thorough destruction of nuclear weapons. This is also the pressing aspiration and fundamental objective of the international community. We hold that to promote an early realization of this fundamental goal, some necessary and reasonable measures must be taken so as to check the nuclear arms race, eliminate the risks of an outbreak of nuclear war, and promote international peace and security. In this respect, some progress has been achieved, and yet, much remains to be done. China has all along played a constructive and promotive role and made its positive contribution. China is prepared to make further efforts together with the international community.

2. Some representatives have stressed the importance and necessity of "the strategy of nuclear deterrence", advocating the ideas of "maximum, medium or limited nuclear deterrence". These concepts are new to me and difficult to comprehend. According to their views, "nuclear deterrence played a significant role" during the East-West confrontation and Cold War days. However, at a time when the Cold War is over and when past opponents have declared to become co-operative partners instead of enemies, why would each of them still maintain formidable nuclear arsenals and continue to stress the role of nuclear deterrence? This is hardly understandable.

As for China, it has never adopted the policy of nuclear deterrence. China possesses a very limited amount of nuclear weapons for the sole purpose of self defence. What is of particular importance is that China declared on the very first day when it came into possession of nuclear weapons that at no time and under no circumstance would China be the first to use nuclear weapons. China has also unconditionally undertaken not to use nuclear weapons against non-nuclear-weapon states and nuclear-weapon-free zones. We deem it an effective way to prevent the out-break of nuclear war. If all the nuclear-weapon states can undertake the same unconditional commitment, it would certainly push forward the process of nuclear disarmament. Proceeding from this position, Chinese Foreign Minister Mr. Qian Qichen formally proposed at the UN General Assembly the conclusion of an international agreement to this effect.

We call on all other nuclear-weapon states to follow China and unconditionally undertake as soon as possible the above-mentioned commitment in order to enhance international peace and security.

3. China has consistently supported the efforts by countries of certain regions in establishing nuclear-weapon-free zones on the basis of consultation and agreement and has signed and ratified the relevant protocols to the Treaty for the Prohibition of Nuclear Weapons in Latin America and the South Pacific Nuclear-Free Zone Treaty, thereby undertaking corresponding obligations.

We hope that all the other nuclear states will, like China, respect the wishes of relevant countries, solemnly declare their observance of the status of nuclear-free zones and undertake their due obligations. This will definitely promote the process of nuclear disarmament towards greater progress.

Furthermore, we also hope that all countries which have deployed nuclear weapons outside their own territories would withdraw these weapons. This would increase international confidence, help prevent nuclear proliferation and reduce the risks of nuclear war.

4. The United States and Russian Federation recently signed START I and expressed that they would soon sign START II. For that, we express our welcome, and hope they would soon finish the process of signing and ratification, and implement their obligations at an early date.

Meanwhile, it should be noted by all that, even after the full implementation of the above-mentioned treaties, the two military super-powers still possess nuclear arsenals sufficient to destroy the world several times over. Therefore, the international community demands that they further extensively reduce and destroy their nuclear weapons (including nuclear war-heads), and stop the production, improvement and deployment of nuclear weapons. Obviously, they still shoulder special responsibilities in this respect. We firmly believe that, at a time when the Cold War and East-West confrontation is over, it is not only more necessary but also more possible for the two countries to honour the request by the international community.

5. It is our belief that an arms race in outer space is closely linked with the nuclear arms race, both of which should be stopped. We maintain that all types of space weapons should be totally prohibited, including anti-missile weapons and anti-satellite weapons; and that the use of force or engagement of hostile acts in, from or towards outer space should all been prohibited. For this purpose, the Conference on Disarmament in Geneva should start as early as possible negotiations on the conclusion of new international agreements.

It is equally obvious that the two military super-powers have special responsibilities in this respect as well, and that the international community is demanding their immediate cessation of the development, experiment, production and deployment of outer space weapons, including the development of BMD systems such as SDI and GPALS, which jeopardize the strategic balance and stability.

Many representatives have emphasized the significance of the Treaty on the Non-Proliferation of Nuclear Weapons, and called for a successful reviewing conference of the Treaty in 1995. China has acceded to the Treaty and has contributed greatly in the prevention of nuclear proliferation all through the years. I believe if major headway can be achieved in the above-mentioned areas, it will surely facilitate the extension of the Treaty, and push forward the process of nuclear disarmament toward new and greater progress in 1990s.

Michael Brown

I have three main comments to make. In the spirit of this morning's session, I will try to be as minimal as possible while retaining my strategic capabilities. My first comment has to do with what minimum deterrence is: how do we define it? I found our discussion this morning a bit frustrating. In fact, I find the literature on this subject frustrating because as a general rule one does not find a definition for minimal deterrence that distinguishes it in a qualitative way from the strategic foundations of current nuclear deterrence doctrine. We occasionally hear people say, for example, that 3,500 strategic weapons constitutes a minimum deterrent. I disagree with that. I think that a force of 3,500 weapons would be used and targeted in essentially the same way as much larger forces.

I would suggest that there are four main criteria that would serve as the basis for a definition of what minimum deterrence is. The first is that minimum deterrence strategy would not involve counterforce targeting of an opponent's strategic nuclear forces. A lot of people make a black and white distinction between counterforce and countervalue; they say that if you do not target the other side's nuclear weapons, you have to target the other side's cities. This is a simplistic distinction, in my opinion. At minimal deterrent strategy could focus primarily on targeting the other side's conventional military forces, naval bases, air bases; it would feature, in other words, a counter-

military targeting strategy that might include military-industrial targets but would not necessarily revolve around a counter-city strategy. Second, although an assured destruction capability needs to be retained as the ultimate guarantor of the credibility of one's deterrent assured destruction criteria should be completely redefined. Assured destruction criteria should be much lower. We have been living with nuclear weapons for so long and talking about them for so long that we have become used to the idea of tens of thousands of nuclear weapons being around. We tend to lose sight of the fact that a retaliatory attack involving a few dozen, let alone a few hundred nuclear weapons would be absolutely devastating. If you put things in this perspective, assured destruction criteria can be lowered significantly. Third, nuclear forces have to be large enough and force levels have to be high enough to make sure that strategically significant cheating or breaking out of agreements cannot take place. With the verification provisions in the START Agreement, cheating involving perhaps a few dozen weapons might be possible but nothing beyond that would be. That is why I would be uneasy about having minimal deterrence forces that number in the dozens. I am more comfortable having forces in the hundreds. If we set lower force levels, strategically significant cheating could become a problem. Fourth and last, military planners and political leaders worry about the possibility of new nuclear states on the horizon. Since it would take nuclear states quite a while to build up an arsenal of dozens of weapons there is another argument for having established arsenals in the hundreds. So, those are the basic features of my definition of minimal deterrence.

The second comment I would like to make has to do with the case for minimal deterrence. We have to do more than just assume that minimal deterrence is a good thing. We have to explain in an explicit way why minimal deterrence is better than retaining massive nuclear arsenals. This is especially true if we want to influence thoughtful advisers like Ron Lehman and Alexei Arbatov. We have to convince people that adopting minimal deterrence will enhance American and Russian national security. Again, I would argue that there are four main points to keep in mind. First, I would argue that adopting a minimal deterrence strategy and lower nuclear forces would enhance strategic stability - that is, it would enhance the credibility of American and Russian deterrents. When one moves to minimal deterrence forces, it becomes impossible to attack the other side's land-based strategic forces without using up one's strategic reserve. No leader would do that because it would undermine intra-war deterrence and make further attacks on conventional forces impossible. By disengaging the strategic counter-force element from the nuclear balance and by making attacks on strategic nuclear forces simply impossible - in fact, counter-productive - pre-emptive instabilities in a crisis become much more manageable. You are not going to worry about the other side attacking your strategic forces. It would be silly for him to do that. The second think that moving to minimal deterrence will do is dampen proliferation incentives. It will not dampen them everywhere but it might dampen them in some key places. If I were an adviser to Boris Yeltsin, I would note that one of my main strategic problems in the long run is Kiev: do I really want to do things that might lead Kiev to retain nuclear weapons or in the future to try to acquire a nuclear capability of its own? As we all know, given the history of Russian-Ukrainian relations, there are many people in political positions in Kiev who very much want to have a Ukrainian nuclear capability. One way to dampen these proliferation incentives and strengthen the hand of those in Kiev who would like to denuclearize would be for Russia to reduce its strategic forces much more than it plans to now. Of course, there is no reason in the world why Russia should reduce its forces to very low levels unless the US does the same. I would argue that lowering Russian nuclear forces from a few thousand to a few hundred weapons would help to deal with the Ukrainian problem. The third advantage of minimal deterrence is that it would reduce the risks of unauthorized attacks, which is a major concern in the United States given political developments in Russia. The key to retaining effective command and control in the long run is to maintain the integrity of civil-military relations and the integrity of the military command organizations themselves. That said, smaller forces are inherently easier to control than larger forces. Reducing

forces by a factor of 10 in other words, bringing them from the thousands into the hundreds - would make the risks posed by unauthorized launches more manageable and easier to control. Fourth and last, moving to smaller forces would save money. One would have to spend money in the short run to dismantle weapons, but in the long run one would save a great deal. Research and development will of course continue, but one would save on procurement costs and on operating and maintenance costs.

The third general comment I would like to make has to do with the case against minimal deterrence, which Alexei Arbatov outlined very well. He made six main points - five of which I completely disagree with, if you will forgive me Alexei. First, Alexei argued that if we adopt minimal deterrence we are forced to adopt a counter-value targeting strategy and only attack urban industrial targets. I just do not buy that. I think there are a range of conventional military and military-industrial targets that can be worked into the equation, and I would not put things in such stark terms. Michael Mazarr, in the Summer 1992 issue of *The Journal of Strategic Studies* did a tremendous job of demonstrating that one can have counter-military capabilities with arsenals consisting of just 200 warheads. A second argument against minimal deterrence is that one is forced to adopt a launch-on-warning strategy. Again, I just do not buy that. It is easy to devise survivable forces at very low levels, and I do not see where launch-on-warning would be more likely to be embraced at low levels than at high levels. One's forces are either survivable or they are not and if they are not, one is in deep trouble. A third argument against minimal deterrence is that one has to worry about medium-sized nuclear powers; they have to be included in the equation. I agree that if the US and Russia were to adopt strategic arsenals of a few hundred weapons, then Britain and France would have to be worked into the equation. I think that is something that could be done simply by deploying single-warhead SLBMs instead of multiple-warhead SLBMs. Britain and France would then have arsenals consisting of a few dozen weapons, which would not pose a problem for the US or Russia. In the long run, Britain and France might be induced to adopt this kind of strategy if the US and Russia demonstrated that they are willing to move down that road as well. Fourth, Alexei argued that because of proliferation concerns one needs to have flexible targeting capabilities; one needs to have options for small nuclear attacks and one wants to have small weapons in nuclear arsenals. I agree with all of these things, but I do not see where having small nuclear arsenals presents a problem. Targeting flexibility is a function of software as much as anything else: either you have it or you do not. The US has it, Russia has it, so I do not really see where that is a problem. Having small nuclear options is a function of planning, and that is something that can be accomplished even if one has small forces. Fifth, Alexei argued that we have to worry about the accuracy of long-range conventional munitions; precision-guided munitions might add to first-strike capabilities. This is a manageable problem, in my opinion. Conventionally armed PGMs are very accurate indeed, but ICBM silos are too hard, mobile ICBMs are impossible to track down, and bomber bases are too large to be destroyed easily by conventional munitions. If you are worried about this, then let's have an arms control regime that limits long-range conventional PGMs. The sixth and last point that Alexei made and the one that I think is most powerful is that if one moves to very low levels while at the same time one is worried about renegade threats from the developing world, there is going be a temptation and incentive to deploy limited strategic defences of some kind. Obviously, if we do that at the same time we have very low nuclear force levels, we might affect the credibility secure retaliatory capability. The strategic defence question, therefore, is one that has to be thought about very carefully if we are going to adopt a minimal deterrence strategy. I think it is something that can be addressed - it might mean setting offensive force levels at 500 while limiting defences to 100 or 150 interceptors to ensure that retaliatory forces will still get through. This is an issue that definitely has to be addressed.

André Dumoulin

The current geopolitical upheavals, accentuated by the shrinkage in military budgets, have made necessary a review of force structure and strategic models.

Alongside the discussions on multinational and reinforcing forces, two almost unnoticed events provide ample evidence of this reorientation and herald the advent of a new conception of combat doctrine and the rebirth of the strategic concept.

This renaissance is not fortuitous. It stems both from the consequences of the dissolution of the Warsaw Pact for the depth of any future theatre of operations and the range of projectiles and from fears of a ballistic threat from the South and the lessons learned from the Gulf war concerning the use of stand-off weapons, weapons launched from a distance and capable of reaching their targets deep inside the adversary's sanctuary.

In other words, weapons designated as tactical are coming to be used in a strategic context, while in the nuclear field, their short-range counterparts need to be redesigned to increase their range or will disappear from the military landscape.

In France, following on from the "*Armées 2000*" plan adopted on 26 July 1989, the aims of which were the streamlining of the *corps de manoeuvre*, the simplification of chains of command and a high degree of interforce coordination, the air force has regrouped all the nuclear forces of the TAF under the command of the *Forces aériennes stratégiques* (Strategic Air Force, FAS). Thus, the nuclear delivery vehicles of the tactical air force - the 45 Mirage 2000N aircraft at Luxeuil and Istres armed with the ASMP/TN81 missile - have been placed under the responsibility of the FAS, which also controls the 18 Mirage IV P ASMP/TN80 of the 91st group and the 18 S-3D/TN61 intermediate range megaton ground-to-ground missiles deployed beneath the Plateau d'Albion.

This development in the concept of airborne nuclear forces, shifting from the terminology of tactical nuclear weapons to pre-strategic nuclear weapons, and leading ultimately to the disappearance of the tactical concept in a more global and strategic framework, is highly significant. It constitutes the military response to a new geopolitical logic as much as a move to restrict the use of nuclear weapons to the sole permissible case of defence of the sanctuary. And also a means of concentrating control of posturing and of the use of French nuclear weapons by the only authorized entities, the FAS and FOST, under the orders of France's Head of State.

In the United States too, budget cuts and changes in the politico-military landscape have prompted some rethinking in strategic matters. Hence it is not surprising that General McPeak, the USAF Chief of Staff, has recommended that the tactical and strategic nuclear forces should be merged under a single command; while the Tactical Air Command and conventional strategic forces would combine under a single conventional warfare command.

Under this restructuring, a command responsible for nuclear war would coexist with another entrusted with conventional operations. If this force restructuring did take place, we would progressively move towards the regeneration of the strategic concept, which would regain the status it lost in the 1960s.

On 1 June 1992, a new command known as the US Strategic Command (STRATCOM) took on responsibility for the targeting and control of strategic nuclear forces (ICBMs, SLBMs and bombers), while the SAC was dismantled.

The new air command coming under STRATCOM comprises the ACC (Air Combat Command) and the Air Mobility Command (AMC); the former is responsible for the training, organization and equipment of missile and bomber units.

Two major orientations are now clear: on the one hand, the future advent of "minimum deterrence" in the strict sense of the term, and on the other the application of conventional strategies based on strikes from a distance, interdiction strikes and long-distance conventional strategic strikes.

Eventually, tactical nuclear weapons will be replaced by high-precision, high-blast conventional weapons that can produce the same results in the field while avoiding a number of undesirable immediate and delayed effects: substantial and unacceptable collateral damage, and residual radioactivity.

With the disappearance of chemical weapons by the year 2000, the elimination of a large proportion of the world's theatre and tactical nuclear weapons and the reductions in strategic forces, the remaining nuclear potentials will fall more within a logic of non-war, within a framework of "existential deterrence". On the basis of this new definition, high-technology conventional weapons may acquire a deterrent capability which, in contrast to that of nuclear weapons, might be more easily used in low-intensity or medium-intensity conflicts.

In fact, the concept of "minimum deterrence" arose during the Cold War. It was subsequently linked with the Soviet concept of reasonable sufficiency, the creators of which were influenced by the inescapable conclusions of the theoreticians of, first, nuclear winter and then nuclear autumn, and by the conventional response to be made to the FOFA and *airland battle* doctrine.

This concept also became a reality through the shift from quantitative to qualitative considerations, preparing the way for the ineluctable phenomenon of "structural disarmament". The end of the Cold War increased the need to redefine and elaborate on the concept of "minimum deterrence", which would better be termed "deterrence using minimal nuclear force", since there is either deterrence or no deterrence only the instruments used are quantifiable.

But certain preconditions must still be met if "minimum deterrence" is to be effective:

- Revision of the extended counterforce, counter-city and countervalue doctrines, which are intrinsically destabilizing, in favour of a deterrent posture featuring counter-strategic-force warning strategies in which nuclear weapons would only be used to deter use of nuclear weapons. Pre-strategic nuclear warning strikes would be replaced by conventional warning strikes on targets selected for their high symbolic value;
- A ban on strategic ABM systems of the GPALS type, which, paradoxically, risk restarting a missile race on the part of the "secondary" nuclear Powers and the Powers in the South that possess ballistic missiles. The presence of multiple warheads on French and British SLBMs already reflects this determination to guarantee the deterrent credibility and the operational effectiveness of Europe's nuclear potentials;
- Transfer of remotely deployed airborne nuclear weapons from outlying points to the countries which are their sole possessors;
- Application of an international treaty on the non-first-use of nuclear weapons and on non-use of nuclear weapons against non-nuclear-weapon States;
- Improved management of nuclear weapons that are subject to cut-backs, with IAEA supervision of stored fissile material;
- Adoption of a comprehensive nuclear-test-ban treaty, with a transition period involving drastic cuts in the number of explosions;
- Redefinition of the nuclear forces that were defined and deployed in a context of East-West confrontation. This redefinition should involve the elimination of MIRVed warheads on ICBMs and SLBMs, a ban on intercontinental mobile missiles and the total elimination of the tactical nuclear systems which give nuclear weapons an effective theatre combat function;
- Internationally supervised separation of airborne nuclear weapons from their means of delivery, and of warheads for ground-to-ground missiles from their ballistic launchers;
- Improvement of the security and safety of remaining nuclear stockpiles; review of the autonomy of SSBNs where launch decisions are concerned;
- Enhancement of communication and verification circuits between nuclear Powers.

The numbers of weapons to be used to establish "minimum deterrence" would be limited, less than 400 warheads per State in the initial stage.

They will be composed of airborne systems (flexibility and posturing), single-warhead fixed ground-to-ground ballistic systems in silos (sanctuarization, hardening and survivability) and ballistic systems on submarines (stealthiness because of the environment).

The enhancement of strategic stability could, in the longer term, lead to the withdrawal of all ICBMs.

Pending the realization of "minimum deterrence" for the nuclear Powers, it remains a vital prerequisite to secure ratification of the START 1 and 2 treaties and for the obligations concerning cuts in nuclear arsenals to be fulfilled in practice. And, too, for the review of the Non-Proliferation Treaty to improve the international guarantees in that regard.

Although nuclear weapons are today in the process of losing their central role, and even though they cannot meet the new, major challenges of the third millennium, they cannot be disinvented.

Nuclear weapons must be re-examined as regards numbers, definitions, roles and doctrines for use.

And, if the political objective today is indeed to ensure greater common security across the continents, the residual nuclear weapons associated with "minimum deterrence" and various more binding non-proliferation measures must as of now be fully incorporated in this new objective.

Morton H. Halperin

First, I must say that I was heartened by the fact - notwithstanding the assumption in the topic for the session the unsteady assumption that we want minimum deterrence, that a number of the commentators have indicated that minimum deterrence is not the condition that we should strive for. I want to associate myself with all of the comments that have been made about the undesirability of minimum deterrence as a goal - not only Mr. Arbatov's strategic comments which, despite the criticisms that have been made of it, I remain persuaded of the correctness, but also with the more general political and philosophical objections to minimum deterrence.

I have found the most dangerous comments made this morning, as I have found over the years, are the efforts to rationalize the French independent nuclear force. One can only say that these rationales are as today as incompatible with western co-operation and anti-proliferation as they have always been. Indeed, they are even more dangerous in the way they were presented this morning than I have ever heard them. One can only ask that France proceed with its nuclear force without attempting to rationalize it and we will do the honour to France of assuming that we understand its reasons for that force. The less said about them the better. We need to think about the goal and the structure of residual nuclear forces which is different from minimum deterrence. We need to recognize that while we may ultimately want to get rid of all nuclear weapons, the simple inability to detect a few existing weapons, if for no other reason, makes that a very long-range goal. To point at chemical and biological weapons and to say we can do the same thing, misses the fact that people are less anxious about the possibility of cheating on chemical and biological weapons because of residual nuclear weapons.

What is the appropriate structure for the residual nuclear force? Let me suggest a couple of principles. First, it is essential to affirm that nuclear weapons have no role in international politics. They have not had any significant role over the past 40 years, but in any case the international community must collectively affirm that it will neither permit the threat or the use of nuclear weapons to play any role in the resolution of international conflict or in the standing of nations. In order to do that, the Security Council needs to be reorganized and must, in fact, make clear that it intends to enforce this provision. What are the nuclear forces of the five nuclear powers that are

recognized under the NPT to be configured to do? We must think of them as residual forces, kept on behalf of the international community, simply for the purpose of dealing with the threat of cheating or violation of the agreement by all nations not to possess nuclear forces for national purposes. One ought not to think of them as targeted on each other or directed at each other, lest we end up having the nuclear forces themselves provide a rationale for an antagonism among the five current nuclear powers.

It is essential to decouple the nuclear forces from the military forces of those five powers. The military leaders of those five countries must be told very clearly by the civilian leadership that these things are not weapons. They are not part of the national military arsenal of the State, they are being kept by the State as a trust for the international community to be used only when the international community indicates that they need to be used to deal with an unexpected nuclear threat. It is in that context that I would simply refer to the comments that I made yesterday about how I think the forces ought to be structured and kept. I would hope that that structure and a further explanation of it would relieve at least some of the concerns that were expressed yesterday about that proposal.

Dieter Boden

Since I will enjoy the privilege to make a presentation in the afternoon, I can be brief, but just one comment. In think I could easily take sides with those who have spoken about the undesirability of minimal deterrence as a goal. And I also agree with what Mr. Arbatov has said that in substance that doctrine goes back to the Cold War time. And I think it will be very difficult to free it from that context so it is also in the interest of political psychology that we call it otherwise. That we call it in a way which will make the notion of further nuclear disarmament clearer and more articulate. Let me come back to one question that I would like to raise with what has been said by Mr. Arbatov, there was an interesting notion in his comments, in his presentation, to the effect that downloading ICBMs to zero and then storing warheads under mutual control could help speed up nuclear disarmament. I think it is an interesting suggestion. I can see difficulties, of course. But I think it should be taken up but also in the sense that if this is practised there is some need for transparency and also of some feedback to others. And I would even plead to go one step further. It has been mentioned that there's a tremendous implementation problem in the future. We are now talking about minimal deterrence but all this nuclear weaponry is still around for some years to come and I think we should not lose sight of the urgency of this problem. In fact, I have told you I have just come back from Moscow yesterday where we have negotiated agreements on that with Russia. What is necessary in the same context is to control the storage of weapons plutonium because what you take out from all this weaponry under the various arms-control agreements or unilateral announcements will reach to build up several new arsenals once you have this weapons plutonium come in the wrong hands. So, in that case there is some reason for taking up the idea of the seventies of an international plutonium storage. It was raised and debated under the auspices of the Viennese agency. Possibly, it can be taken up as a first step with a view to establishing a true international concept of control for all this weaponry and all of the fissile material that comes out of the weaponry.

Gérard Errera

As I understood it, this morning's topic is minimum deterrence, but I have the impression that the real topic is deterrence itself, the validity and a question much mentioned, the legitimacy of the concept. In fact, we have heard two schools of thought. We have heard those who would like to delegitimize deterrence, whether minimum or otherwise, or in other words delegitimize the weapons of those who possess them legitimately. And then there is a second school, that of those who, at heart, would not be sorry to legitimize the nuclear option in those instances where it is currently, to put it mildly, unavowed. And this morning we have even heard the suggestion that there might be a minimum deterrence based on the presumption of the possession of nuclear weapons. This leads me to make two comments. First, the idea that deterrence, which has played a stabilizing role in East-West relations, and therefore in the North, could also play a stabilizing role through proliferation in the South is one that I think has misfired and that is logically, politically and strategically indefensible. Second: it is hard to see how we could accept a process of nuclear disarmament in the North if at the same time proliferation was permitted in the South. That is a very simple point, but it seems to me one that needs to be made and made again. And I should like to add this: for the first time we have the beginning of a process of nuclear disarmament, a concrete, gradual and realistic process and one that, again for the first time, involves not only the United States and Russia but the other nuclear Powers as well. No one, I venture to think, can imagine that for a country like France the decision temporarily to suspend our tests was a purely poetic or demagogic exercise undertaken for reasons of domestic politics or the like. It was, in fact, an extremely difficult exercise, but one based on an entirely lucid analysis of our responsibilities both as regards the new international context and as regards the requirement of non-proliferation, and 1995 in particular. At the same time we are hearing very zealous, political, moralistic calls about the need to - quote, unquote - "delegitimize" deterrence. This situation seems to me unsound, for it risks in fact blocking a process in which everyone, including the medium-sized nuclear Powers, has begun to put their shoulder to the wheel, but where those engaging in the process have no particular wish to commit hara-kiri. We are facing up to our responsibilities. Yes, but within the constraints imposed by our own security and by the view we have in the short term, the medium term and even the somewhat longer term of what nuclear capability will be left in Europe and the world. It is important that this should be clear. I shall not dwell on this topic too long except to make a few comments on what was said by Mr. Halperin. I should like to reassure him or disappoint him, as the case may be, by reminding him that France is an entirely legitimate nuclear Power (my apologies, but that's the way things are); that the contribution of the French and British nuclear forces to the alliance's overall deterrent capability has long been recognized; that we have a concept of sufficiency which is the one on which our deterrence has been based for many years; that we have a doctrine from which all idea of flexible response has been banished; that we have, especially during the past two years, shown a certain sense of responsibility, whether it be with regard to our accession to the Non-Proliferation Treaty, to our discussions about testing, to our discussions about HADES, or to the reduction, and even the abandonment, of other weapons systems. I shall add one final point: our sense of responsibility goes further than that. Our deterrent is a national instrument, but you did, I expect, note that the President of the Republic said at the beginning of the year that there was a need to discuss the problem of nuclear deterrence in the light of Europe's defence requirements. Well then, perhaps you have another idea of France's deterrent. You are fully entitled to do so, but for our part we view things with a certain composure that will continue in the future as it lasted in the past.

Hendrik Wagenmakers

I enjoy very much this meeting between people from the academic and research worlds and day-to-day practioners like myself. Given the time-limit that you impose on me, I will not go into any kind of technical judgements whether minimal deterrence is a tenable notion or not. For me it is sufficient to say that we look upon nuclear weapons as weapons that are of a political nature which should never be used. The approach outlined by Michael Brown - Mr Brown has just left so he cannot take my comments with him involving deep cuts, seems to me the logical way to follow. By the way, in anticipation of this afternoon's session when we will be faced with time constraints, I found very interesting what Mme Nicole Gnesotto wrote in her paper about the possible role of minimal deterrence in preparing for a new stage of European security.

I would support that in our conceptualization of deterrence and its possible linkage or non-linkage to non-proliferation we should stick to a political approach. It is a fallacy to speak about a world that maybe one day would be nuclear-free. That is a station we have passed, we will not reach that situation any more. So, in other words, like the preceding speaker, I do not believe that a normative approach will lead us anywhere. I would even say that the notion of "General and Complete Disarmament" in a way is contrary to the UN-Charter. I know this is a bit provocative (provocateur), but it is good to be aware that the United Nations is acting now in a new role, in an enhanced role and that the political impetus of what the United Nations is doing is served by day-to-day pragmatism rather than clinging to far-sweeping ideas.

While venturing a Netherlands view I would say that deterrence has served a useful role in the East-West context; it will not doubt continue to do so in similar circumstances in the future. I do not believe that deterrence can be applied *vis-à-vis* a possible threat coming from the so-called South, I think that is not defendable, neither in strategic terms nor in political terms.

For brevity's sake, from this follows of course that we in the Netherlands will continue to be strong supporters of the NPT. We think the time has come now to talk in a meaningful way about cessation of nuclear tests as well as to find a solution to the perennial problem of negative security assurances. I strongly support what Ambassador Tóth said this morning about the need for the protection of nuclear facilities to be taken up as one of the significant items in preparation for the NPT Conference of 1995. I am also grateful to what Dr. Boden said a moment ago about another effort aimed at establishing an international plutonium storage facility. Indeed, the large-scale scrapping of nuclear weapons makes it all the more imperative that the nuclear material that becomes available is put under strict control. One could think of some sort of co-operative management, under the auspices of the Security Council, for the storage and control of residual nuclear material from scrapped nuclear weapons. Furthermore I would like to support what Dr. Mahmoud Karem of Egypt said yesterday about the concrete small steps one could take, one by one, also in his part of the world in relation to the 1995 process in its totality. I am also very grateful that I have heard Ambassador Hou Zhitong of China address this issue of the NPT Conference. I am glad to see my Chinese colleague participating in a direct way in this Conference.

John Simpson

Can we actually talk about minimal deterrence, in that the terminology is a nonsense: it is rather like talking about minimal pregnancy. You either have deterrence or you do not have deterrence. What we are actually talking about are two very different issues. One is what is the minimum size for a nuclear force in the future world. That is a technical question which also links into arguments

about continuing to test, because the arguments about testing are essentially about sustaining some sort of minimal nuclear force.

The second is the institutional and other issues which determine the structure and size of nuclear forces. In the United States case, one suspects this is very much related to service politics, just as one suspects it is in the Russian case: you have to have a triad of nuclear forces because that triad is provided by the three different services. One set of issues is therefore what is the minimum size of force that you arrive at on a technical and on an internal political basis.

A second set of questions is what are these forces actually supposed to do? What pay-offs do they provide? This is the key question that we are addressing now. In the past in the East-West context they were perceived to provide some very positive benefits. They were perceived to provide you with some very positive benefits. Most of those benefits appear to have disappeared and we are now back to the idea of nuclear forces as insurance policies against an uncertain future. The question then becomes, how do we tackle the problem that one State's insurance against an uncertain future is presumably every state insurance against an uncertain future? How can you distinguish between what is legitimate for the five nuclear weapon States as against what is legitimate for all States.

Raimundo Gonzales

It seems to me that there has not been a clear reference to the obvious instrument which regulates all the questions regarding use of force in, not only outer space and that is my main concern, but in general terms, which is the Charter of the United Nations. Article 2, paragraphe 4 clearly states the prohibition of the use of force and the threat of use of force. I wonder whether nuclear weapons could be characterized as a kind of threat of use of force, especially from the viewpoint of the developing countries and especially from the viewpoint of Latin American countries which had been making a lot of effort in order to establish a nuclear-free zone under the clauses of the Tlatelolco Treaty. We have to be very careful in trying to define the threat of use of force which, by the way, is also prohibited by the UNGA resolution 2625/XXV which identifies the seven more important principles of the United Nations Charter, and which has from the legal point of view the character of principles of *jus cogens*. It cannot be derogated.

Now to outer space. Outer space has not been characterized as a common heritage of mankind. We have to be very clear and make a lot of distinctions regarding the shortcomings that the treaties, which from my viewpoint are not consistent with this doctrine, have in order to establish that which is permitted and is not permitted. For instance, from my viewpoint, weaponization is clearly not permitted. The PTBT has a shortcoming in this regard because it does not prohibit, for instance the placing of weapons in outer space which is clearly inconsistent with the Outer Space Treaty, in spite of the fact that article 4 of the Outer Space Treaty is also clearly insufficient and inconsistent.

Finally, I would like to recall that back in 1983 during the General Assembly Mexico, specially Ambassador Marin Bosch, played a very important role in order to include the question of militarization of outer space in the discussion of the COPUOS. But since 1983 we have not established a common procedure between the CD and the COPUOS in order to strengthen this different aspect which has been addressed in the COPUOS and in the CD regarding the peaceful application of outer space.

Tibor Tóth

Mr. Feldman referred to the possible difference between the perception of the threat that I out lined and that as he sees it. I find it very natural, I must say, that there is a difference in this threat perception and I would have been surprised if that difference was not there. I think my threat perceptions was conditioned in a way by the national, sub-regional and regional elements which exist and which represent a difference compared to the threat perceptions viewed from other regions or subregions. Of course, the question for fora like this one is how to project the possible solutions based on this threat perception, be it a national or a sub-regional one. We have to look for common elements as well and must understand that this is the purpose of this forum.

Regina Cowen Karp

The principal question is: "Should deterrence continue to be the organizing principle of international security or not". The way we have understood nuclear deterrence to work was very much characterized by the Cold War, what we thought about the Soviet Union, the threat that it posed and the way we were accustomed to think about nuclear weapons in confronting the Soviet threat. I am not convinced that deterrence can just simply be adopted as a management tool in the post-Cold War era in which security problems are of a very different nature.

Secondly, I do not want to say that we have no problems with nuclear weapons. But these problems should not be turned into an endorsement of deterrence. I am not worried about Russia attacking the United States, nor do I believe that there is a deterioration of security relations in Europe. What I am worried about is the emergence of other Saddam Husseins. Here is where the nuclear threats lie. We need to address these threats, not through nuclear deterrence, but perhaps through increasing our intelligence facilities, to share them and to find the political consensus to act upon information. Finding this consensus is going to be the key challenge if we want to address some of the major security issues.

Alexei Arbatov

My first remark is on the question raised yesterday about the state of Lisbon Protocols and START I ratification. The START I Treaty has been ratified by Russia, Ukraine and Kazakhstan and I think it has either been ratified or will be very soon ratified by Belarus. The problem is that in reference to the missiles deployed outside Russia, Ukraine's position is that according to the START I Treaty, only 130 missiles are to be dismantled. That is, SS-19 missiles. S-4, 46, SS-24 silo-based missiles, were not slated for dismantling under START I and that is why Ukraine feels entitled to keep them for the indefinite future. According to the Lisbon Agreement, Ukraine undertook an obligation to do away with all nuclear weapons within the time-frame of START I, that is until the year 2000. But the Lisbon Protocol has not been ratified by Ukraine and the prospects of ratification are quite uncertain. In the present political situation in Ukraine, the Ukrainian parliament will hardly ratify the Lisbon Protocol. That is why the idea which was put forward here about nuclear decoupling, about decoupling of rockets from those delivery vehicles that are earmarked for elimination under START II, becomes even more relevant and urgent if Russia and the United States agree on this kind of operation to be done within a year or two. Then both Russia and the United States should negotiate with Ukraine about this. It is very unlikely that

Ukraine will resist and thus become a major obstacle on the way to quick and radical arms reductions of that kind.

The second issue was raised by Michael Brown. He commented on my objections to minimal deterrent. I find his comments quite substantial and it would take too much time for me to answer all of them, or to give my considerations to all of them. I only want to comment on the idea of targeting conventional forces as an alternative to a counterforce strategic targeting or urban industrial strategic targeting.

There are serious problems with targeting the conventional forces of the other side. The first is that those targets are very numerous and, if you start to target them, your requirements go up very quickly because conventional forces comprise many thousands of particular points to be targeted and you open the freedom of imagination and ingenuity for military and strategic planners. Second is that targeting conventional forces in many respects is not different from countervalue targeting, because large part of conventional forces comprise area targets which are co-located with major urban industrial areas. Even when deployed for the offensive, this is really a very broad area. For instance, one motorized division occupies an area of approximately 2,500 square kms. If you want to cover that with nuclear weapons your requirements will go from 50 to 100 nuclear weapons, so targeting conventional forces actually is a Pandora's Box. Finally there is one very deep inherent contradiction in targeting conventional forces with nuclear weapons. If you want your strike to be militarily effective against conventional forces then you are really talking about first strike or first use of nuclear weapons. If you are targeting conventional forces in a retaliatory nuclear strike then the implication is that you assume that after a major nuclear exchange there may still be a conventional war going on which, to me, seems a bizarre and absurd idea. So if you are targeting conventional forces then you either have a very illogical and irrational targeting policy or you are really implying a first use of nuclear weapons which is in contradiction even with the classic idea of minimum nuclear deterrence.

My final observation refers to the problem of minimum nuclear deterrence *per se*. In answering it I might address some of the very useful and interesting considerations that were put forward by Dr. Regina Karp. The term and the notion of deterrence is not a military one, it is a political one. It is much more appropriate and much more inherent to foreign policy than to military strategy, operational planning or technical problems of the maintenance and support of military forces. Actually, the idea of nuclear deterrence was put forward to describe the game, the goal of foreign policy, and to describe the role that the nuclear power might play in foreign policy. Now that the international political environment has changed dramatically, the idea of nuclear deterrence *per se* has to change dramatically as far as it is connected to foreign policy goals because the foreign policy goals of the States, including former opponents, have changed very radically.

But there is another side to this question that is the mode of operation of military forces, of armed forces, in particular those elements that deal with nuclear weapons. In this respect, the notion of nuclear deterrence was never very instrumental. Most of us agree that it is very hard to do away completely with nuclear weapons. If you have nuclear weapons, then you should have some plans for the employment of those nuclear weapons, otherwise there is no sense in having them. They are weapons of a special kind; they need preliminary planning and targeting for their employment. If you agree that you have to retain some plans of employment of nuclear weapons then you are basically faced with two alternatives - either you employ weapons in the first strike or first use, or you employ them in the second strike or second use. And that is the real difference. It is not whether we retain limited nuclear deterrents for the future. Rather, it is the way we deal with plans for nuclear weapons' employment in the post-Cold War world. And it is obvious that the only way to envisage their employment is in the way of second use or second strike. But on the other hand, agreeing with that does not mean that we will retain nuclear deterrents of the Cold War type, albeit

on lower limits. The relations may be very different in the future, even if we retain nuclear weapons and even if we envisage some employment in a second strike way.

I will give you a short list of the differences which would describe the new era. For instance, the regime of comprehensive transparency and predictability; decoupling of major parts of nuclear delivery vehicles from nuclear warheads and storing nuclear warheads under mutual inspections in storage sites; permanent monitoring of those storage sites and of large parts of nuclear infrastructures; permission of inspections on military bases, including permanent representatives, permanent inspections of the other side on naval, ICBM, airfield bases and even on major command centres; integration of early warning systems which is already going on; technical co-operation in dismantling missiles and warheads and then storage and utilization of warheads, their elements and fissile materials; cut off of all fissile material production and inspections of all major objects of military infrastructure; joint development of potential, tactical, anti-ballistic missile systems and possible electronic locks and different devices for the prevention of unauthorized launch, which to those who study this problem, are clearly joint developments of reliable command and control systems. And finally, maybe in some future, is sharing negative control over the employment of nuclear weapons. If Russia is now working on sharing negative control with President Kravchuk and President Nazarbaev, I do not see any reason why we should not do the same with President Clinton. This is the description of the new relationships, strategic relationships, which make a great difference between deterrence of the Cold War and the future strategic relationships, even while preserving quite a large amount of nuclear weapons in Russia, in the United States and in other countries.

Yves Boyer

I would like to begin by thanking Mr. Halperin warmly for his recommendations which, I am certain, will be very welcome here in Paris. Who exactly is advising whom? I am by no means sure that the United States is in the best position to give advice about the structuring of nuclear arsenals and I am tempted to say that one should put one's own house in order before starting on the one next door.

With regard to the stockpiling of HADES, I think that it forms part, as I said before, of a posture of strategic vigilance and that, as Mr. Simpson was saying, it can be likened to an insurance policy against an uncertain future. This type of weapon has a lifetime extending to 2010-2015 and, unfortunately, there could be unforeseen crises between now and then. In such circumstances, weapons of this kind might be useful as a means of deterrence.

A third brief remark. This morning, I was slightly disconcerted and bewildered by a number of very seductive comments on the consequences of the end of East-West confrontation. The argument seems to be that, because the major East-West confrontation is now over, we must redefine security or the conditions of security in a fundamentally different way and place our faith in the various diplomatic factors such as arms control, confidence-building measures, etc. I fully agree with that. On the other hand, without wishing to be pessimistic, I think we must acknowledge that for Europe the end of the Cold War has resulted in its becoming, no doubt temporarily, one of the most unstable continents on Earth. A number of States - Czechoslovakia for example and, so people are saying, Belgium too - are in danger of breaking up; a terrible civil war is raging in Yugoslavia, with a high risk of escalation, in particular because of the situation in Kosovo and Macedonia; and there are serious problems with minorities. For example, the question of the Hungarian minorities in Europe is a matter of enormous concern. Finally, there is Russia, which tells us that it is going to disarm and that all will be well. But Russia is going through a severe crisis, nothing is definite there, so there could be major crises in Russia as well. Thus, in Europe the risks of crisis are going

to proliferate. As far as France is concerned, Paris has therefore adopted a posture of strategic vigilance characterized by the absence of a specific enemy, but also by the maintenance of a nuclear force whose technological credibility remains intact. At the same time, we are thinking hard about how to integrate our nuclear capability with the management of a crisis that might threaten French vital interests or those of its near neighbours, France's friends and allies. In this connection, I must say that I am totally opposed to the position taken by Ms. Cowen Karp.

Part IV

Minimal Deterrence, Stabilisation or Transition

Chapter 12
Minimum Deterrence and Regional Security

Section I - Europe

Nicole Gnesotto

First of all, there are four factors that enable us to define what is specific to European security: Europe is the only theatre in which four of the five nuclear Powers coexist; it is the only theatre with three States representing a new type of nuclear proliferation, namely Ukraine, Belarus, and Kazakhstan; it is therefore the strategic region with the heaviest concentration of nuclear weapons in the world; finally, it is a theatre in which regional wars are again a possibility. In other words, what the end of the Cold War has meant for European security is, on the one hand, the return of real wars and, on the other, a combination of absolutely massive and essential nuclear capability and ever-increasing economic, political and diplomatic instability.

Here I would like to comment on what Mr. Arbatov said yesterday concerning the novelty of this new order in Europe: personally, I do not think that the novelty consists in a transition from a bipolar to a multipolar nuclear order. There has always been a multipolar nuclear order, the best example of that being the fact that, in the Soviet-American disarmament negotiations, the Soviet side was constantly demanding compensation for third-party forces, which was a way of acknowledging that there were several nuclear poles, just as, for a long time, Moscow defended the idea of equal security between the Soviet Union and the other nuclear Powers. Hence, what is specific to the European situation is not so much the transition from a bipolar to a multipolar order as this combination of the incontrovertible presence of nuclear weapons on the one hand and of fresh areas of instability on the other.

In this context, how should the question of the legitimacy of nuclear deterrence now be posed? Our discussions have revealed a number of contradictory concerns: the concern that nuclear weapons still have their uses, so that some would prefer to move more rapidly to a nuclear-free world, and the opposite concern that nuclear deterrence, including minimum deterrence, might be brought into question by the disappearance of the threat or simply by a shift in public opinion. What struck me during our discussions is that, while this concern is shared more or less equally by those around the table, our American and Russian colleagues do not feel it at all. On the contrary, both Americans and Russians seem convinced that, whatever deterrence policies are adopted, nuclear weapons will remain a fundamental element of both their security and their relations.

To return to the question of the legitimization of nuclear deterrence in Europe, there are today two schools of thought each using the same arguments, the one to suggest that it is possible to move towards delegitimizing nuclear deterrence in Europe and the other to plead the opposite cause. First there is the strategic argument, according to which nuclear weapons no longer serve any purpose in Europe, as best demonstrated by the fact that there is now a war going on in Yugoslavia and nuclear weapons have not deterred the Serbs either from instituting or from continuing a policy of ethnic cleansing in Bosnia. In other words, an argument to the effect that, in the absence of a threat, the nuclear doctrines are futile, being no longer capable of preventing war in Europe. It is, indeed, undeniable that there is a war in Yugoslavia, despite the presence of four nuclear Powers in the European theatre. But it is here that the argument can be stood on its head. It is precisely because there is now a war and the possibility of other wars in Europe, precisely because these wars will result not from inter-State confrontations but from problems arising from the disappearance and internal dislocation of States and the plight of minorities (you will recall that there are at least 25

million Russians who live outside Russia), and precisely because war has again become possible in Europe that nuclear deterrence has regained its legitimacy, or in other words is again playing the role of a global stabilizing influence. Admittedly, it is no longer a factor of maximum stabilization - nuclear deterrence will not prevent all war in Europe, but it does retain its value as a global political stabilizing factor, if only by preventing local wars from degenerating into generalized conflicts.

The second argument is also two-edged. It is the political argument. There is a possibility that the public may come to feel that, in the absence of a threat, the nuclear option serves no purpose and, moreover, that nuclear weapons are all the more dangerous in that they are now no longer subject to any or much control, especially on the territory of the former Soviet Union. This combination of "less threat and less control" would make nuclear weapons all the more undesirable and could lead to a movement towards the absolute delegitimization of deterrence and the total denuclearization of Europe, which would appear to be the easiest solution. On the other hand, the opposition to nuclear deterrence has traditionally been fuelled by two elements associated with the particular configuration of the American nuclear deterrent as extended to Europe: on the one hand, the stationing of nuclear weapons on the territory of non-nuclear States and, on the other, a certain perception of American doctrine governing the use of the American deterrent. Now, if all sides, or at any rate the four European Powers, went over to minimum deterrence, these two problems would disappear. The stationing problem could disappear for the protecting Powers, because in the absence of a threat the notion of extended existential deterrence makes more sense than it did before; similarly provided that any slide towards selective nuclear strikes, etc. can be avoided, the problems of use are also likely to disappear. The result would be a situation in Europe in which acute concern about the inability of possessors, especially Russian, of nuclear weapons, to keep them under proper control would coexist with a tempering of the criticism of nuclear deterrence itself. In other words, the debate on the legitimacy of nuclear deterrence in Europe is largely spurious, in particular as far as European public opinion is concerned.

This brings us to the transition problem: Is minimum deterrence a good idea or not? Has European history passed it by? Is minimum deterrence regarded as simply a holding position by the nuclear-weapon States or is it a permanent objective of the nuclear policies of the four Powers? Clearly, the replies will depend on what we think the future holds in store. If we assume there will be a period of peace, collective security and economic prosperity in Europe, postures of even minimum deterrence will be interpreted as a staging post on the way to the zero point, in other words transition to zero nuclear weapons would be the logical outcome of minimum deterrence. If, on the other hand, we foresee for Europe not universal peace and harmony but rather continuous anarchy, which is not an absurd scenario, postures of minimum deterrence will be perceived as staging posts on the way to maximum deterrence which could, incidentally, be of two types: either a return to nuclear overarming on the part of the existing Powers or a "nuclear weapons for all" option (compare the ambiguities sometimes to be found in the Ukrainian position). In other words, either we fashion our nuclear arsenals and doctrines to reflect our worries about the future, in which event all kinds of deviation are possible, whether towards absolute denuclearization or towards doctrines of selective use or defence systems other than deterrence; or, and I believe this to be the only reasonable attitude, we orientate our arsenals and doctrines towards postures of minimum deterrence, precisely in order to make the future less uncertain. If minimum deterrence has an intrinsic political value, it is that it is not only a nuclear doctrine, but above all a political strategy for steering the future of Europe in the direction of ever-decreasing uncertainty.

Is not this one of the new meanings of disarmament? No one knows whether the Russians and the Americans will move towards minimalist postures, but it is clear that, for the last year or two, they have been moving, either by negotiation or unilaterally, and with the unilateral assistance of certain other nuclear Powers, towards maximum nuclear disarmament. What, then, is the aim of this

disarmament? On the United States side, the disarmament proposals are, first and foremost, a political message directed towards the integration of Russia: they are essentially a political strategy designed to assist Russia to manage not only its transition to democracy but also the technical nuclear transition. Secondly, disarmament is also a global strategy for preventing nuclear proliferation in the world. In this context, minimum deterrence is today much less a strategic concept and a nuclear doctrine in the strict sense of the term than a political doctrine. It is true that we need a global strategy for the Soviet Union, and it is true that today the strategic priority is not so much East-West relations as the future of Russia. However, I do not really believe that we are lacking a "grand strategy" for the east of the continent. On the contrary, the notion of minimum deterrence itself, in particular in the management of the "Atlantic-European-Russian" relationship, and the evolution of postures and doctrines in the direction of minimum deterrence are an essential element of a grand strategy for the management, both political and technological, of the risk of Russia collapsing into anarchy, a possibility which we cannot afford to ignore.

To digress for a moment, I would add that if the strategic problem is now not so much the East-West balance as the political and nuclear stabilization of Russia as the sole heir of the Soviet Union, the very notion of reciprocity in the American-Russian disarmament negotiations clearly loses much of its meaning.

It remains to examine the relationship between minimum deterrence and military alliances. In Europe we have a nuclear military alliance, namely the North Atlantic Alliance, NATO. There is also the prospect of a European union involving the 12 member States of the European Community, a union going far beyond a military alliance since it is economic, agricultural, political and diplomatic as well as military. However, while the notion of a Euro-American nuclear alliance is in no way being questioned (I would even say the opposite: never has NATO, including its nuclear dimension, been less controversial than today, since a consensus exists from Vladivostok to Vancouver to maintain the Alliance and for it to spread widely, as far as Poland and even Russia), the prospect held out by President Mitterand in February 1992, of the possible emergence of a European deterrent as European union progresses has been a subject of concern and misunderstanding.

The objective however, is not to construct a European union in the form of a third military-nuclear bloc according to the paradigm of the former confrontation between East and West or of hypothetical future North/South confrontation in connection with nuclear proliferation. Nor is the principle that of the conjunction of mistrust, whether of the future Russia or of the traditional American nuclear protection in Europe and its disappearance. In other words, at a time of shrinking arsenals and doctrinal convergence towards a politico-strategic minimum, this concept has nothing to do with the artificial legitimization of European nuclear overarmament (in the case in point, the making of an exception for the French and British deterrents).

The logic of the projected development is essentially political: the building of a common defence being considered if not as a mandatory then at least as a legitimate objective for the European union, it would be, to say the least, paradoxical if the politico-military integration of the 12 countries was to be brought to a halt by the nuclear nationalism of 2 of them. How, indeed, is it possible to construct a common foreign, security and defence policy without attempting to harmonize the interests, strategic concepts and status (nuclear/non-nuclear) of the partners in the enterprise? And how could the proposed union hope to play a diplomatic role on the international scene if it excluded from its competence and its ambitions the question of nuclear armaments, whose evolution, as regards both non-proliferation and deterrence, will remain one of the major conditions of future stability inside and outside Europe?

It is inevitable and desirable that this Europeanization of deterrence should be progressive: it is quite impossible to make a start on nuclear union as long as economic, monetary and political integration remains uncertain or incomplete. On the other hand, the readiness expressed a priori by

at least one of the European nuclear powers, to think about such developments is in itself an important incentive to union. It would therefore be premature and no doubt counter-productive to propose a concrete implementation plan: in the absence of a single European political authority, sharing nuclear decision-making would appear to be out of place. Similarly, the question of the stationing of nuclear weapons in Europe may well appear increasingly out of line with the strategic data. On the other hand, might not the notions of extended existential deterrence, both at the European level and at the level of the Atlantic Pact gain in credibility?

On the other hand, Europe could already start thinking about the minimum political conditions of acceptability of nuclear deterrence, about the importance of nuclear weapons for European security and international stability; and about its common interests in the areas of disarmament, non-proliferation and systems of defence against ballistic missiles. This process should lead to a common European position both on nuclear doctrine and negotiations and on new technological breakthroughs which might destabilize the traditional strategic equation.

Some might postulate a priori that a European policy of deterrence, however embryonic, is also a gesture of hostility or exclusion with regard to other European countries not belonging to the union and that a collective pan-European approach to and management of the nuclear question would be politically preferable as being more in conformity with the restructuring of the old continent. Others will also be uneasy about the shadow cast over the American extended deterrence by a specific European identity and position with regard to deterrence and related questions. But does not denying the members of the European union the legitimacy of a common nuclear approach, or indeed doctrine, simply come down to disputing the very legitimacy of the political integration of the Twelve? And, at the same time, does not the disappearance of the threat make the suspicions of Euro-American strategic rivalry or pan-European political segregation increasingly incongruous?

Section II - Other Regions

Emeka Ayo Azikiwe

Going through the outline of my presentation, you will observe that in some respects, the ideas are rather contradictory. Deterrence as a rather complex doctrine is becoming an emotional issue, and no doubt full of ambiguities. Some of the papers that were presented are helpful in trying to determine the concept of deterrence. However, for some of us from the developing countries, the relevant question is the role of the multilateral forum in dealing with the doctrine of deterrence. Is there a difference between maximum and minimum deterrence? Could it be that perhaps we are more or less engaged in an intellectual exercise, that perhaps will lead us nowhere? Well, I will try to see how best I could tackle this important subject, that has generated a lot of sentiments.

Obviously, there is general agreement that the absence of nuclear war is not an equivalent to peace. From all indications, the East-West rivalry has now given way to a new environment of co-operation which, no doubt, demands the abandonment of the old doctrines on the acquisition, deployment and utilization of nuclear weapons. Furthermore, in the absence of ideological rivalry, the doctrine of nuclear deterrence appears outdated although, as most of the speakers explained yesterday, it has become a fact of life. I must emphasize that the old time stereotypes that deterrence has facilitated global peace during the period when confrontational policies prevailed remains a questionable security concept. The legitimacy is further enforced by the argument that nuclear weapons have been invented and therefore could not be eliminated. While I accept the argument that those nations that seek to preserve peace should always ensure that militarily they remain strong, we have to bear in mind the fact that initiating aggression far outweighs any benefits that might be derived from it.

Are we really convinced that there is a remote possibility of a nuclear war? Somehow, most of the presentations so far are based on the assumption that the threat of nuclear war is still very much abound. Deterrence, however minimal, could not adequately promote confidence-building measures in other regions. In examining the moral aspects of deterrence, we must not lose sight of public opinion. This point was earlier stressed in our discussion. The concept of deterrence might be more relevant to a bilateral agreement between nuclear powers. Naturally, the need involving other nuclear weapons States do arise, but at the moment, we do not have such a mechanism. Apart from the United States, the Russian Federation, the United Kingdom, France and China, who possess nuclear weapons, attention is now being focused on the three republics within the former Soviet Union that do have such weapons on their territory.

Obviously, the post-Cold War era has witnessed substantial reductions in the nuclear arsenals of both the United States and the Russian Federation. But again, at what point could they be regarded as minimal? One of the speakers mentioned that the question of proliferation should perhaps be left to the regions. There is no doubt that the Non-Proliferation Treaty has to some extent succeeded in restricting the spread of nuclear weapons. Non-proliferation is the antithesis of deterrence which, in turn, is the antithesis of nuclear disarmament. Naturally, for those of us who are committed to the NPT, we believe that in seeking to broaden non-proliferation, greater attention must be focused on the concept of minimum deterrence. Obviously, the NPT will be more relevant after 1995 if it meets the security requirements of States in all regions.

The continued retention and sophistication of nuclear weapons will only encourage further proliferation and therefore threatens the non-proliferation regime. Already we are told that there are some States with significant nuclear programmes who are non-parties to the NPT. The dangers of proliferation to sub-regions would no doubt pose a threat to international peace and security. In seeking to broaden the NPT we should try as much as possible to accommodate the so-called threshold countries.

What are the options, or the consequences to other regions? Yesterday there were discussions on credible security assurances. Obviously, credible security assurances would be an ideal option. I do recall that during the last NPT conference there was a proposal on negative security assurances. What are the merits of negative security assurances? This morning we were told by Ambassador Tóth of Hungary that the prevailing circumstances in some regions may have rendered to some extent the proposal rather inappropriate. Naturally, there have been dramatic changes the result of which certain military pacts are no longer applicable, like the Warsaw Pact. There is a need to examine the proposal that was put forward in 1990. The concept of negative security assurances seeks to allay the anxiety of those States parties that have faith in the NPT. Apart from deriving no benefits from the Treaty, those States parties are on permanent military disadvantage. There is therefore the need to restore confidence in the Treaty by making it more relevant to the security concerns of other States. Furthermore, there is a need to provide incentives to non-State parties who have hitherto remained outside the Treaty. Suggestions were made that unilateral declarations made at the Security Council might have taken care of the concerns of the non-nuclear weapons States. These unilateral declarations are, of course, not legally binding. What we need is a legally binding agreement to enable the non-nuclear weapons States to have faith in the utility of the NPT.

Having said this, and at the risk of contradicting myself, I believe that it is possible that minimum deterrence has contributed in some respects to the lessening of tension in some regions. Let me briefly discuss the concept of peace dividends which perhaps is not normally associated with minimal deterrence. Peace dividends could herald a new era of disarmament and development. In their bid to outdo each other, the United States and the former Soviet Union had literally carved the world into their respective spheres of influence. Developing countries more often engaged in wars of proxy. By enhancing security at lower levels of armaments and by releasing vital resources

from military to socio-economic spheres, minimal deterrence can promote global security and at the same time accelerate social, economic and environmental development. Such strategic endeavours may have been rendered obsolete by the resurrection of old disputes which the Cold War repressed in the past, especially ethnic violence in Eastern Europe.

Incipient conflicts are growing, adding to the existing ones, and all demanding increasing international attention. These conflicts are rapidly undermining the very limited gains that have been achieved in disarmament. No dispute that triggers human tragedy of immense proportion should be considered marginal because the vital interest of the strong and powerful are not directly concerned.

As mentioned earlier, confidence-building measures, if properly put in place at sub-regional levels, could promote stability. Naturally, each sub-region has to take into consideration their specific characteristics and requirements, as well as the interest of all States involved. The Treaty of Tlatelolco in Latin America and the Treaty of Rarotonga are bold initiatives in the right direction. With positive developments emerging from South Africa, Africa would in the not too distant future succeed in their efforts towards the implementation of denuclearization of the region. Appropriate mechanisms must be designed, with active support of the United Nations and the International Community, especially in promoting Nuclear Weapons-Free Zones.

Evidence of minimal deterrence could be seen in the Secretary-General's Report on the Agenda for Peace. Indeed, it represents a significant contribution to international efforts to achieve peace in the post-Cold War era. The Agenda for Peace focuses on preventive diplomacy, peace-making and peace-keeping. The idea and practice of preventive diplomacy emerged in the era of Cold War. Essentially, it was meant to isolate the Super Powers from being involved in regional conflict situations so as to avoid their exacerbation.

The global environment is now more appropriate for the full development of preventive diplomacy and related methods for the maintenance of international peace and security. Use of early warning system, preventive deployment, and the establishment of demilitarized zones as peace buffers between warning factions are now being practical. These measures, if carefully applied would have the advantage of pre-empting conflict situations. It must be stressed that parties in conflicts and other relevant interests should give maximum co-operation for the success of such United Nations efforts. Adequate care should be taken to ensure that the neutrality of United Nations is not compromised.

Minimal deterrence should therefore not be seen as an illusion. It will continue to be relevant to the security of other regions. Strategic arms limitation should be pursued vigorously in a constructive and pragmatic manner, bearing in mind the need to readjust to new global challenges. The Comprehensive Test Ban Treaty is the linchpin on which the Non-Proliferation Treaty rests. There cannot be genuine reversal of the nuclear arms race without it.

Chapter 13
Ways and Means of Attaining Minimal Deterrence

Dieter Boden

Means of Attaining Minimal Deterrence (negotiations, unilateral measures, change of doctrines, priorities with respect to the armaments concerned, co-management of Deterrence etc...)

1. Let me start by a remark of a general character: we should guard against the false belief that military solutions can be imposed to problems which are essentially political in nature. If there is one major lesson which the Cold War can teach us, it is this one.

2. The principle should also apply to terminology. Is not "minimal deterrence" as a term burdened by the Cold War experience? For the sake of political psychology it would be preferable to find a fresh term for any military or political strategy which we may wish to set ourselves in our day. A term reflecting the political change which has occurred particularly since 1989 when Europe and North America started to embark on a path of co-operative security. Are we sure that we want to apply deterrence in the former sense under the new circumstances? Clearly, there is no longer any need for fixed target planning directed against one perceived nuclear adversary as was the case until the end of the eighties. The British Secretary of Defence, Rifkind, has commented on this in an interesting manner in a speech delivered in Paris 30/9/92:"Neither of the examples of recent history encourages a belief that nuclear deterrence is straightforwardly exportable from the traditional East-West context".

Moreover, minimal deterrence carries a deeply misleading notion: Deterrence either works or it does not. It cannot be minimal or residual, nor could it be maximal. There is, however, one thing, which it certainly has to be: it must be effective in the political sense.

And, finally: is it realistic to assume that agreement will be reached among all parties concerned as to the amount of nuclear weapons which has to go with minimal deterrence? As of now, we are quite a way off from such a common understanding. There is hardly any magic figure which will come out easily. Any range is imaginable between the ceilings established under the START II Agreement (*i.e.* 3,000-3,500 warheads for each of the two major nuclear weapon states) and the actual holdings of the remaining three, i.e. France, UK and China. There is any reason to believe that we may have, for some time to come, different national doctrines of a "minimal deterrence" with different assessments as to the levels of the necessary nuclear stocks.

3. What is, under current political circumstances, the future of nuclear disarmament? Obviously, the process must continue notwithstanding the remarkable achievements which were reached particularly in recent wears and months with the START I and START II Agreements. Article VI of the NPT calling for complete nuclear disarmament under international control sets a mark. Secretary General Boutros Ghali may have had this in mind when he spoke to the General Assembly of the United Nations 27/10/92 saying: "The international community can aim for no less a goal than the complete elimination of nuclear weapons".

It is certainly important to keep up the objective and realize at the same time that there is still a long way to go. Meanwhile, nuclear disarmament in the Nineties should follow a pragmatic course, the steps being:

- Conclusion of a comprehensive test ban treaty;
- extension for an indefinite period of the NPT at the 1995 revision conference;

- further negotiations on nuclear disarmament involving, in the perspective, all nuclear powers. At the same time, unilateral measures will be of importance. They can serve as a trigger for negotiated settlements as has been the case with the Bush/Gorbachev/Yeltsin reduction announcements in late 1991/beginning 1992. Ideally, there should be ways to formalize unilateral commitments in a manner which ensures compliance, gives them a binding quality and guarantees that they cannot be revoked.

As regards the mix of remaining nuclear weapons, here, too, changes will be necessary. In Europe, there is hardly any further need for nuclear weapons of a tactical type, particularly those which are ground launched. In general, the deployment of nuclear weapons should follow a pattern which gives credit to the underlying principle of co-operative security on our continent. And, let us equally be aware that short range nuclear weapons, nuclear mines and artillery being the type of weapon which lends itself most easily and dangerously to proliferation makes their elimination an urgent requirement.

4. Forceable, non-proliferation will be one of the great political challenges of the Nineties. There is a certain incompatibility between any doctrine of deterrence and non-proliferation as a political objective. Non-proliferation presupposes equality of all participants, the notion of the happy few as owners of nuclear weapons and the have-nots is opposed to the concept. And, here again, Article VI of the NPT comes in which has established nuclear disarmament as an indispensable element of non-proliferation, in fact, to go a logical step further; it is the safest means to ensure non-proliferation.

There is a strong argument from the political side as well: if we are serious about a co-operative security order the notion of privileging some as owners of nuclear weapons and excluding others becomes untenable. It is true that in practice we will have to life with this contradiction for some while, but the credibility gap should be bridged as much as possible by a continuing process of meaningful steps in the field of nuclear disarmament.

5. To complicate things further, nuclear disarmament in the Nineties will increasingly have to deal with an implementation problem: Under existing agreements in Russia alone an amount of 25,000 - 30,000 nuclear warheads will have to be dismantled and eliminated within a period of only ten years. This situation gives rise to a host of new concerns, among them the still unsolved question of how to proceed with weapons-grade plutonium. The risks atomming from illegal trade with weapons-grade fissile material have already become manifest. It is in this shape that the nuclear threat may come back. There is some embarrassment as to how to tackle this task. Clearly and visibly, the security of all states is at stake. Quick action is needed and greater awareness for the urgency of the problem. Here, if anywhere, solutions have to be worked out which reflect the new spirit of co-operative security.

6. Lastly, a few words on the emerging concept of "co-managed deterrence". It would follow logically from applying co-operative security. In Europe, the discussion has obviously been stimulated recently by President Mitterrand's proposal of a "European Community Nuclear Deterrence". "Developing a European Nuclear Doctrine" has also been recommended by Minister Rifkind in his speech already mentioned. However, in this context a number of questions comes up:

- Is it our wish to "regionalize" control of nuclear weapons, put it, as it were, under the command of groups of states? Would this not, in a period of growing international interdependence, decouple us from neighbouring areas, in particular crisis areas in Eastern Europe? Would it not contribute to destabilizing conflict areas which are emerging or already in existence? And, on a more general note, would such a solution not tend to re-emphasize the value of nuclear weapons at the very moment when their military and political purpose is increasingly put into question? At least, the broader notion to "internationalize" nuclear

weapons by establishing gradually a UN-sponsored control system should equally be considered. Possible first steps could be a worldwide cut-off agreement for weapons-grade fissile material or the reconsideration of the proposal to create an International Plutonium Management.

- In practice, is anything like shared control of nuclear weapons by different states or groups of states feasible in view of delicate aspects like targeting, strike-planning, command and control systems? To what extent do we really wish it? To say the least, to make it work would require a perfect degree of concertation in the assessment of the political situation. Additionally, in the German case, any such thing as shared control would be in conflict with our approved national doctrine of renunciation of all ABC weapons, a decision taken as early as in 1954.

Chapter 14
Responses

Hendrik Wagenmakers

For me, the debate on deterrence, minimal deterrence, residual deterrence is a bit theoretical. What one tries to do is to grapple with a notion which is basically antagonistic. Deterrence is antagonistic and it does not match very well with co-operation and if you are in a room like this, one cannot but feel that co-operation is what it is all about. So for myself I will take with me the lesson that we should try our best in a dialectical process between these two notions deterrence and co-operation. In my view this is a fair description of the dilemmas we are confronted with. For instance, there was reference to the promise held out by START II. However, as Professor Arbatov mentioned, START I may have been ratified, but it is ratified under certain conditions and we do not know whether those conditions will be fulfilled. Will the Ukraine and comparable states in due course and time adhere to the NPT in the way the others want? So if one talks about the implementation of START II, one is possibly referring to a rather remote period; it may take quite a few years before we reach that stage. In the meantime we live in a rather unstable world.

The best approach is that we follow what, amongst others, Mr. Michael Brown and Ambassador Emeka Azikiwe has said, that we go for significant reductions and for deep cuts. The same for the prevention of attacks on nuclear facilities. In that respect it is encouraging that, for instance, in conformity with the suggestion of the French Government, consultations will be held between the five Nuclear Weapon States on the issue of the cessation of tests in the margin of the Conference on Disarmament in Geneva. One of the results may be a new impetus for the Ad Hoc Committee on nuclear tests.

I cannot but take with me the lesson that nuclear weapons are not going to be disinvented - they are there, whether it is Frankenstein's child, or whatever way you look upon it. So the order of the day is to prevent war, all war, including nuclear war. Against the backdrop of the bloody conflicts that are going on in the world, it seems rather premature to use words like "peace dividend". The technicians among us know that the word "peace dividend" can be a misleading one. Arms control and disarmament costs a lot of money, ask the Russians about it, ask others about it, it can be a very expensive process. One feels tempted to compare it to an up coming inheritance: people are already making plans and taking decisions on what they will do with the money they are going to inherit whilst it has not even been disbursed. The efforts for significant arms reductions, including strategic arms reductions, the efforts for nuclear disarmament should be embedded in a comprehensive approach of common security.

Once again, I have been re-convinced that non-proliferation is not an end in itself. If one strives for non-proliferation it is in order to create a more secure world that can only exist if we also address the non-military aspects of security. There I come back to what the Admiral Lanxade said yesterday, and later on also Mr. Feldman. In this common effort one will have to find out who one's friends are. The criteria spring to mind - that there must be common values like democracy, human rights, and respect of sovereignty which matter.

Yoshitomo Tanaka

For me this concept of minimal nuclear deterrence is a concept which is not so familiar, though I learned that it has a history of more than 40 years. My country benefitted very much from nuclear

deterrence during the Cold War period because we are under the nuclear umbrella of the United States and so we know the concept of nuclear deterrence. I understand that the doctrine of minimal nuclear deterrence, though I heard many explanations about it, works only among the nuclear Powers. During the Cold War there was a serious threat, and nuclear deterrence was very important. But now, such a threat has diminished and the need for nuclear deterrence may also be diminished, so the concept of minimal nuclear deterrence came to light. But, what I want to stress is that this minimal nuclear deterrence should be considered only in the context of the nuclear Powers. If it is claimed that minimal nuclear deterrence is needed also *vis-à-vis* the non-nuclear Powers, then I am afraid that such a doctrine may invite proliferation rather than non-proliferation of the nuclear weapons. As Mr. Simpson pointed out, if the non-nuclear Powers found that such nuclear deterrence works against the non-nuclear Powers, then it would tempt them to acquire similar deterrents and thus contribute to the proliferation. I also noticed that Ambassador Berasategui stressed the same points I think are very important.

David Fischer

My first remarks addressed to the paper and statement by Mme. Gnesotto. If I understood her correctly, one of the arguments she made this afternoon was that because of the increasing political insecurity in Europe, the need for the stabilizing influence of a nuclear deterrent was all the stronger. I hope that does not imply that the greater the political instability of a region, the stronger the need for a nuclear deterrent, I would hate to see this logic applied in the Middle East or South Asia. We have to live with the fact that, as Dr. Boden and Ambassador Tanaka have said, any justification of deterrence - maximal, minimal or median -is fundamentally incompatible with non-proliferation and will be so seen by the vast majority of the countries who will be attending the 1995 extension conference. We are going to have nuclear weapons around for a long time, but hopefully in rapidly decreasing numbers. As Ms. Cowen Karp said this morning, the political situation that promoted the production of nuclear arsenals has completely changed, hence the rules under which the remaining nuclear arsenals are deployed should be radically changed, perhaps on the lines suggested by Mr. Arbatov. And I would suggest that instead of using the term "minimal deterrence", we should talk of management of residual nuclear weapon stocks, or perhaps even co-operative management of residual nuclear weapon stocks.

Jasjit Singh

I would like to go back to the title of the session, "Minimal Deterrence, Stabilization or Transition" and ask: what is the aim? The aim of course is, or should be for a better and more secure world. Obviously, deterrence must be situated in that basic aim; we should not try to situate the security needs into the deterrence doctrine. That, in a way, is the fundamental problem here. Therefore, whether we call it minimum deterrence or we move towards the management of residual stocks, the aim here ought to remain the same: that nuclear weapons must represent a transitional stage to an ultimate objective, however long term and idealistic that objective might be. We should then evolve the best form of management that does not encourage proliferation, while at the same time must not increase, but looking more positively, should decrease the risks associated with the existence of nuclear weapons. I strongly believe that we should be serious in treating minimal deterrence only as a transitional process towards the ultimate demise of nuclear deterrence as a factor in inter-state relations.

In the same context, I do wish to raise a question about the Chines approach and attitude to nuclear weapons. I think there has been a qualitative change there, particularly since China has signed the NPT. I was a little surprised not to notice any reference to a commitment to nuclear disarmament under article 6 of the NPT in the presentation by the Chinese Ambassador. The existing position that China has maintained all along is known; but at the same time, now that it has formally acceded to the NPT, one hopes that they will vigorously pursue, in good faith, nuclear disarmament under effective international safeguards which the NPT requires all states to do. At the same time, the United States and the Russian Federation have already reached understandings and agreements for the removal and elimination of non-strategic weapons. In this context, the role of Chines non-strategic weapons is questionable. What is the China's rationale for retaining these weapons? This is a factor that requires much closer attention. Even if China wishes to maintain a minimal nuclear deterrent, it should eliminate its non-strategic nuclear forces which are the greatest source of apprehension to its neighbours. And last but not the least, the question once again revolves around the political role of nuclear weapons in the future: The Cold War had emphasized the military aspect and that is why there is a great debate on deterrence. But its fundamental role still remains as a political instrument of foreign policy. And therefore, we need to consider the question of a state now declaring itself to be a nuclear-weapons state, and the roots of that nuclear weapon having been expressed in terms of an Islamic bomb.

Pierre Hassner

I am afraid I have to make a somewhat schizophrenic statement, in the sense that in the first part I shall make the statement I had hoped to make yesterday concerning proliferation and the effect of which will, I think, be to relativize or criticize the significance of nuclear deterrence, whereas in the second part I shall, on the contrary, have occasion to defend such deterrence against a number of non-nuclear illusions. I should like to have the key to synthesis, but I do not think that I do.

To begin with, what struck me yesterday was that, when speaking of proliferation, we did so in a fairly conventional, or at any rate an inter-State fashion. It seems to me, however, that as far as the roles of the State and of sovereignty are concerned, there is a considerable difference between deterrence and nuclear balance, which have on the whole strengthened those concepts, and the problem of proliferation, which increasingly seems to be inextricably bound up with all sorts of sub-national and transnational phenomena in the case of the former Soviet Union, for example, the questions of the protection of nuclear weapons, the sale of *matériel* to others and the possibilities of use in a civil war or by a nuclear mafia. There is a whole corpus of phenomena that go beyond States and which, if we are to be truly effective, can, I think, only be dealt with by moving on beyond the inter-State world towards a world authority, whether it be to monitor production or to ensure the application of the decisions of the Security Council. It seems to me that there is a dilemma here: quite obviously we can only realistically envisage a partial United Nations or world authority, one limited to certain technical tasks; but at the same time the problem is so global, so bound up with the disintegration of States, with social, economic and political phenomena, that we could only really resolve or at least manage it if we stepped outside the normal inter-State framework. That is why I believe that today deterrence, whether it be East-West deterrence or multilateral national deterrence, is losing its structuring and central role in international life, which is dominated far more by all sorts of phenomena such as those we are seeing in Yugoslavia or Somalia. But that said, it seems to me, and this is the second aspect that has caused some surprise and dispute this afternoon, that this situation of crisis, conflict and universal anarchy is complicating the problem, not simplifying it. Here the things that I have heard this afternoon call for two kinds

of comment. It seems to me that the speakers from France, Nicole Gnesotto and Yves Boyer, were right to say that we are not in the somewhat euphoric universe of those who believed that, after the Cold War, we were going to be able to do without conflicts and a conflictual conception of security and that all would be co-operation, harmony, etc. At the same time, they failed to demonstrate that nuclear weapons are useful in this type of conflict. Several speakers were, I think, right to warn against the temptation of responding by nuclear weapons, by a nuclear first strike, to conflicts in the third world, which, I think, was not at all the intention either of Nicole Gnesotto or of Yves Boyer. I do think, however, that I am on their side in so far as it seems to me that the delegitimization of nuclear weapons of which we are all talking is very strong in organizations like this one and very strong in post-Cold War Europe. On the other hand, I think it is a regional, transitory phenomenon. I do not believe at all that nuclear weapons have been delegitimized in the eyes of Pakistan, of Iran, of the various potential proliferators. I believe that the conventional idea according to which all that is because we are not setting the right example is purely illusory. In my opinion, anyone who believes that, if nuclear disarmament by the major Powers went faster, that would dissuade Mr. Saddam Hussein or the Governments of Iran or Pakistan from trying to procure nuclear weapons would, as Dr. Johnson said, believe anything. To me it is obvious that, even in nuclear countries that have pleaded against nuclear weapons, such as Russia, we are now hearing Russian friends tell us, "You have conventional superiority in Europe, so we need nuclear weapons", and personally, if I was a Ukrainian - I know that that is blasphemy here, but if I was a Ukrainian, as a neighbour of Russia I would want to have nuclear weapons as an ultimate safeguard; likewise if I was a Pakistani, as a neighbour of India. I believe that is a logic we cannot overlook.

Thirdly and above all, in the third world there is the phenomenon of what my friend J.L. Gergorin calls "offensive sanctuarization". The idea is as follows: today, nuclear weapons are totally unimportant in Yugoslavia, or they were so during the Gulf war. But if Milosevic or Saddam Hussein had nuclear weapons, if, under the cover of those nuclear weapons, they pursued the conquest of Kuwait or Bosnia, very clearly that would have an effect on the riposte that the international community could make to them. Even if you are an idealist and you think, as I said before, that perhaps we ought to be moving towards a world authority, that would not do away with the role of nuclear weapons. There are analyses and conjectures from the 1960s too that raise the question whether, in a nuclear world, the United Nations or a world authority ought not to have at least a minimum deterrence capability to cope with nuclear offenders or proliferators. All this goes to show, I think, that while proliferation is undoubtedly bad, some measure of proliferation is inevitable and it makes the maintenance of deterrence all the more topical and necessary. Proliferation must be reduced as far as possible and deterrence must be kept at a minimum level; I find the concept of minimum deterrence perfectly precise, perfectly traditional. There is no point in arguing against it: what is needed is to have a deterrence that, unlike anti-forces capacity for "war-fighting", etc., is not indefinite, but is restricted to what is required while retaining a certain credibility. As I see it, our lot is to be in a three-level world where there is inchoate worldwide co-operation, where there is the interplay of States and where there is the reality of their internal decomposition, ethnic conflict in particular. The question of nuclear deterrence will be with us as long as there are States, but it cannot be resolved without taking into account the other two levels.

Gérard Errera

Three short comments on Mr. Boden's rich and stimulating speech. In advance, I beg your and his forgiveness for the truism I am about to utter.

Firstly, we have heard throughout this discussions the idea that the important thing is to get rid of nuclear weapons. As a philosophical proposition, no one is against that. I would go so far as to say that, as an ultimate objective in some distant future, no one is against it either. I do not think there is a "pronuclear" cause. Nuclear weapons, based on a concept of deterrence, are means of ensuring one's security. They are not an end in themselves. What is the end is universal security, just as nuclear energy is not an end in itself, but a convenient and economical means of securing power supplies. If something better comes along, why not?

I find the second point more striking. In international relations, as in *haute couture*, fashion plays a large part. A year ago the fashion was the end of history, the new international order. After listening to the discussions this afternoon, I am afraid that the latest fashion in the field that concerns us is the idea that deterrence is incompatible with the non-proliferation of nuclear weapons. On the subject of the Non-Proliferation Treaty and 1995: the Non-Proliferation Treaty is not a treaty on the elimination of nuclear weapons. It is, as its name indicates, a treaty on the non-proliferation of nuclear weapons. Hence, the objective in 1995 is not to deprive the nuclear Powers that are mentioned in and legitimized by the Treaty of their lawful status. It is to prevent the emergence of other nuclear Powers. There is a balance between the obligations on each side. That is what the Treaty means. Consequently, the idea that the way to reinforce the non-proliferation regime in 1995 is to dispossess the legitimate nuclear Powers seems to me a particularly dangerous one.

The third point concerns what Mr. Boden has called "the music for the future". The important thing in the exercise on which we are now engaged, particularly as regards American-Russian relations, is the question of the time-limit for the implementation of the treaties that have been signed and discharge of the undertakings that have been given. Every day we are told, and we were told this morning too, that the reduction ceilings are still too high. Things must be taken further. "*De l'audace, et encore de l'audace, et toujours de l'audace!*" as Danton put it. What we would like is not an impulsive rush into a search for what might be done. What is important for the stability of international relations is that the commitments which have been given, particularly by Russia, should actually be implemented, really be met. That is true not only for nuclear weapons, but for chemical weapons too.

Walter Gehr

I should like to say something about the statement by Ms. Gnesotto, which I found admirably clear. If I understood her correctly, she said that the main strategy against anarchy in international relations was, precisely, minimum deterrence. That kind of argument could take us far and not necessarily in a very positive sense. To my mind, it tends to remove the burden of responsibility from all those who have not so far opted for nuclear weapons; such relief might encourage those in power in certain countries to procure nuclear weapons, if only to show to their subjects that they are among the great of this world.

Mahmoud Karem

Some emerging or recurring themes need to be underscored. The basic theme of a world moving from maximum to minimum deterrence is one that has been highlighted throughout this session. In this regard, someone spoke of organizational theory, I in turn will just speak in terms of theory building, not to build an hypothesis but to deliver a statement that perhaps needs to be tested -

namely that political incentives seem to be playing a stronger role within a regional security context. One should avoid encouraging the rationale that possession of nuclear weapons is in itself a guarantor of security and that legitimizing or retaining a nuclear option in order to make the world think twice before embarking on an offensive of the same magnitude. The second point is whether general and complete disarmament is really a long-term objective or a short-term objective. I take very seriously what Ambassador Wagenmakers of the Netherlands, my dear and old friend has mentioned, because I think whether we disagree or agree there is great validity in what he has mentioned. It is a long-term objective but it is a valid objective on the table along with other parallel approaches, such as arms control, arms reduction and disarmament different approaches will remain on the agenda with varying interest.

May I, before concluding, make one more point. I refer to the explanation offered by Mr. Halperin, and let me thank him for what he has mentioned in clarification of his project. He is right in saying, of course, that this is an interim measure and picking up on that, one additional interim measure which needs further attention is the issue of security assurances to non-nuclear weapons States. Why is it important? Because it will help allay many fears and it will help plug a loophole that exists within the Non-Proliferation Treaty. If that is addressed, it would definitely make our world a safer place to live in. And may I just point out that, as we speak, Ambassador Errera, before the conclusion of the 1992 conference on disarmament, presented a very interesting paper, on behalf of France, building upon security assurances. I look forward to seeing how France would be willing to carry these ideas and suggestions further because it contains very interesting proposals. I am sure that within the preparatory work of the NPT, this kind of thinking needs to be nurtured and we would certainly be looking forward to see how it evolves.

Vicente Berasategui

In fact I am going to touch again on the subject I raised yesterday, which clearly divides us, but I should go on record on this particular point. I could not agree more with the views expressed by Dr. Boden concerning incompatibility between the doctrine of nuclear deterrence and non-proliferation. If you allow me very briefly, I will make three points in that connection.

The first one is that what the NPT tried to develop was a certain nuclear policy for the international community based on three concepts: non-proliferation by the non-nuclear-weapon States, nuclear disarmament as an objective by the nuclear-weapon States, and international co-operation in the peaceful uses of nuclear energy, both by nuclear and non-nuclear-weapon States. At that point a relationship was established among those principles. But nuclear deterrence presupposes the existence of nuclear stockpiles. And certainly during a long time, with the NPT in force, nuclear stockpiles run by doctrines of nuclear deterrence increased significantly.

The second point is what I mentioned yesterday. Nuclear deterrence is a unilateral doctrine. I find it difficult to harmonize a unilateral doctrine with a consensus on non-proliferation. I said unilateral and not individual, because unilateral reflects better the way in which nuclear-weapon States develop their own doctrines of nuclear deterrence and their consequences.What about the consensus on non-proliferation? Clearly this is a dynamic process with different components. There is the NPT, there are the regional treaties, there are the IAEA safeguards, but we all know that we need to develop it.

The last point that I would like to make concerns another question that was raised, to indicate a relationship between nuclear deterrence and non-proliferation. The fact was mentioned that on 31 January, the Security Council declared that violations of the concept of non-proliferation constituted a threat to international peace and security. There is no doubt about it, but enforcement action by the Security Council is only one aspect of the non-proliferation regime. There is much more to it.

I think also that it would be appropriate to recall that at least one nuclear-weapon State, permanent member of the Security Council, has officially indicated that it does not accept the doctrine of nuclear deterrence as far as its own nuclear weapons are concerned. So, from that point of view, I fully agree with Dr. Boden.

John Simpson

I merely wanted to take the floor to underline what Mahmoud Karem and Ambassador Azikiwe said about the importance of security assurances. In many ways we really have not developed this issue to the full, because there are two separate issues we need to fold into it. One is the question of whether those assurances should go beyond the solely nuclear, if only because there is some evidence to suggest that one of the motivations for nuclear proliferation is to confront a conventional threat. The second point is that if we are looking for a formal treaty on this, then one of the questions we have to ask is what is it that the non-nuclear parties to the treaty are actually going to contribute to this treaty. Because this is one of the problems with the idea, where is the reciprocity?

Alexei Arbatov

In view of what was said here, I cannot refrain from making some general comments. Russia is now suffering from serious troubles. You must understand, I am also very much concerned about that, maybe more than anybody of those present in this room. But on the other hand, I am also concerned by some of the attitudes that, from time to time, appear in our discussions. This is why I want to point out that Russia did not lose the war. Russia is not a defeated power, not defeated in the hot war, not defeated in the Cold War. Actually, Russia could continue the Cold War for many years. We were built for it and that is precisely why it is so difficult for Russia to adapt to peace, to a different international environment. Our present problem results from our historic attempt to modernize, which was started as a result of our internal evolution and with the enthusiastic applause of the West. We could re-establish law and order, including that relating to military matters, by returning to a totalitarian regime and a command economy. But then automatically a new, even more cruel and desperate Cold War would follow. Some in Russia are actually advocating precisely that option. But I would not recommend this solution, and I would do whatever possible to prevent it. I conclude that precisely in this current situation in which we survive in Russia, our legitimate security interests as a great power are to be taken into account and respected. They are not to be easily disregarded only in view of the present economic, political and national difficulties that exist in Russia. Russian nuclear weapons are not to be treated as a garbage pile to be collectively sorted out to solve all problems. Nuclear weapons are one of the pieces of the heritage of the super-Power status that exists in Russia. Strategic Rocket Forces is the only armed service that has preserved discipline, order and a stringent command and control system. It is to be transferred to a professional basis very quickly and it is to form a core and a foundation of a new Russian army. That does not mean that Russia would be against radical nuclear reductions. Yes, reductions, but on the basis of equality and respect of neutral strategic interests. Russia would be ready to back-off from nuclear deterrence, but on a reciprocal basis and in favour of a joint management of multilateral strategic stability and multilateral security.

Dieter Boden

I think I can be very brief. I can agree with much of what has been said and I am particularly grateful for Mr. B. Azikiwe, for going into some of the intricacies of what I have called the incompatibility theory. Which brings me to remarks that have been made by Ambassador Errera. Well, the second point. I would be very lucky if the incompatibility theory is a passing fashion and turns out to be flop. If we can take our new garments tomorrow I for one will join that happily. I am afraid it is not going to be the solution. We have heard another theory here to the sense that a certain amount of proliferation is inevitable, but let us think of the overruling importance of deterrence and let us accept a minimal, let me call it minimal proliferation for it. I find this risky and I do not know if that would be a basis to start from. And the second point that was made by Ambassador Errera: I agree, when we will extend indefinitely the NPT that leaves the structure of the treaty as such intact. And at the time when it was done, negotiated, there was an awareness that there is a privileged party and there are others that have obligations. But it is easily forgotten that obligations are with all parties and if you look into article 6 you will see that there is an obligation for nuclear Powers to work out a treaty on general and complete disarmament under strict and effective international control. If you really think this to the end, this would abolish nuclear Powers altogether. Again, I say this is not something that we will see happen tomorrow, but this conflict is built into the treaty. There are two objectives set out that, may be, are both unachievable. And it is the task of everyone's policy to come as close to the ends as possible. And that is what I was trying to express in my previous remarks.

Emeka Ayo Azikiwe

Obviously, the premise of our discussion is such that we can never reach a consensus on the issue of minimum deterrence. Nuclear weapons will continue to exist in spite of any form of deterrence doctrine.

There was a comment about the management of residual stocks. I am not so sure that this will be the right approach as it does not address the issue of proliferation. The scenario for the rest of the decade is that we are going to witness the emergence of more threshold countries. This will not, however, involve any outbreak of nuclear war. We cannot effectively stop any country from acquiring nuclear weapons. At the same time, none of these threshold countries would be willing to take the risk of initiating a nuclear war.

Nicole Gnesotto

The concept of grand strategy that I used did not refer to a question of status: in other words, it is not for the nuclear States alone to have a grand strategy *vis-à-vis* Russia. I simply meant that nuclear policy was no longer merely a military doctrine aimed at controlling an enemy, since there is no more enemy, but rather a component of an overall strategy that is simultaneously economic, political, diplomatic, etc. The nuclear Powers merely contribute to it in accordance with their own particular characteristics.

A brief word about the link between deterrence and non-proliferation. I do not know if there is a link, but clearly it is no longer possible to talk about the one without mentioning the other, and vice versa. It seems to me personally that there is no link, inasmuch as the doctrines of deterrence have not been and must not be designed to deal with potential proliferators, but, paradoxically, the

link between deterrence and non-proliferation is increasingly being asserted by non-nuclear States or potential proliferators through their invocation of a link of conditionality, or even ultimatum between the preservation of the NPT and the end of deterrence. On the other hand, there is a link between nuclear disarmament and non-proliferation, and I must say that I do not really see the reason for our differences of opinion or our polemics. It seems to me that the situation today is as good as one could wish, since compromises are being made on both sides. In the case of the potential proliferators, the list is shrinking and most of the countries comprising "the South" are not, do not want to be candidates for proliferation and do not want their neighbours to be proliferators. And in the case of the nuclear Powers an enormous nuclear disarmament effort is under way, an enormous effort on the part of the Americans and the Russians, and, unilaterally of the French as well. It seems to me, therefore, that the gap between the two groups is growing smaller and that that constitutes an exceptional political opportunity.

There has been a consensus in this room on a certain realism which says: "Nuclear weapons exist, that's a pity, it's perhaps a pity that they cannot be de-invented, but they exist." Still lacking, however, is the other side of the consensus which would be to say not just that nuclear weapons exist, but that nuclear States exist and that we are not going to de-invent them either, to change them overnight whether the country we mean is France or Russia. When people talk of the anonymity of nuclear weapons, they overlook another fact of life which may or may not be regrettable, but which is simply that States have had nuclear weapons for decades.

Concluding Remarks

Ronald F. Lehman

This is not the first conference on deterrence that I have attended in my life, and I am sure that it will not be the last. It is interesting to see this conference increasingly turn again and again to issues of arms control while we try to remain focused on deterrence. I am reminded that once at a conference, shortly after I became Director of the Arms Control and Disarmament Agency, I presented NATO's military doctrine and General Lobov presented the Warsaw Pact military doctrine. I focused my presentation on the military operational considerations and he spoke mainly about arms control.

So it should not be surprising that deterrence and arms control are intermeshed in this discussion. They are interrelated and, from the point of view of the United States and its allies, arms control is an integral part of our strategy. We think of it in those terms. Indeed, I am one of those who not only notes that arms control jargon and concepts are often built around deterrence concepts, but more than that, I would argue that arms control has frequently shaped our whole debate over nuclear strategy and military doctrine. Arms control is not only some times the moral equivalent of war in international relations, but sometimes it is the vehicle whereby we decide our own strategies. It is important to understand that, in one sense, there are very few new issues here. In another sense, we should remember Aristotle and not demand more precision than the subject matter warrants. This focus on minimal deterrence is a classic example of that. I do not believe we have, or ever had, an agreed definition of what we mean by minimal deterrence. And I do not think we can, because we would then disagree too much over what it was.

I would argue that there are two elements that did not get enough emphasis in the discussion here about minimal deterrence. One is that, to a large degree, it was introduced as a political concept for getting reductions in arsenals that had grown very, very large. This political element is an important part of the history of minimum deterrence. There is another element of minimum deterrence that did not receive enough emphasis here and that was its relationship to extended deterrence and the whole debate over the military utility of nuclear forces. Often in the past, in the literature and in the debates, when people advocated minimum deterrence, what they really meant was no tactical nuclear weapons and no extended nuclear umbrella for other countries; to get down to the very lowest level you need to ensure that no one attacks the United States with strategic nuclear forces.

The fundamental point is that we have never seen our deterrent as solely for the United States. Remember, as I said earlier, the United States invented nuclear weapons because it was involved in a war. At that time, the Soviet Union was an ally of the United States. They were not invented for the Cold War. Secondly, if you want to understand the future of nuclear deterrence after the Cold War, recognizing that there is a debate as to when the Cold War began, you might look at nuclear deterrence before the Cold War, or at least nuclear deterrence in the immediate post-World War II period and the preoccupation with the understanding of what the role was of the United Nations. I think some of the futuristic discussions we have had here today are really reflections of that historic debate back in 1945-1946. With respect to deterrence and minimal deterrence, the point was made yesterday that with the end of the Cold War, deterrence is gone, so the only purpose for having nuclear weapons was compulsion or compellence.

As you can imagine from what I have just said, deterrence still exists, it is independent of the Cold War. I think the issue of a second role of coercion or compellence is actually a false dichotomy, but it is related to the question of the credibility of nuclear deterrence and the utility

of nuclear forces. The American approach to deterrence has basically emphasized a combination of certainty and uncertainty, credibility, and I might say, the incredible. The United States has believed that a threat of mutual suicide or, I might add in today's context, unilateral annihilation of somebody else, is not a credible deterrent. Therefore, the United States has always emphasized that, with respect to its nuclear forces, there had to be some type of application of nuclear forces that was plausible, not because we want to fight wars but because we want to prevent wars. Still, there was the uncertainty of how vast the escalation could be and the certainty that it could be quite horrible. That, in many ways, was the ultimate sanction. It was that ultimate sanction that was viewed as a stabilizing, albeit frightening, reality. That ultimate sanction, of course, applied not only to the protection of the United States but to its friends and allies abroad. And in the post-Cold War era there is a sense in which, as we reduce our nuclear forces, the concept, that there is a deterrent and umbrella out there and an ultimate sanction that the international community could turn to in dire circumstances, is stabilizing rather than destabilizing.

And it does have a link with the issue of proliferation. Indeed, for many countries around the world, the notion that there is some kind of umbrella or protection is necessary for them to forego their own national nuclear programmes until such time as that threat is eliminated. It is important to pick up on the comment made by a number of people around the table; that it is hard to imagine this revolutionary process of deep reductions in nuclear forces of the nuclear Powers could continuing in a world in which proliferation was expanding, and in which the number of nations with nuclear weapons was expanding.

The discussion we have had around the table reminds me to ask the question in what time frame are we living? I know we are approaching the end of a century, and in fact it is the end of a millennium. I recognize that we have seen revolutionary changes in the world, and yet some people around the table are speaking as if nothing had changed and some people are speaking as if almost everything had changed. I lean towards the more cautious school. Having said that things have changed, and we need to recognize this, the arms control regime that is emerging is quite phenomenal with the Chemical Weapons Convention, the Biological Weapons Convention, START I and START II, the INF Treaty, Open Skies, CFE, the Vienna CFE's Agreement, Transferency in Armaments, and I could go on. It is quite a remarkable regime. It provides a foundation for trying to build a better, safer world.

And in that better, safer world I would be surprised if the nuclear-weapons States did not see their forces reduced further in the context of an improved global security situation. And there will be changes in our forces. When I was chairman of the NATO High-level Group on Nuclear Forces, I was asked once at a conference when I could foresee the end of nuclear artillery deployed in Europe. In my usual flippant manner I said, the last American artilleryman in Europe would turn in his last nuclear artillery shell when the last WARSAW Pact infantryman turns in his last bayonet. Well basically that is what happened. Except the bayonets were not turned in, its just that the Warsaw Pact decided to dissolve itself because the political situation had changed. And when it had changed, we took out most of our tactical nuclear weapons, including all of our nuclear artillery. And we did so in a context that helped promote nuclear non-proliferation in the former Soviet Union. In short, we have the prospect for a better, safer world, although being in Paris, I cannot help but be reminded of Charles Dickens' line "It was the best of times, it was the worst of times". These are times of great turmoil, and this does have an impact on how we think about deterrence. A classic example is found during the breakup of the Soviet Union. There were some of my countrymen and some of your countrymen who thought that the best solution was that each of the republics that had nuclear weapons keep them. There were some potential proliferators who actually favoured this because they hoped that this would open the floodgates to proliferation. It would give them the top cover they might need to become nuclear powers.

Needless to say, that was not the decision of the United States. Our view, on the contrary, was that this was an opportunity to further reduce nuclear arms, ours as well as others, and to further strengthen the international norm against nuclear proliferation.

We have worked very hard with the republics of the former Soviet Union to further this goal. In that context, we have been prepared to reduce our forces further. As I said, we have made great progress. I alluded yesterday to some of the problems we are having in getting the START I Treaty implemented and getting the START II Treaty signed. That is not a reflection of how little has been done. I would urge you not to depreciate what has happened, in fact it is a measure of how dramatic the steps are that have been taken.

Now Alexei said that we have not even begun to implement START I. In the sense that it has not formally entered into force, this is true. But in fact, both we and the Russians have taken some forces off alert and removed some of the warheads. There have been some interim steps taken. We are concerned about Ukraine, we will know more this week. We hope that Ukraine, Belarus and Kazakhstan, in fact, take the steps to ratify the START Treaty, and also to adhere to the Non-Proliferation Treaty. With respect to the START II issues, it reflects the fact that those of you who think we really are in the new millennium are a bit premature.

There is a lot of old thinking going around, but let me just comment briefly on each of the issues that was raised. The basic argument was that Russia would like to be relieved of some of the restrictions of the START Treaty so as to save money. Particularly, it does not want to destroy the SS 18 silos and it wants to download the SS 19 to a single RV. Now it says it wants to do this to save money, and in part that is true. It is not the cost of destruction that costs the money. That is cheap. The reason it would save money is that it wants to build up to a higher level under the treaty, which they are permitted to do. The treaty does not prohibit them from doing that. They want to do that at the lowest cost. So on the one hand they are advocating going to lower numbers, but what they really want is relief so that they can go to higher numbers. But what are the numbers we are talking about? Actually, it is not the difference between say 3500 and 1700 or 1750 because Russia has bomber forces, and they count as well. It is a smaller number, but what is it they are really asking for? They are asking for the 154 silos for the SS 18 and 170 warheads on downloaded SS 19s. So we are talking about 324 warheads here. The whole issue of going down to 3500 or 3000, or something in between, is related to 324 warheads. In fact, there is nothing in the Treaty that would prevent the Russians from putting a single warheaded missile in the SS 19 silos, that is not an issue. That solves the problem of whatever it was they wanted to put in the SS 18 silos. If that takes care of 170 of the warheads, we are now down to 150 warheads out of 3500 - 154. We have trouble understanding why that is such a significant problem in an age in which we are friends. And in an age in which large numbers of non-deployed missiles could be available for various deployments, we think, at relatively low cost.

With respect to the D5 question, we are moving into more stabilizing, less vulnerable, structures. We do not see that the D5 poses a particularly grave threat. Both we and the Russians will have small numbers of ICBMs, both are theoretically targetable by the other side, but they both represent, under these more survivable structures, a relatively small part of our forces. In fact, if you assume two-on-one targeting at least - and for the mobiles that Russia has it would have to be far larger than that - it really is an adverse exchange ratio to target ICBMs.

On the question of removing warheads from missiles, I would like to come in on this, and also on Mort Halperin's idea, for the future. First, we are already doing it and secondly we ought to be very careful if we do it. Now you may say that those are inconsistent, but what we do not want to create is an unstable situation, we do not want crisis instability in our fore structures. If we were to download warheads, we have to make sure it is done in a way that deals not only with breakout but with crisis stability. So in principle, we are prepared to approach this. In fact, both sides are

already doing a bit of this, but I would urge intellectually that we look at it very carefully before we go too far.

What I really want to return to is the question of the relationship of deterrence to proliferation. I have already said that they are related but the traditional way of looking at them, which is the grand compromise of the NPT, remains valid, but is not the sole problem. That is to say, yes, we, the nuclear-weapons States, have obligations under the NPT to move to lower levels, and we will do so as the security situation warrants. It has warranted deep reduction thus far. But we also believe that the non-nuclear-weapons States parties recognize that the NPT is in their interest. Therefore, I would urge that we do nothing to weaken the international norm against proliferation. We should avoid becoming preoccupied with the extraneous issues or pretexts. For example, we all may have disagreements on the question of the CTB, but it is clearly counterproductive to hold the extension of the NPT hostage to a CTB. The issues ought to be worked out on their separate merits.

Secondly, we ought to be very careful not to blur the distinctions between what is acceptable and what is not acceptable. I have in mind the issue of so-called threshold States. Not all threshold States are alike, there are many nations with very advanced nuclear industries that undoubtedly could if they chose, develop nuclear weapons. But, they do not choose to do so because they choose instead to be sound members of the NPT. That is not who we are worried about. Grouping States that are trying to keep nuclear options open in the same category with those that are prepared to forego them in the interests of international security would be wrong and would weaken the standard. In fact, we really need to remember what we are talking about here, in the area of nuclear proliferation. We are talking about a very few significant States outside the NPT and a very few States inside the NPT whose behaviour is suspect. That is what we are really talking about. With respect to those who are outside the NPT, we should be very careful not to sacrifice the NPT's overall effectiveness in international standards in order to bring them in. Rather we should recognize that if they have legitimate security concerns that we ought to work with them to address those security concerns to create the conditions where, in fact, they can and will join the NPT.

Yesterday, I alluded to some of the ways in which that can be done. I like to think that in time we might be able to address regional security concerns, develop a step-by-step process, and eventually persuade the political process within these countries that it is the thing to do. This can be done without sacrificing their security interest but also without sacrificing the international norm. This is what we should work towards. There are a number of ways in which we can help. I have basically run out of time, but let me return to my initial theme and address the question of security assurances.

Deterrence in my view is related to non-proliferation, and it is not a negative relationship, it is a positive relationship. It is helpful, and it is helpful because it has to be seen in the context of overall international security. When we make security guarantees, there has to be something behind it. The notion that you can go out and say that we are going to delegitimize nuclear weapons in order to trick potential proliferators into thinking they are not important, fools you twice. We have to be realistic. Nuclear weapons have a significance that is real. We have to deal with the threat that they pose to us. We have to develop that better and safer world, and in that context we have to provide for the security needs of the nations. It is not just words of assurance; it is a truly improved security situation. For the foreseeable future, nuclear deterrence will be an element of that, albeit as I look back to 1946 or 45, rather than to much of the Cold War era. Hopefully, we will succeed with START II and maybe START III and leave the Cold War behind us.

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