

Nuclear futures: Western European options for nuclear risk reduction

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Contents

Acronyms and Abbreviations
Executive Summary
Chapter One: Nuclear Weapons and Nuclear Policy in Western Europe
Chapter Two: The United Kingdom
Chapter Three: France
Chapter Four: Nuclear Co-operation
Chapter Five: NATO Europe
Chapter Six: Nuclear Risk Reduction in Western Europe
Endnotes

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Acronyms and Abbreviations

AB	Air Base
AFDRG	Anglo-French Defence Research Group
ASMP	Air-Sol Moyenne Portée
ASLP	Air-Sol Longue Portée
CD	Conference on Disarmament
CEA	Commisariat à l'Énergie Atomique
CFE	Conventional Armed Forces in Europe Treaty

CFSP	Common Foreign and Security Policy
CTBT	Comprehensive Nuclear Test Ban Treaty
DGA	Delegation Generale de l'Armement
EIVRs	Exchanges of Information by Visit and Report
EU	European Union
HMS	Her Majesty's Ship
IAEA	International Atomic Energy Agency
ICBM	Inter-Continental Ballistic Missile
ICJ	International Court of Justice
INF	Intermediate-range Nuclear Forces Treaty
JAIEG	Joint Atomic Information Exchange Group
JOWOGs	Joint Working Groups
MIRV	Multiple Independently-targetable Re-entry Vehicles
MOA	Memorandum of Agreement
MoD	UK Ministry of Defence
MP	Member of Parliament (UK)
NAM	Non-Aligned Movement
NATO	North Atlantic Treaty Organization
NTM	National Technical Means
NPG	Nuclear Planning Group (a NATO body)
NPT	Treaty on the Non-Proliferation of Nuclear Weapons, or the Non-Proliferation Treaty
NSAs	Negative Security Assurances
NWFZ	Nuclear-Weapon-Free Zone
OSCE	Organisation for Security and Cooperation in Europe
PALEN	Préparation a la Limitation des Expérimentations Nucléaires
PaSEN	Programme de Simulation des Essais Nucléaires
PrepCom	Preparatory Committee meeting for the 2000 NPT Review Conference
RAF	Royal Air Force (UK)
SNLE/NG	Sous-marins Lanceurs d'Engins de la Nouvelle Génération
SLBM	Submarine-Launched Ballistic Missile
START	Strategic Arms Reduction Talks
SWPP	SLBM Warhead Protection Program
TACIS	Technical Assistance to the Commonwealth of Independent States (an EU programme)
TMS	Thomson Marconi Sonar
TNN	Tête Nucléaire Nouvelle
TNO	Tête Nucléaire Océanique
WEU	Western European Union
WMD	Weapons of Mass Destruction

Executive Summary

The recent German-US debate over NATO's policy allowing first-use of nuclear weapons highlights a growing split between nuclear- and non-nuclear-weapon states in the Alliance. Despite this split, the political value attached to nuclear weapons in European security remains high. NATO still describes nuclear weapons as the "supreme guarantee" of Alliance security. While the number of nuclear weapons in Europe has declined, the nuclear actors in Western Europe – France, the United Kingdom, the United States, and NATO – have not yet changed their doctrines to reflect the new security environment. At the same time, there is no military threat to the continent and NATO's conventional military

capabilities far outweigh any potential enemy. Western Europe nations should pursue a risk reduction approach, decreasing the political and military value attached to nuclear weapons.

Upcoming decision points – updating NATO's strategic concept, due to be completed in 1999, and the 2000 Review Conference of the nuclear Non-Proliferation Treaty (NPT) – are key in determining what path Western Europe will take. Germany and Canada have called for a renewed discussion on the future role of nuclear weapons in NATO strategy. Germany announced that it will raise the issue in NATO Ministerial meetings.

Under the previous Conservative government, the UK reduced its arsenal to one nuclear system: the Trident missile deployed on Trident nuclear submarines. When it came to power, the Labour government undertook a Strategic Defence Review that made substantial but not dramatic changes in Britain's nuclear posture, including reducing the number of warheads on Trident missiles. However, Labour has abandoned its traditional support for unilateral disarmament, and seems unlikely to implement other positions it has recently endorsed, including no-first-use of nuclear weapons. To date, other than an increased transparency, Labour policies have shown little change from their Conservative predecessors. (See Chapter Two.)

France is simultaneously reducing its nuclear arsenal and implementing major upgrades to its remaining systems. Strongly condemned for its 1995-1996 series of nuclear tests, France has endeavoured to improve its international standing. Its support for the Comprehensive Test Ban Treaty is a positive sign; its proposal to create a European nuclear deterrent was less well received. (See Chapter Three.)

Nuclear co-operation between France, the United States, and the United Kingdom is increasing. France and the UK initiated new bilateral working groups on nuclear issues, and France and the US recently signed an agreement increasing their co-operation. Without nuclear testing, stockpile stewardship will lead to even closer co-operation. (See Chapter Four.)

NATO has sharply reduced the number of nuclear weapons in Western Europe. However, its doctrine is moving towards using nuclear weapons to counter the proliferation of other weapons of mass destruction. The US is pushing NATO to include out-of-area threats and "nonstate actors", such as terrorist groups, as targets for nuclear weapons. (See Chapter Five.)

However, current policies are harmful to Western security in several ways. First, they are an incentive to proliferators to acquire nuclear, chemical, and biological weapons. As demonstrated by the Gulf War, Western conventional superiority provides the capability to overcome any potential threat. Second, rather than serving as a hedge against a Russian resurgence, reliance on nuclear weapons increases the likelihood of a renewed threat. Third, the status conferred to nuclear-weapon states was a major factor in the Indian decision to develop its arsenal; Pakistan felt compelled to follow suit. Fourth, the refusal to pursue nuclear disarmament, as agreed in the nuclear Non-Proliferation Treaty, is leading more and more nations to question the value of that regime.

Western European nations should undertake six steps to reduce the risks associated with nuclear weapons and to preserve the NPT. These are:

1. Commit to and take programmatic action towards the rapid elimination of nuclear weapons;
2. Reduce the alert status of nuclear weapons;
3. End the deployment of non-strategic nuclear weapons and give up the option of wartime nuclear weapons use by non-nuclear-weapon states;
4. Halt first-use policies by France, the UK, and NATO;
5. Include commitments by France and the UK on the future of their nuclear arsenals in the START III context;
6. Initiate a European Co-operative Threat Reduction Programme.

These steps outline a comprehensive nuclear risk reduction strategy for Western Europe. They are also important to safeguard and strengthen the NPT. The list begins with the most important and broadest steps, and proceeds to less far-reaching initiatives. Most importantly, the last five steps would all follow from a sincere undertaking of the first. (See Chapter Six)

The six steps closely correspond to many of the crucial provisions in the New Agenda Coalition's June 1998 declaration and 1998 UN First Committee resolution. That resolution (see Chapter 1.3, p. 8, for a description) exposed a growing debate in NATO over the Alliance's nuclear doctrine. That debate, between the nuclear- and non-nuclear-weapon states, may be exposed during the discussions over the Alliance's Strategic Concept (see Chapters 5.5-5.7).

Not included in the list are the traditional, yet important, items on the nuclear non-proliferation and disarmament agenda. These include further progress on the bilateral START process, ratification and entry-into-force of the Comprehensive Test Ban Treaty (CTBT), and agreement on a fissile material production cut-off treaty at the Conference on Disarmament. Russian ratification of START II, which may take place as this report goes to press, could end the current impasse in bilateral disarmament. For the CTBT and the fissile cut-off, although the vast majority of states endorse both goals, each requires substantial progress before it is fully realised. Although each of these three steps is significant, none fully address the implications of the end of the Cold War. To strengthen the international non-proliferation regime and to revitalise the disarmament process, new steps must be taken.

The six steps discussed here focus on options for Western Europe, rather than for all states or all nuclear-weapon states. Because of the general international focus on US-Russian disarmament, too little attention is paid to the contribution Western Europe can make. That contribution could be substantial; through direct disarmament and non-proliferation measures by European states, through consultations with and lobbying of the US, and through initiatives to create a more sustainable security policy. The six steps described in this report are critical to strengthening the international non-proliferation regime, advancing disarmament, and creating a new security environment that will allow further progress.

Chapter 1: Nuclear Weapons and Nuclear Policy in Western Europe

Western European nations and institutions should undertake a comprehensive review of how to reduce and eliminate the risks associated with nuclear weapons. Elements of this review have already begun, with the announcement by German officials that it would raise nuclear strategy issues in NATO. The review should both strengthen the non-proliferation regime and speed the disarmament process.

The May 1998 nuclear tests by India and Pakistan returned nuclear weapons to the forefront of international security concerns. The full impact of the tests has not been realised by the international community. Even before India tested, the changes in Europe's security structure demanded a new look at nuclear weapons. The Cold War ended. The Warsaw Pact and the Soviet Union dissolved. Russia now works with NATO in peacekeeping operations in the former Yugoslavia. The Conventional Armed Forces in Europe (CFE) Treaty substantially reduced the level of heavy armaments spread across the continent, while NATO's Partnership for Peace programme initiated military co-operation and transparency throughout and beyond Europe. The biggest exceptions to the generally improved security atmosphere have been the minimal changes in nuclear doctrine, in both NATO and Russia, and the continued Russian resentment over NATO

expansion. This paper will focus on the former issue.

The size of the nuclear arsenal in Europe has decreased dramatically. On NATO's side, the deployment of US tactical nuclear weapons declined from about 7,000 to 180 or less. Within the Alliance, the US withdrew all its nuclear weapons from the army and from naval surface forces, leaving only gravity bombs in Europe. Following the dissolution of the Warsaw Pact and the Soviet Union, Russia withdrew thousands of tactical nuclear weapons from Central and Eastern Europe back to its own territory. Many of the weapons are now stored centrally and await dismantlement. The UK retired its air-based nuclear systems and relies only on nuclear missile submarines. France dismantled its land-based nuclear-armed missiles. These changes have substantially reduced the nuclear threat to Europe, making deliberate all-out nuclear war almost inconceivable.

However, nuclear doctrine has not changed to match the reduced arsenal. NATO, France, the United Kingdom, and the United States still rely on a policy allowing first-use of nuclear weapons. As part of its interim military doctrine, in 1993 Russia adopted the same policy. It later conducted the first exercise in which Russian forces relied on the first-use of nuclear weapons. Western policy changes have focused on increasing the flexibility of nuclear arsenals and employment doctrine. The US plans to use nuclear weapons to counter the perceived threat from chemical or biological weapons, and considers using the atom bomb against "non-state actors". (See Chapter 5.7). It is also pushing NATO to agree a similar policy. (See Chapter 5.6). In this context, NATO is discussing "out of area" nuclear use.

Western Europe must address the policy implications of the end of the Cold War and the nuclear tests in South Asia. Changes are needed in NATO policy, in the EU, and in individual governments, particularly France and the United Kingdom. Changes in doctrine should reflect or exceed the dramatic reductions in the size of Western Europe's nuclear arsenal.

The basis of the changes as Western Europe moves towards nuclear disarmament should be a strategy of risk reduction. As stated by a growing number of former military leaders, including General George Lee Butler, USAF (Ret), head of US strategic nuclear forces from 1991-1994, the risks of retaining nuclear weapons are greater than the risks of eliminating them.

A vital component of this risk reduction strategy must be a strategy for dealing with obvious danger scenarios. Iraq provides a classic example. It pursued nuclear weapons in a secret and massive program despite international inspections. Yet, in the Gulf War, facing the potential nuclear threat from Iraq, US General Colin Powell made clear that the use of nuclear weapons was rejected because no suitable role for them could be found.

Even further, scenarios involving the use of nuclear weapons by the West to respond to threats from weapons of mass destruction (WMD) may exist, but they do not constitute "worst cases". The worst case scenario is one in which, for political, environmental, economic, or humanitarian reasons, nuclear weapons cannot be used to respond to a real threat. The West should consider how its attachment to nuclear weapons hinders the development of other military and especially political mechanisms that can effectively limit the proliferation of WMD and reduce these threats.

1.1 Outline

This report has two sections. The first provides an in-depth description of the status of nuclear doctrine and arsenals in France, the United Kingdom, and NATO. A detailed summary of current nuclear co-operation between France, the United Kingdom, and the United States is also provided. Changes since the end of the Cold War, along with information on new governments' future policies and plans, are highlighted.

The second section focuses on recommendations for action. These recommendations outline a comprehensive strategy of nuclear risk reduction for Western Europe. Steps

include committing to elimination, de-alerting nuclear forces, ending deployment of tactical nuclear weapons, undertaking no-first-use policies, British and French commitments linked to START III, and initiating a European Co-operative Threat Reduction programme.

1.2 Decision Points

For Western Europe, NATO and the NPT are the two critical forums for discussion and action on nuclear issues. Each arena is at a critical stage. Following a commitment made in the NATO-Russia Founding Act in 1996 and a decision taken at the 1997 Madrid Summit, NATO is in the process of revising its Strategic Concept, the guiding political vision for the Alliance. NATO is expected to approve the new version at the Alliance's April 1999 Summit in Washington. The 1995 decision to make the NPT permanent was dependent on agreeing a new review process that is still developing. The 2000 Review Conference will substantially determine the success of the new process. Within these two processes, the future role of nuclear weapons in European security will be decided.

1.3 Cracks in the Foundation?

The traditional Western consensus on nuclear issues has held up well, even in the post-Cold War era. However, there are signs that this consensus could be evolving or breaking up. The previous Australian government mandated the prestigious Canberra Commission's report on the elimination of nuclear weapons, which recommended immediate steps towards elimination.¹ The US National Academy of Sciences' Committee on International Security and Arms Control's report *The Future of US Nuclear Weapons Policy* also called for dramatic reductions in nuclear posture.² On 8 July 1996, the International Court of Justice released an advisory opinion, which stated that the use or threat of use of nuclear weapons was generally illegal.³ Partly because of that opinion, the Canadian parliament is undertaking an in-depth evaluation of the role of nuclear weapons in its security policy.

There are changes in Western Europe as well. After nearly two decades of Conservative rule, the Labour Party took power in the UK in 1997. Although the Labour Party abandoned its support for unilateral disarmament, once in government it implemented a Strategic Defence Review that recommended significant (but far from dramatic) changes in British nuclear posture and policy. France eliminated its small land-based nuclear arsenal, and together with the UK, deposited its instruments of ratification to the CTBT, the first nuclear-weapon states to do so.

Social Democrats and Greens won the Federal elections in Germany in 1998, and Social Democratic-led coalitions now govern the four biggest European NATO members. The new German government has stated that it would like to see a discussion of nuclear policy in NATO, including the Alliance's doctrine allowing first-use of nuclear weapons. (See Chapter 6.4)

The EU recently circulated a memorandum at the UN General Assembly, recommending further nuclear disarmament steps. Within the EU, some states, in particular Ireland, Sweden, and Austria, have been more pro-active in calling for further steps to advance nuclear non-proliferation and disarmament.

The New Agenda Coalition

In June 1998, Ireland led a group of eight states, comprised of Brazil, Egypt, Mexico, New Zealand, Slovenia, South Africa, and Sweden, which issued a declaration calling for immediate progress on nuclear disarmament.

At the 1998 UN General Assembly's First Committee on disarmament, Ireland, Sweden, and 32 other states, introduced a resolution following on from the June 1998 eight-nation declaration. The resolution called on the nuclear-weapon states

to demonstrate an unequivocal commitment to the speedy and total elimination of their

*respective nuclear weapons and without delay to pursue in good faith and bring to a conclusion negotiations leading to the elimination of these weapons, thereby fulfilling their obligations under Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT).*⁴

It also called for the integration of all five nuclear-weapon states into the nuclear disarmament process, for 'de-alerting' nuclear forces and for a forum at the Conference on Disarmament (CD) to "deal with nuclear disarmament". (See Chapter 6.2 on de-alerting, and Chapter 6.1 on the CD.) Significantly, the June declaration's call for an end to nuclear first-use policies was replaced by a call for "measures to enhance strategic stability", including a review of strategic doctrines. This last point was a clear reference to NATO's review of its Strategic Concept. Dropping the no-first-use call was an effort to draw support from Alliance countries, as NATO policy still retains the option of first-use. (See Chapter 4.)

That effort was successful. The three Western nuclear-weapon states lobbied heavily against the resolution, pushing NATO members in particular to vote "no". Despite this pressure, every non-nuclear-weapon state in NATO except Turkey abstained. Most of the 19 states that voted against the resolution were either nuclear-weapon states (except China, which abstained), new NATO members, or states applying to become NATO members. This vote clearly indicates a growing divide between the nuclear- and non-nuclear-weapon states within NATO on nuclear disarmament.

These developments, however, only begin to address the full implications of the end of the Cold War. This report outlines a variety of steps that Western European countries and institutions should take to reduce the risks associated with nuclear weapons. As the world approaches the new millennium, it is time to develop an international security regime that does not rely on weapons that can end the new era before it begins.

Chapter 2: The United Kingdom

The nuclear arsenal of the United Kingdom is the smallest of the five declared nuclear-weapon states.¹ Since the inception of the British nuclear programme in the 1940s, the UK has seen nuclear weapons as a way of maintaining its international standing. In the 1990s, British perceptions continue to link nuclear weapons with retaining the UK's status as a permanent member of the United Nations Security Council and as a major player in NATO and Europe.

However, since the end of the Cold War, public support has grown steadily in the UK for the elimination of nuclear weapons. The UK Government even cited a recent opinion poll on the subject. Parliamentary Under-Secretary of State for the Foreign and Commonwealth Office, Baroness Symons of Vernham Dean, told the House of Lords: "In the Gallup Poll which was conducted in October this year [1997], 87% of those questioned supported negotiations to prohibit nuclear weapons. We pay close attention to that".² The same poll found that 59% of those questioned thought it was best for the security of their community if Britain did not have nuclear weapons, and 54% supported immediate steps to withdraw Trident nuclear warheads from deployment at sea and place them in storage.³

The new UK Government, however, has been clear that it intends to retain Trident. In July 1998, the Government released the results of its 13-month long Strategic Defence Review.⁴ The Defence Review included a series of decisions affecting the size and structure of the British nuclear forces, including reductions in the arsenal. Yet the new Government made clear the terms of the Defence Review before it started: the UK would retain the Trident submarine-launched ballistic missile system. The Defence Review stated the reasons for keeping Trident:

*[I]n present conditions nuclear deterrence still has an important contribution to make in insuring against the re-emergence of major strategic military threats, in preventing nuclear coercion, and in preserving peace and stability in Europe.*⁵

It also noted that the Government needed “to ensure that [Trident] can remain an effective deterrent for up to 30 years”.⁶

In the Defence Review, the Government estimated the total lifetime costs of the Trident programme at £12.52 billion (approximately US\$20.03 billion). It estimated the annual running cost of the submarine programme at around £280 million (US\$448 million) during its thirty-year life, with another £400 million (US\$640 million) annually for the warhead and fissile material program. However, other recent statements from the Government indicate that spending on nuclear weapons is substantially higher than those figures.⁷

2.1 Nuclear Posture

Since the end of the Cold War, the previous Government made a number of reductions in British nuclear forces. Some of these steps inevitably resulted from or were linked to the 1991 US unilateral decision to reduce substantially both the types and numbers of nuclear weapons deployed in Europe. These reductions were highlighted in the Defence Review:

Since 1992, the United Kingdom has given up:

- the nuclear Lance missile and artillery roles we undertook previously with US nuclear weapons held under dual-key arrangements;*
- our maritime tactical nuclear capability, so that Royal Navy surface ships no longer have any capability to carry or deploy nuclear weapons;*
- all of our air-launched nuclear weapons.*⁸

The last point refers to the withdrawal of the WE-177 gravity bomb from active service, which was completed on 31 March 1998. With that withdrawal, the UK now deploys the Trident as its sole nuclear capability. Three Trident submarines, HMS Vanguard, HMS Victorious, and HMS Vigilant are already in service.⁹ The fourth and final submarine, HMS Vengeance, was launched in September 1998 and is scheduled for active deployment around the turn of the century.¹⁰

In the Defence Review, the Government announced that it would “maintain fewer than 200 operationally available nuclear warheads, a reduction of one third from the previous government’s plans”.¹¹ Each Trident submarine will carry 48 warheads. This is a reduction from the previous government’s policy of a ceiling of 96. In parliamentary questioning, the Government also announced that under the previous government the normal load of warheads on each submarine was 60. It added that,

*12 warheads are to be removed from each of the three Trident submarines currently in service during their next programmed docking in the warhead fitting facility at Coulport. This process will be completed before the end of the year.*¹²

The 200 warheads will exclude “missile warheads held as a necessary processing margin or for technical surveillance purposes”.¹³

Each UK Trident submarine can carry up to 16 Trident II D5 missiles, which are manufactured and serviced in the United States. The UK’s atomic weapons establishment produces the warheads for Trident. They are closely based on the design of the US Trident warhead, W76, with a yield of approximately 100 kilotons.¹⁴

The number of Trident II D5 missiles that the UK will purchase from the US was also reduced in the Defence Review to 58. The UK’s earlier planning assumption, inherited from the previous government, was that in addition to the 51 missiles already purchased, it would buy a further seven missiles in FY1998 and seven in FY1999, bringing the total to 65. The Government proceeded with the first order of seven missiles for FY1998, but announced that the 58 missiles thus purchased “are sufficient to maintain a credible deterrent”.¹⁵ Of those, six have already been test-fired, there are plans for eight more tests, and four are set aside for a processing margin, leaving only 40 missiles for

deployment.¹⁶

As part of the Defence Review, the Government stated that it would maintain the capacity to produce a follow-on to the Trident nuclear programme, noting “it would be premature to abandon a minimum capability to design and produce a successor to Trident should this prove necessary”.¹⁷ This allows for producing a new nuclear warhead, one that would have to be produced without nuclear testing. The UK would probably need to increase co-operation with the French and US stockpile stewardship programmes to achieve this goal. (See Chapter Four on nuclear co-operation.)

2.2 Nuclear Doctrine

The UK’s Trident submarines are assigned to NATO to be used for the defence of the Alliance “except where the UK government may decide that supreme national interests are at stake”.¹⁸ Trident was originally intended to provide the UK with an independent strategic nuclear capability to deter the Soviet Union. After the Cold War, the previous Government adapted Trident’s rationale to deterring a “potential aggressor” from threatening British “vital interests”.

With the withdrawal of the UK’s WE-177 free-fall bombs, Trident was also assigned a “sub-strategic” nuclear role, defined as the capability to carry out a “more limited nuclear strike”.¹⁹ According to the Defence Review, this limited strike “would not lead to a full-scale nuclear exchange”.²⁰

The new Labour Government affirmed that it fully supports “NATO policy on the continuing requirement for a sub-strategic capability as a crucial element of credible deterrence. In extreme circumstances of self-defence, such a capability would allow the limited use of nuclear weapons to send an aggressor a political message of the Alliance’s resolve to defend itself”.²¹ Such an aggressor could be Russia or a hostile state with access to WMD.

Perceived Threats from WMD

Like the US and NATO, in recent years the UK has placed greater emphasis on deterring potential proliferators of WMD as a rationale for retaining nuclear weapons.²² In 1993, Secretary of State for Defence Malcolm Rifkind posed the question: “Would . . . the possible use of chemical or biological weapons against us be seen as justifying the threat of our nuclear weapons?”. Rifkind’s answer was to emphasise that the UK provided its negative security assurances (NSAs) in a context in which “we attach ever increasing importance to the Biological and Chemical Weapons Conventions”.²³

British policy on the use of nuclear weapons to deter proliferators of WMD remains ambiguous. Minister of State for the Armed Forces, Dr John Reid, described the new Government’s approach to the threat of WMD and ballistic missile proliferation:

*The role of deterrence... must not be overlooked. Even if a potential aggressor has developed missiles with the range to strike at the United Kingdom, and nuclear, biological or chemical warheads to be delivered by those means, he would have to consider – he would do well to consider – the possible consequences of such an attack... It seems unlikely that a dictator who was willing to strike another country with weapons of mass destruction would be so trusting as to feel entirely sure that that country would not respond with the power at its disposal.*²⁴

Even more recently, when asked in the House of Lords about nuclear retaliation “in the case of aggressor states contemplating the use of chemical and biological weapons”, Lord Hoyle responded for the Government:

*The use of chemical or biological weapons by any state would be a grave breach of international law. A state which chose to use chemical or biological weapons against the United Kingdom should expect us to exercise our right of self defence and to make a proportionate response.*²⁵

These statements move UK policy towards US doctrine, although it appears that the UK is creating a distinction that the US does not, between the use of chemical or biological weapons and their possession.²⁶

This policy appears to contradict the negative security assurances (NSAs) stated in the Defence Review, that the UK,

*will not use nuclear weapons against a non-nuclear weapon state not in material breach of its nuclear non-proliferation obligations, unless it attacks us, our Allies or a state to which we have a security commitment, in association or alliance with a nuclear weapon state.*²⁷

The UK issued a similar assurance in 1995, during the run-up to the NPT Conference. France, Russia, and the United States issued almost identical declarations, whereas China reiterated its pledge never to use nuclear weapons against non-nuclear-weapon states. The assurance was part of the West's successful effort to make the NPT permanent.

2.3 Alert status

The Defence Review announced some changes in the operational posture of the Trident submarine force:

The new strategic environment also enables us to maintain our nuclear forces at reduced readiness:

- only one Trident submarine is on deterrent patrol at any time;*
- the submarines are routinely at a “notice to fire” measured in days rather than the few minutes’ quick reaction alert sustained throughout the Cold War. Their missiles are de-targeted;*
- submarines on patrol will carry out a variety of secondary tasks, without compromising their security, including hydrographic data collection, equipment trials and exercises with other vessels;*
- over time we plan to reduce from double to single crews for each submarine, reflecting reduced operational tempo.*²⁸

The first point is not a change from previous operating procedure. In fact, until recently only two Tridents were available. With necessary maintenance time, it was impossible to maintain more than one on patrol. The four-boat Trident fleet is intended to ensure that the UK “can maintain continuous patrols and a continuously-available sub-strategic capability throughout the life of the Trident force”.²⁹ With four submarines, the UK can retain three submarines in the operational patrol cycle even when one is in refit or out of service. This capability could allow the UK to maintain two boats on patrol much of the time if it so chose (although it rarely if ever has done so in the past). In this sense, the UK is intentionally restricting its capability by limiting patrols to one. At the same time, this policy does not preclude the UK from deploying another Trident for something other than deterrent patrol.

The second point could have important implications for all nuclear forces globally, but the lack of details about the “notice to fire” status leaves open important questions. Most importantly, UK officials have stated that this status will not be verifiable. It is also unclear if this is an entirely new policy. Before the release of the Defence Review, the Government said that there has not been “any change in the UK’s policy of maintaining continuous deterrent patrols” since the election. It added that submarines on patrol are “at a reduced alert state reflecting improved strategic conditions”.³⁰

Keeping one crew for each submarine will reduce the operating costs of Trident. It reflects the decreased need for maintaining the high levels of alert typical in the post-Cold War era.

The previous government took other steps on alert status. Following a bilateral agreement between the UK and Russia in 1994, UK nuclear weapons are no longer

targeted at any country.³¹ However it is possible “quickly to restore operational targets to the missiles should the need arise”.³²

As part of Defence Review, the UK rejected other de-alerting steps, such as removing warheads from missiles. Baroness Symons informed the House of Lords of the UK position on this issue:

We believe that to detach warheads from missiles would be impractical...because of the nature of our deterrent. As Trident is a single submarine-based system, there would be significant difficulties in detaching our warheads from missiles while maintaining the credible deterrent to which Her Majesty's Government are committed...³³

2.4 Fissile Materials

As part of the Defence Review, the UK Government increased the level of information it provides about stocks of fissile materials and, for the first time, placed materials under international safeguards. Claiming to be the first nuclear-weapon state to do so, the Defence Review reported that the total fissile stocks for the UK included:

- 7.6 tonnes of plutonium;
- 21.9 tonnes of highly enriched uranium; and
- 15,000 tonnes of other forms of uranium.

Much of this stock is no longer required for defence purposes, and 4.4 tonnes of plutonium, including 0.3 tonnes of weapons-grade plutonium, and over 9,000 tonnes of non-highly enriched uranium will now be placed under European Atomic Energy Community (EURATOM) safeguards, and made liable to inspection by the International Atomic Energy Agency (IAEA).³⁴

Russia and the United States have already made some of their fissile stocks liable to IAEA inspection.

2.5 New Labour in Government

Since the overwhelming election victory of Tony Blair's New Labour Party on 1 May 1997, a number of trends in Labour's thinking on defence have become apparent. Most importantly, the Blair government has been keen to align itself with the Clinton Administration. The UK has always regarded its “special relationship” with the US as providing increased status for the UK in international affairs.

The Blair government has already shown itself to be one of the Clinton Administration's strongest supporters on defence matters. In the run up to NATO's Madrid summit in July 1997, the UK was the most enthusiastic supporter of the US position on admitting only the Czech Republic, Poland, and Hungary in the first round of NATO enlargement. Likewise, the UK has been the strongest supporter of the Clinton Administration's stance on the use of force against Iraq.

The New Government and Nuclear Weapons

The Labour Government came to power on a platform committed to retaining Trident, but also to pressing for “multilateral negotiations towards mutual, balanced and verifiable reductions in nuclear weapons”. The Labour Party Manifesto continues, “when satisfied with verified progress towards our goal of the global elimination of nuclear weapons, we will ensure that British nuclear weapons are included in multilateral negotiations”.³⁵ This statement is repeated in the Defence Review and elsewhere.

The Government has yet to publish any more specific plans for its implementation. In fact, the Defence Review makes clear the UK Government belief that it has done all it can or should:

Our own arsenal, following the further reductions described above, is the minimum necessary to provide for our security for the foreseeable future and very much smaller than those of the major nuclear powers. Considerable further reductions in the latter would

*be needed before further British reductions could become feasible.*³⁶

2.6 Labour Party Policies and the Strategic Defence Review

Before the 1996 election, the Labour Party published its policies on defence and security in *A Fresh Start for Britain: Labour's Strategy for Britain in the Modern World*. The document stated:

We...want to see a new commitment to transparency by the nuclear weapon states. As a starting point the nuclear weapon states should declare their existing inventories of plutonium and highly enriched uranium to the IAEA, and open to inspection their nuclear production facilities.

Labour in government will work for:

- *a freeze on nuclear warhead numbers. As a first step we will ensure that Trident carries no more warheads than Polaris.*
- *an internationally verifiable Comprehensive Test Ban Treaty and a negotiated Fissile Material Cut-Off Convention.*
- *a negotiated, multilateral no first use agreement amongst the nuclear weapons states and strengthened security assurances to non-nuclear weapon states in the form of an international legally-binding treaty.*
- *further international measures to assist the countries of the former Soviet Union with the dismantling of their nuclear weapons and to improve safety standards at their nuclear bases and civil nuclear power stations.*³⁷

A Fresh Start for Britain followed an earlier statement by Robin Cook, when he was Shadow Foreign Secretary, which included a ten-point programme “that a Labour Government would have taken to New York” for the NPT Conference of 1995. In addition to the points contained in *A Fresh Start for Britain*, the ten-point programme advocated:

- *A nuclear weapons register. The nuclear weapons states should declare their holdings on a verifiable Nuclear Weapons Register under the auspices of the United Nations...*
- *Respect for nuclear weapons-free zones. Regional nuclear weapons-free zones established by international agreement should be respected by the nuclear weapons states in peacetime... Our security interests are served by encouraging their development, not flouting them.*
- *Regular disarmament reports to the United Nations. In order to sustain the momentum for disarmament, each of the nuclear weapons states should be obliged to lodge regular reports with the UN Secretary-General outlining what steps they have taken to fulfil their obligations under Article VI.*³⁸

The Defence Review addressed many of these issues, but largely ignored others. Although the Defence Review was intended to be “foreign policy led”, the process was similar to previous British defence reviews, with first drafts being prepared by Ministry of Defence (MoD) civil servants. Initially, the Defence Review sought to establish a “policy baseline”, looking first at the UK’s commitments and interests as a country, in Europe, and then more widely, in order to reassess essential security interests and defence needs.³⁹ The Defence Review then examined possible missions for British forces, military tasks, future force structures and capabilities, procurement, and a wide range of efficiency-related issues.⁴⁰

The Defence Review did increase British transparency about its nuclear stocks. However, while reprocessing of spent fuel from defence reactors at Chapelcross will be under safeguards and liable to international inspection, other defence nuclear facilities “will remain outside international supervision”.⁴¹ Furthermore, the Government reserved the right to conduct future reprocessing outside safeguards until agreement is reached on a fissile material cut-off.⁴² It also pointed out that maintaining “a degree of uncertainty about our precise capabilities is a necessary element of credible deterrence”.⁴³

To meet its pledge to “ensure that Trident carries no more warheads than Polaris”, the Government cut the number of warheads on Trident to 48 per submarine. While Polaris was originally deployed with 48 warheads, a later version, Chevaline, carried only 32.44 More importantly, this cut does not take into account the fact that the two or three warheads on each Polaris missile could only hit one target. In addition to far greater range and substantially increased accuracy, each warhead on Trident is independently targetable. Rather than hitting just 16 targets with 16 missiles, as Polaris could do, Trident can hit 48.

Since the election, the UK moved quickly to ratify the CTBT, and together with France deposited its instruments of ratification on 6 April 1998. There has been no progress on the Fissile Material Cut-Off Convention.

Perhaps the biggest failure in the Defence Review was the lack of mention of no-first-use. While existing negative security assurances provided by the UK are described, no-first-use is not discussed. UK officials have confirmed that a no-first-use policy was considered during the Review, but set aside, at least for the present. The probable explanation is two-fold. First, there may have been internal opposition, particularly within the Ministry of Defence. Second, the UK would face strong resistance from some NATO allies, in particular the US and France. As British nuclear weapons are committed to NATO, it is difficult for the government to endorse publicly a policy that the Alliance currently rejects.

Little if any mention is made of efforts to assist Russia and countries of the former Soviet Union in dismantling their nuclear arsenals, although mention is made of considering whether the UK “can assist Russia in dismantling the vast stocks of chemical weapons it inherited from the Soviet Union”.⁴⁵

There is no discussion of a nuclear weapons register in the Defence Review, or of reports to the UN on steps to fulfil the commitments under Article VI of the NPT on nuclear disarmament. While support for nuclear-weapon-free zones is included, no changes are made to previous policy.⁴⁶

2.7 UK Stance on Disarmament at the UN

The new Government has only made marginal changes on its stance on disarmament at the UN. At the UN First Committee in November 1997 and again in 1998, the UK voted against a resolution from Malaysia endorsing the “Advisory Opinion of the International Court of Justice on the Legality of the Threat or Use of Nuclear weapons”. However, unlike its predecessor, the new Government both times abstained on (rather than opposed) Operative Paragraph 1 of the resolution, which underlined,

*the unanimous conclusion of the International Court of Justice that there exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control.*⁴⁷

Following the vote in 1997, UK Ambassador Ian Soutar explained the UK position:

*We welcome the recognition of the importance of obligations under the Non-Proliferation Treaty, including the nuclear weapons states’ obligations on nuclear disarmament, by the International Court of Justice’s Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons. But given that the draft resolution contains highly selective quotations from the Court’s Advisory Opinion, the United Kingdom will abstain from operative paragraph 1 of draft resolution L.37.*⁴⁸

The US and France, along with Russia, Israel, and Monaco, voted against the paragraph. Turkey abstained, while the remaining NATO countries voted in favour.

The new UK Government has distinguished itself from its predecessor by welcoming the International Court of Justice’s (ICJ’s) ruling on the nuclear-weapon states obligations on nuclear disarmament. However, the Government also states that,

the ICJ opinion does not require a change in the United Kingdom’s entirely defensive

*deterrence policy. We would only ever consider the use of nuclear weapons in the extreme circumstance of self-defence which includes the defence of our NATO allies. The court was unable to conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defence in which the very survival of the state would be at stake.*⁴⁹

Operative Paragraph 2 of the 1997 resolution called on all states to fulfil the obligation to nuclear disarmament by,

*commencing multilateral negotiations in 1998 leading to an early conclusion of a nuclear-weapons convention prohibiting the development, production, testing, deployment, stockpiling, transfer, threat or use of nuclear weapons and providing for their elimination.*⁵⁰

The UK voted against this paragraph and the resolution as a whole because of the “selective” quotations from the Court’s Advisory Opinion and “on account of the unrealistic call, in operative paragraph 2, for multilateral negotiations in 1998 leading to an early conclusion of a Nuclear Weapons Convention”.⁵¹ In this case, NATO countries and Russia were firmly opposed, although EU members Ireland, Sweden, and Finland abstained. Like its predecessor, the new UK Government seems likely to support the nuclear-weapon states’ line against multilateral negotiations, despite its own policy statements indicating support for the multilateral nuclear disarmament process.

The UK also voted against a resolution from Egypt that called for the principle of transparency (as in the UN Register of conventional arms) to be applied to weapons of mass destruction. The resolution requested the Secretary-General to seek the views of Member States on ways and means of enhancing transparency in the fields of weapons of mass destruction and transfers of equipment and technologies directly related to the development and manufacture of such weapons...

52

This vote indicates that although the UK has stated that it is considering greater transparency on nuclear warhead numbers in its Strategic Defence Review, the prospects for UK support for a nuclear weapons register are not good.

Finally, as described in Chapter 1.3 above, in 1998, the UK not only voted against the Irish-led New Agenda Coalition resolution at the First Committee on nuclear disarmament, but it lobbied other states to vote “no” as well.

2.8 Conclusion

Although the election of a Labour Government in the UK suggested the possibility of progress on a range of nuclear disarmament issues, the new Government’s approach has been similar in practice to that of the previous government. The Strategic Defence Review made important but not astonishing changes in British nuclear posture and doctrine. The Defence Reviews steps on transparency and safeguarding fissile materials deserve praise, and the reductions in arsenal are a significant step in the right direction. Yet the UK’s stance on disarmament issues in the UN First Committee and the CD has not changed as much as the Labour Party’s pre-election statements suggested they would. Nor does the Defence Review even begin to deal with the implications of India and Pakistan’s nuclear tests.

The current Government wishes to be seen as “strong on defence” and is still concerned to distance itself from Labour’s earlier “unilateralist” policies. The reduction to only one nuclear system is an important step, but one decided by the previous government. Labour policy on retaining Trident has taken precedence over its historical support for nuclear disarmament. The UK is also keen to position itself as a key US ally and supporter of NATO, reiterating its support for NATO nuclear policies.

The UK can make significant contributions to the nuclear arms control process. Measures to reduce the alert status of Trident missiles are worthy of merit, yet need

verifiability to make them truly appreciable. Officials have said the UK will not push the no-first-use issue, but it is unclear if that decision will change in light of the new German position. (See Chapter 6.4.) Any significant progress in disarmament will depend on the willingness of Labour Ministers to pursue these policies despite opposition from civil servants and pressure from the Defence Ministries of other NATO members, in particular the United States.

Chapter 3: France

French nuclear weapons policy and doctrine have remained remarkably stable and consistent throughout the past 30 years, through periods of government under right wing, centrist and socialist parties. The end of the Cold War has seen no great change in policy or doctrine. However, the position has not been completely static during the 1990s. France ended its international isolation on nuclear weapons questions: joining the Non-Proliferation Treaty; recently ratifying the Comprehensive Test Ban Treaty; reducing its deployed nuclear forces and greatly scaling down plans for future forces. France has also begun to co-operate on a more formal level on both technical and doctrinal nuclear issues, particularly with the UK, but with the United States as well. There have also been French initiatives for the Europeanisation of French and British nuclear forces – most notably in the concept of ‘concerted deterrence’.

3.1 French Nuclear Weapons Doctrine

Since the 1970s, French nuclear doctrine has remained almost immutable. Even now, under a Gaullist President with a Socialist-led coalition government that includes Greens and Communists, nuclear weapons continue to play a central role in French defence policy. French strategists and analysts have continued to support the consensus on French nuclear doctrine even following the end of the Cold War.

The Cold War doctrine talked of deterrence ‘du faible au fort’, from the weak to the strong. This consisted essentially of being able to inflict enough damage on any potential aggressor – for all practical purposes the Soviet Union – to mean that an attack on France would not be worthwhile.

In the early 1990s, the Gulf War highlighted the need to deter potential nuclear threats from Third World proliferators. This led to an active debate on the concept of deterrence ‘du faible au fou’ – from the weak to the mad. Disguised behind this amusing play on words was a serious debate which followed closely the US debate on counter-proliferation and the use of nuclear weapons in the Third World. Many political figures, military, and academic experts advocated this major shift in policy. However, President François Mitterrand refused to accept their arguments and in the publication of the 1994 White Paper on Defence (the first such paper since 1972) the more traditional doctrine was reconfirmed.

It is interesting to note that the 1994 White Paper confirms the traditional doctrine while acknowledging that the international situation has changed fundamentally:

For the first time in its history, France does not face a direct military threat near its borders. However new risks can affect its security and its defence... No one denies that the main and global threat – direct, concrete and measurable – that threatened our vital interest, has vanished today and probably for a long time. 1

Thus admitting that a strategic reassessment is needed, the White Paper delivers the following threat assessment:

1) The global Soviet threat has disappeared. Nevertheless, in Europe, Russia will remain a strong military power, which must be taken as such in our strategic evaluation. Moreover, local or regional crises, which might degenerate into conventional wars, may

challenge the shift of the continent toward a new equilibrium./

More broadly, the main risk on security lies now in regional conflicts which could challenge the research of international stability./

2) The level of military equipment of a number of regional powers should rise not only in the field of conventional weapons, but also, given proliferation, in the field of weapons of mass destruction, including nuclear weapons, by the beginning of the next century. 2

Chapter Four of the White Paper discusses the developing role of nuclear deterrence in French security policy. The introduction makes it clear that the “future of deterrence” is at the heart of the rethinking of French strategy after the Cold War. The White Paper states later that the French choice to become a nuclear power had two motivations: “the wish to preserve our vital interests against threats from the strongest countries; the desire to assure in all circumstances our independence and freedom of political action.” 3

The first of these reasons is then stated to have become much less important, while the second has increased in importance. Independence of action is centrally linked to the possession of nuclear weapons:

The possession of independent nuclear weapons, adapted as necessary to the strategic risks that may appear in the years to come, will remain an essential means for France to provide the margin of freedom of action which she needs to defend her interests. National independence, in future European independence, will without doubt be attached to the possession of such arms. 4

The White Paper acknowledges that the role of conventional forces will be much more important in the future, and that there needs to be a new balance in French strategic thinking between nuclear and conventional forces. However, the introduction to the section on nuclear deterrence states the role of nuclear weapons in traditional terms:

Nuclear deterrence rests on the perception by any adversary of the unacceptable risks they run in an aggression against our country, out of all proportion to what might be gained by conflict. 5

Nuclear weapons are “reserved for the protection of our vital interests, whatever the origin or form of the threat to them.” 6 The final warning – France’s sub-strategic nuclear forces – can be used to “mark, at the appropriate time, in diverse situations, the limits of our vital interests and to recall without ambiguity our determination”. 7

Finally, to achieve these objectives the White Paper states that French nuclear forces have to be able to “strike, inflicting unacceptable damage” and make a limited strike against military objectives as a final warning. 8 Furthermore, to be credible these forces must be mixed and flexible, and technically must keep pace with any potential adversary.

The White Paper then goes on to list scenarios for these threats to France. Two of these involve a response with nuclear forces and a third mentions deterrence. They include:

Scenario No. 2

This scenario looks at the possibility of a regional crisis threatening Europe at some point over the twenty years from 1994 and involving a nuclear power that could draw in France through a threat to vital interests. Such a situation could arise in Europe or “in a longer time-frame, in the Mediterranean, the Near and Middle East.”

The White Paper states, “A deterrent manoeuvre, adapted to this particular context, might be necessary to accompany our decision to intervene”. However, it rejects any idea of fighting a nuclear battle, stating that the threat of use of nuclear weapons would be used purely to deter such threats as potential ballistic missile attacks, nuclear blackmail, air attacks, and others.

Scenario No. 3

Scenario 3 covers the possibility of attack on France’s overseas territories. It states that these territories are covered by nuclear deterrence without giving any details.

It is clear from this description of French nuclear doctrine that nuclear weapons remain at the heart of French defence policy. While nuclear doctrine was modified to reflect changing strategic circumstances, it remains a defensive concept. For France, nuclear weapons are not a tool for power projection, but for the defence of the nation and of vital interests.

Scenario No. 6

Again over a twenty-year timescale, this scenario looks at the risk of the re-emergence of a major threat in Europe. While admitting that this scenario looks very unlikely, the White Paper states that such a risk cannot be completely dismissed. The likelihood of the resurgence of such a threat is said to be linked to developments in European security structures.

Such resurgence would mean the use of France's nuclear deterrent to prevent the use of nuclear forces. If that failed, then France would have to be prepared to use nuclear forces – potentially even far from French soil – alongside its allies.

3.2 Shifting defence priorities and resources

While France did not undergo any major shift in nuclear doctrine, there has been a substantial reallocation of procurement resources during the 1990s. Accompanying the downsizing in nuclear forces, the delays in procurement programmes, and weapons cancellations, there has been a conscious effort to boost capabilities in other areas, most particularly in space based intelligence gathering. The aim of this effort is to provide full independence of action, in Europe or further afield. This is to be achieved at three levels: the strategic, or the national defence level; the operational, or at the theatre level; and the tactical, or the level of troops on the ground.

While dating from earlier in the decade, the White Paper laid out perspectives for this development in capability. In a section entitled "Priorities in New Capabilities", intelligence gathering is identified as especially vital in a newly uncertain strategic environment. It is identified as a strategic asset and an essential part of French defence strategy. The White Paper identifies a series of procurement objectives that must be met in order to equip France with the necessary intelligence gathering capability:

As concerns investment in technical and equipment resources, the main orientations are the following:

– support the development of space assets with the HELIOS family of optical observation satellites, as well as associated electronic systems; – engage in programmes of radar and listening observation satellites; – renew electronic warfare assets at three levels [listed above]; – follow through the modernisation and development of intelligence organisations. 9

The role of the new intelligence capabilities is to provide early warning of crises and intelligence during crises to allow France to act independently. Further, they will be used to allow France to verify implementation of arms control and disarmament treaties.

For the twenty-year perspective of the White Paper, the intelligence effort will be a national one. There is no merging of European capabilities foreseen. However, as in all else in the White Paper, there is a European perspective, which would see

the development of co-operation already underway such as common construction and use of space, aerial, sea and terrestrial assets in the fields of electromagnetic observation, transmission and, perhaps in the future, interception. 10

These new priorities in defence policy have led to a shift in budgetary priorities. In short, although the French defence budget has remained roughly stable, money allocated to the procurement of nuclear weapons has declined, while that allocated to the research, development, and procurement of space-based intelligence assets has dramatically increased. For example, the budget for Research, Development and Studies for Space

increased by more than 60% between 1991 and 1996 to 3.9 billion francs (US\$624 million). Similarly, the procurement budget increased in leaps and bounds – by 17.5% in 1992, by 13.3% in 1993, by 13.8% in 1994, and by 11.7% in 1995-96. 11 Having fallen during 1997 because of general defence cuts, the budget is growing in 1998 by 10%.

France recently deployed HELIOS I, a visual observation satellite, and will soon launch HELIOS II, an infrared observation satellite, and then the HORUS radar observation satellite. These are all co-operative programmes, notably with Italy, Spain, and Germany. Staff at the Western European Satellite Centre at Torrejon have said that the HELIOS satellite greatly increased their capabilities.

Since 1989, this decline in the procurement budget for nuclear weapons has been of the order of 56.6% in constant 1997 francs. The reorientation to increases in the space budget began in 1992. It should be noted that this is not a straight swap of money. The nuclear budget remains much larger than the space budget, at some 11 billion francs (US\$1.76 billion).

3.3 French nuclear forces

France is downsizing and modernising its nuclear forces, both to allow it to match the doctrine and posture requirements described above, and to provide a nuclear force that France can afford. Programmes are constantly being delayed and procurement numbers reduced. It is likely, for budgetary reasons, that this trend will continue. It is worth noting that since France entered the nuclear arena, no projected five-year military procurement plan has been fulfilled. Even at the height of the Cold War, spending was below projections. However, this does not mean that France will abandon nuclear weapons in the near future. In a 1997 defence budget report, Jean Michel Boucheron (the rapporteur and a member of the majority Socialist Party) explained why:

*Since it is impossible to foresee the evolution of the geostrategic situation in Europe over the next fifteen or twenty years with sufficient reliability, it is therefore necessary to preserve the credibility of our deterrence for this period and beyond. *t is therefore essential to preserve our capability to develop and maintain a credible deterrent in the very long term,* including warheads, vehicles (missiles), and launch platforms (nuclear powered submarines). 12 [Author's original emphasis.]*

Strategic Missile Submarines

France is currently deploying a new submarine-launched ballistic missile system, Sous-marins Lanceurs d'Engins de la Nouvelle GÉNÉration (SNLE/NG) as part of its Strategic Ocean Force (la FOST). The first submarine, Le Triomphant, entered service in 1997. Le TÉmÉraire and Le Vigilant are scheduled to enter service in 1999 and 2003 respectively, with the fourth and final submarine entering service in 2007. 13

The first three submarines will be equipped initially with the M45 missile, armed with up to six TN75 warheads. It is believed that the submarines carry fewer nuclear warheads than their maximum potential load, and instead may carry electronic counter-measure packages and dummy warheads. The fourth submarine will be the first to be equipped with the M51 missile, with a range of 6,000 kilometres (compared with the M45's 4,000 kilometre range), and armed with a new nuclear warhead, the TNN (Tête NuclÉaire Nouvelle). 14 This warhead, also referred to as the Tête NuclÉaire OcÉanique (TNO), will be the first warhead to be developed entirely from scratch without the aid of a testing programme, and its deployment will be vital to the French ability to maintain a nuclear force in the long term. 15 Each submarine can carry up to 16 missiles.

Three of France's older Le Redoutable class submarines, each armed with 16 M4 missiles, remain in service. These will be retired as the SNLE/NG are brought into service. France intends to retain four SNLEs in its Strategic Ocean Force, enabling two to be maintained at sea if necessary. 16

Airborne Nuclear Forces

France also currently deploys an aircraft carrier, equipped with 24 Super-Etendard aircraft armed with the Air-Sol Moyenne Portee (ASMP) missile. The ASMP has a range of between 80 and 300km, depending on launch altitude. In addition, France has three squadrons of Mirage 2000N aircraft also armed with the ASMP. From around 2008, France intends to replace the ASMP with a longer-range version of the missile – ASMP-1, which will have a range of 100 to 500km depending on launch altitude. The ASMP-1 (or amélioré – improved) will carry a new warhead, as yet unnumbered. The ASMP was to have been replaced by the ASLP – Air-Sol Longue Portée – but after the UK refused to share in the \$3 billion estimated cost for this missile, the project had to be shelved. The ASLP was to have a range of up to 1300km, so the ASMP-1 is much less capable than ASLP would have been.

France intends to replace the Mirage 2000N and the Super-étendard with Rafale aircraft by 2015. The aircraft carriers deployed in 2002 will carry Rafale. There is currently some doubt as to whether by 2015, France will deploy one or two aircraft carriers, and therefore as to the number of nuclear armed Navy Rafales that will be deployed. The air force will deploy 45 Rafale aircraft in three squadrons, a direct replacement for the Mirage 2000Ns currently in service.

Force Reductions

While France continues to modernise actively its nuclear forces, it took some significant decisions concerning reductions of force levels during the 1990s. France constructed a small triad of air-, sea-, and ground-based forces, mirroring the force structures of the nuclear superpowers. However, with the decision in 1993 not to deploy the Hades missile to replace the retiring Pluton, and the 1996 decision to retire the ICBMs of the Plateau d'Albion without replacement, France abandoned the land-based leg of the triad.

France destroyed the Hades surface-to-surface missiles, and is dismantling their warheads. The retrieved fissile material is being added to the military stock to be used for future warheads for the M51 and the ASMP-1 missiles. The S-3D inter-continental ballistic missiles, formerly based at the Plateau d'Albion, were taken out of service in September 1996, and their destruction and the dismantlement of their warheads will be complete in 1998.

3.4 A European Nuclear Deterrent?

The brief flurry of interest in the 'Eurobomb' in the mid-1980s soon died down, perhaps indicating that the idea was not viable during the Cold War. French ideas for European co-operation in the nuclear weapons field were never accepted by its neighbours. Typical was the suggestion in 1986, by President Mitterrand, that France was ready to consult with the Chancellor of Germany on the use of tactical nuclear weapons by France on German soil, and even to cover Germany officially with the nuclear umbrella. Such suggestions were rebuffed by the German government.

As the European Union (EU) was created and its member states began to look at closer co-operation in the Common Foreign and Security Policy (CFSP), the possibility of a Common European Defence Policy was also raised. Clearly, French and British nuclear weapons are central to such a debate, viewed as an asset by some, by others a liability preventing closer co-operation. In January 1992, President Mitterrand asked, "Only two of the twelve have nuclear forces. For their national policies they have a clear doctrine. Is it possible to conceive a European one?"¹⁸

In 1993, UK Secretary of State for Defence Malcolm Rifkind spoke of the need to improve UK-French co-operation. However, he placed it firmly in a context of strengthening NATO and "the specific European contribution to the deterrence which underpins the collective security of the whole Alliance".¹⁹ He listed deterrence, nuclear

doctrines, anti-missile defences, arms control and non-proliferation as essential areas for this co-operation.

During 1994, the Assembly of the Western European Union (WEU), the body nominated in the Treaty on European Union to implement decisions of the European Council with defence implications, produced a report by Mr. De Decker of the Defence Committee on The Role and Future of Nuclear Weapons. The report notes, inter alia, that it would be “totally illogical to start implementation of the CFSP without examining the role of the French and British nuclear forces in the definition of a common defence policy of the EU”.

20

The French 1994 White Paper on Defence was quite explicit on the potential European role of French and British nuclear forces. In a section entitled “European Construction and Contributing to International Stability”, the paper puts French defence policy “in the new perspective of the ‘common defence’ of the future, affirmed in the Treaty on European Union.”²¹ Further, the paper states that “this European choice is made necessary for economic and strategic reasons... this progressive construction is leading to the affirmation of a political identity which will be incomplete if it is not expressed in the area of defence as in other areas.”²²

3.5 Concerted Deterrence

During 1995, officials began a new debate on the European contribution to nuclear deterrence in Europe. There was a desire to avoid the ideas that France could provide an alternative nuclear umbrella to the NATO one, or somehow make all the strategic choices, but consult with allies at the moment of use. These ideas were seen as being unrealistic. Equally, if a common European force was the aim, then a method for co-operation had to be found that did not violate the Non-Proliferation Treaty. This led to the suggestion by Prime Minister Alain Juppé in January 1995 of the concept of Concerted Deterrence.

This concept was built on foundations such as those laid down by Bruno Tertrais, a French Defence Ministry official, in *L'Arme Nucléaire après La Guerre Froide*. In a chapter on European deterrence, he examines the possibilities for a common European policy, should the US withdraw its nuclear forces from Europe. Tertrais outlines options which include the possibility that the vital interests of France, the UK, and other members of the European Union could become so intertwined that the deterrence policy of the two nuclear powers would be widened to include their neighbours, without any declaration or participation of other European states. A second suggestion is that there could be a declaration that a widened deterrence covered some or all of the European partners of France and the UK, and that those who wished could participate in some nuclear programmes, while France and the UK retained the right to act independently.²³

Juppe described concerted deterrence as going beyond the “paternalism” of widened deterrence, where France would simply guarantee the security of, for example, Germany. In a speech in January 1995 he mooted the idea of concerted deterrence for the first time:

*In the long term we need to think about the stages of development of a defence Europe, including the mission – a sensitive subject – of national nuclear forces. Paradoxically, the end of the Cold War seems to make the nuclear question less urgent, while on the other hand, it has removed sources of tension between Europeans particularly on the question of tactical weapons. Therefore, a European consensus can and must be maintained on the basis of a reaffirmed doctrine of deterrence. Following the elaboration of a common doctrine by France and the United Kingdom, should our generation fear thoughts of, not shared deterrence, but at least a concerted deterrence with our principal partners? I ask the question: Can the Single Currency and the adoption of a new Franco-German contact have no effect on French perceptions of our vital interests?*²⁴

In September 1995, Juppe made another speech on the same topic, putting his thoughts on concerted deterrence in greater detail. He presented concerted deterrence

as,

necessitating a dialogue between equal partners, on a subject which concerns their common future. ... In a world where nuclear weapons will continue to play a necessary role, even if only because of already existing arsenals, this engagement [that Germany will remain non-nuclear] makes the need to guarantee German security even more important. 25

Juppé goes on to state that,

French vital interests have been defined more politically than geographically for several years. This is one of the principal results of fifty years of reconciliation and mutual dialogue. It is also the result of European construction... The future European defence will not be built without, in one way or another, the French – and British – deterrents playing a role. 26

In this model therefore, concerted deterrence would have the UK and France working together with countries such as Germany or Spain to construct a model of deterrence for the European Union. The nuclear weapons would remain under national control, but doctrines for their use would become European. The definition of 'vital interests' would also be European.

Coming as it did at the height of the furore about the new series of French nuclear tests, this speech and the concept of concerted deterrence were not welcomed. Most observers saw the speech as an attempt to deflect European opposition to the tests. It was not until two months later that the UK even made an official declaration of support for the French tests. The speech was generally judged to be ill-timed, not least because it went together with statements that the French testing programme was being carried out in the European interest. Many European politicians questioned this, noting that if this was the case then European nations should have been given a say before the tests started.

However, a renewed debate about a future European deterrent is now launched, even if it remains extremely controversial. Some influential figures on the European scene, such as former Belgian Prime Minister Leo Tindemans, have strongly supported the concept. Despite this, no parliament or parliamentary assembly has formally supported concerted deterrence. Moreover, the Amsterdam Treaty revising the Treaty on European Union places the future of European defence very firmly in a NATO context. As long as France chooses to remain outside the integrated military structure of the Alliance, and most particularly outside the Nuclear Planning Group, concerted deterrence is likely to remain little more than a concept.

3.6 Involving the Germans

Attempts at nuclear weapons co-operation between France and Germany have a long history. During the 1950s the two countries drafted an agreement on "Common Research and Utilisation of Nuclear Energy for Military Purposes", but progress in this direction was firmly blocked by Chancellor Adenauer and President De Gaulle in 1958. In more recent years France increased its efforts to involve Germany in discussion of nuclear policy. There were press reports during 1995 that some talks of the Franco-British Joint Nuclear Commission have involved German officials. These were neither confirmed nor denied.

There have also been moves by France to involve the Germans in bilateral dialogue on nuclear weapons. France wished to include nuclear forces and co-operation as a subject for the Franco-German Summit in the autumn of 1995, but Germany refused. However, at their December 1996 Nuremberg Summit the matter was raised. In the "Franco-German Common Security and Defence Concept" the two countries expressed their readiness to "start a dialogue on the role of nuclear deterrence in European defence policy." 27 However, in mid-1998, the German government stated that neither the details nor the participants for the dialogue had yet been decided. Indeed, the German government argued that this dialogue should be held in the NATO context, to allow participation of the

UK. 28 Any movement would be hampered by the French insistence on remaining outside the NATO framework as Germany wishes any nuclear weapons policy to be co-ordinated through NATO with the sanction of the US, not by European nations alone acting through the WEU.

Chapter 4: Nuclear Co-operation

4.1 US-UK Nuclear Co-operation

Since the 1950s, the UK nuclear programme has been closely linked with the US programme. Nuclear co-operation between the two countries is conducted under the 1958 Agreement for Co-operation on the use of Atomic Energy for Mutual Defence Purposes. This agreement provides for the exchange of classified information concerning nuclear weapons to improve the recipient's "design, development and fabrication capability". 1

The Mutual Defence Agreement provides the basis for co-operation including British use of the Nevada Test Site; joint work at Lawrence Livermore, Los Alamos, and Sandia National Laboratories; the sale of US Trident missiles to Britain; and extensive US assistance with all aspects of the British nuclear weapons programme. In addition there is a US-UK Polaris Sales Agreement that has been amended to cover arrangements for Trident.

4.2 Ongoing US-UK Co-operation

To facilitate exchanges of information between the US and the UK, the UK runs Atomic Co-ordinating Offices in London and Washington. There are currently five UK personnel stationed in the US under the 1958 Agreement. In addition, three Atomic Weapons Establishment employees are in the US on short-term appointments, and a further 15 British personnel are there as part of the Polaris Sales Agreement as amended for Trident. 2 There are also four US employees in the UK as part of the Polaris Sales Agreement, as amended for Trident. 3

In 1958, a Joint Atomic Information Exchange Group (JAIEG) was established in the US. Its remit is to review and determine the transmissibility of all properly sponsored exchanges of information on nuclear weapons between the various US agencies, including the Department of Defense and the Department of Energy, and other nations and regional defence organisations, including the UK, France, NATO, and NATO member states. The JAIEG is part of the US Defense Special Weapons Agency (formerly the Defense Nuclear Agency).

Information is exchanged in a variety of ways, including Joint Working Groups (JOWOGs) and Exchanges of Information by Visit and Report (EIVRs). A number of Joint Working Groups currently operate under the terms of the 1958 Mutual Defence Agreement. These exchange technical information on a comprehensive list of subjects:

- Radiation Simulation and Kinetic Effects Technology
- Energetic Materials
- Test Monitoring
- Nuclear Materials
- Warhead Electrical Components and Technologies
- Non-Nuclear Materials
- Nuclear Counter-Terrorism Technology Facilities
- Nuclear Weapons Engineering
- Nuclear Warhead Physics
- Computational Technology
- Aircraft, Missile and Space System Hardening
- Laboratory Plasma Physics

- Manufacturing Practices
- Nuclear Weapon Accident Response Technology
- Nuclear Weapon Code Development
- Nuclear Weapon Environment and Damage Effects. 4

In addition, separate arrangements are in place for exchanges under the Polaris Sales Agreement, as amended for Trident. The Joint Steering Task Group operates under this agreement, supported by the Trident Joint Re-Entry Systems Working Group and the Joint Systems Performance and Assessment Group. 5

Clearly, co-operation with the US is underway on all aspects of the British nuclear programme.

4.3 UK-French Nuclear Co-operation

Active co-operation in the field of nuclear weapons between the UK and France came to wider public attention when President Chirac and Prime Minister Major held their annual Franco-British Summit on 29-30 October 1995. The furore over French nuclear testing was then the backdrop to ongoing UK-French discussions on nuclear weapons co-operation. Major expressed support for the French tests as the two leaders agreed on a wide-ranging series of defence and foreign policy co-operation measures, with enhancement of the Anglo-French nuclear relationship as the centrepiece. These were announced in a documents called "Global Partners", "Background Note on Defence Co-operation" and "Joint Statement on Nuclear Co-operation". The Joint Statement reads:

We have talked about nuclear co-operation, and noted considerable convergence between our two countries on nuclear doctrine and policy.

We do not see situations arising in which the vital interests of either France or the United Kingdom could be threatened without the vital interests of the other also being threatened.

We have decided to pursue and deepen nuclear co-operation between our two countries. Our aim is mutually to strengthen deterrence, while retaining the independence of our nuclear forces. The deepening of co-operation between the two European members of the North Atlantic Alliance who are nuclear powers will therefore strengthen the European contribution to overall deterrence.

We have instructed our Joint Nuclear Commission to take this forward. 6

In November 1993, the existence of the Joint Nuclear Commission referred to above was made public by Malcolm Rifkind. The Commission meets at the level of senior civil servants from Foreign and Defence Ministries. It was established in November 1992, formalised and made permanent in July 1993. Rifkind defined the Commission's purpose as being "to strengthen the specific European contribution to the deterrence which underpins the collective security of the whole Alliance [NATO]". 7

The Commission is the main basis for UK-French nuclear co-operation, but there are other elements. The present Secretary of State for Defence, George Robertson, told the House of Commons that his department has,

/regular contacts with members of the French Armed Forces and French officials on defence nuclear matters. These include meetings of the Franco-British Joint Nuclear Commission, biannual staff talks and visits to the United Kingdom on an ad-hoc basis. 8/

4.4 Ongoing UK-French Co-operation

Most of the activities of the Joint Nuclear Commission remain classified. The Labour Government, despite occasionally criticising their Conservative predecessors for excessive secrecy in this area, has refused to divulge many details of the work of the Commission or to place any of its reports in the House of Commons Library. Despite this, some details are known of the Commission's discussions, principally because of French government background briefings to the media.

Early discussions in the Joint Nuclear Commission centred on drawing up a comparison of French and British approaches to deterrence, nuclear doctrines and concepts, anti-missile defences, arms control, and non-proliferation. In particular, during 1993 there was a deep comparison of the deterrence doctrines of the two countries which, according to one French participant, showed that there were no insurmountable differences between the two nations' approaches. Indeed, at the end of 1993, Rifkind was able to say publicly that there "are no differences between France and the United Kingdom on the fundamental nuclear issues".⁹

This level of political co-operation is built on increasing practical co-operation between the two nations. An excellent example of such links is the new company Thomson Marconi Sonar (TMS) created and owned by the French Thomson-CSF company and GEC Marconi in the UK. This company supplies, among other things, the sonar system for the UK Vanguard-class submarines of the UK Trident fleet.

In 1994, the Joint Nuclear Commission studied the European contribution to deterrence and, despite the UK decision to abandon the ASLP, sources say that agreement was reached on the 'utility' of an air launched missile component to deterrence. (On ASLP, see Chapter 3.3.) At the 1994 Chartres Anglo-French Summit, defence ministers held talks on nuclear issues, although they did not feature much in the main discussions between Major and Mitterrand. The two countries also used the opportunity to co-ordinate their approach to the renewal of the Non-Proliferation Treaty. At a press conference, Major and Mitterrand agreed that, "Nuclear deterrence is at the base of European security. A European security policy without nuclear deterrence would be a feeble policy indeed".¹⁰

Since 1995, discussing how deterrence can face the new security challenges has been the main order of business. In particular, how should Europe answer perceived emerging threats from new countries developing weapons of mass destruction?

There is confusion over whether talks have been held concerning the possibility of combined or co-ordinated missile submarine patrols. According to media reports, this was discussed in the 1992-1993 period, but then nothing more was heard of the subject for some time. At a press briefing at the 1995 Summit, UK officials said that no such co-operation was possible while France remained outside the NATO integrated military structure, as the UK Trident is allocated principally to NATO. At the time it seemed likely that France would soon rejoin the structure, but this move was ruled out at the July 1997 NATO Summit in Madrid. Notwithstanding, in January 1998 the French Defence Minister Alain Richard was quoted as saying that discussions concerning joint submarine patrols were ongoing.¹¹ Confusingly, in a written answer to a question by Robert Key, MP, on January 22, UK Secretary of State for Defence George Robertson stated that there "have been no discussions on the issue of joint UK/French deterrent patrols."¹² Thus, the status of the proposal is unclear.

4.5 Co-operation between UK and French Nuclear Weapons Laboratories

Research co-operation between French and British nuclear weapons laboratories has begun to come to light over the last few years, although details are still very sparse. This co-operation has also included the Americans.

In the context of the Anglo-French Defence Research Group (AFDRG) there are thirteen working groups which co-ordinate the two countries' military research efforts. Working Groups relevant to nuclear co-operation include: WG03 – Nuclear, Biological and Chemical Defence; WG07 – Energetic Materials; WG10 – Nuclear Blast Effects; and WG13 – Directed Energy Technology. There may be more, but available evidence does not establish a nuclear connection for other working groups. Furthermore French and British scientists regularly visit each other's facilities.

In May 1995, the UK MoD submitted a memorandum to the House of Commons Defence Select Committee which stated that technical discussions had been held

with France on such questions as hydrodynamics experiments, laser plasma physics, computer simulation and possible arrangements for peer review. These discussions have involved a number of reciprocal visits. 13

The frequency of contacts between French and British nuclear weapons scientists has remained roughly stable since 1993. (See Table One below). However, while in 1993-1995 these visits were split between the sites at Aldermaston and Burghfield, in recent years they have been concentrated at Aldermaston. It appears that early contacts examined both operational and research and development aspects of nuclear weapons. Since 1995, there appears to be an increasing emphasis in the relationship on nuclear weapons research and development, perhaps particularly because of co-operation on stockpile stewardship in a post-nuclear testing environment.

Table 1: French Scientific Visits to UK Nuclear Facilities

Financial Year	Aldermaston	Burghfield	Cardiff	Foulness
1993-1994	4	3	0	0
1994-1995	3	1	0	1
1995-1996	4	3	0	1
1996-1997	8	0	0	0
Apr 97–21 Jan 98	6	0	0	0

Source: House of Commons, /Official Report/, 26 January 1998, Col. 29.

The information that the UK government has been prepared to release concerning visits by British personnel to France is less specific. The only information that has been given to the House of Commons concerns visits to French facilities by personnel from Atomic Weapons Establishments. No breakdown as to which establishments these personnel were from was given. Further, although visits to facilities of both the Commissariat à l'énergie Atomique (CEA) and the DÉLÉgation GÉNÉrale de l'Armement (DGA) are recorded, there is no specific information given as to which sites were visited. (See Table Two below.)

Table 2: UK Scientific Visits to French Nuclear Facilities

Financial Year	CEA	DGA*
1996-1997	12	3
Apr–Dec 1997	10	2

Source: House of Commons, Official Report, 12 January 1998, Col.136.

Despite the lack of information, it is possible to see from this that the level of co-operation between nuclear weapons lab personnel is significant. There are reciprocal visits on average once every two weeks.

4.6 US-French Co-operation

In 1961 a nuclear co-operation agreement was signed by the US and France. 14 However, it was not as far reaching as the US agreement with the UK. It was not until 1985 that the French agreement was amended to include information exchanges concerning weapon design, development, and fabrication. Unlike the British agreement, these exchanges are limited to the purpose of optimising the “safety and security of the recipient’s nuclear activities or installations”. 15

However, this is far from the full story of French-US nuclear weapons co-operation. The extent of co-operation between the two began to come to light in an article by Richard Ullman in *Foreign Policy* in 1989. 16 Ullman conducted extensive interviews with US and French officials and politicians on the US-French relationship, and provided an overview of US-French co-operation.

His primary revelation was the co-operation through the practice of giving 'negative guidance'. French scientists would consult their colleagues in the US concerning nuclear weapons developments, and when the US scientists were able to tell that their French counterparts were making an error, they would tell them they had made a mistake. One of the weapons developed by this method was the neutron warhead that France used with the never-deployed Hades short-range missile. Reliable sources have confirmed that this relationship continued until at least the mid-1980s and may continue today.

As early as the late 1950s and through the 1960s, the US assisted French nuclear weapons design with the sale of high power computers. France has also purchased supercomputers from the US for nuclear weapons work, notably a Cray 1S, a Cray X/MP 416, and two Control Data Cyber 860s in 1987. France purchased Cray T3 computers to carry out simulation of nuclear explosions in 1996, and will follow this buy with two further computer purchases in 2001 and 2005, as part of the PaSEN (formerly PALEN) programme. (See Chapter 4.7 on p. 28 below).

US archives reveal that the US assisted France with a wide range of subjects including missile design, safety of nuclear materials, and gaseous diffusion technology. It should be noted that, from the very beginning, this co-operation was a two-way process. France provided a variety of information to the United States, notably in recent years when data from the last series of French nuclear tests was supplied to the US. This continued a tradition of co-operation on testing results which has existed since 1960. Nonetheless, co-operation between the US and France has been less extensive than that with the UK.

In 1996, the US and France signed a Memorandum of Agreement (MOA) on Co-operation Concerning Nuclear Safety and Security. The MOA is far more explicit than previous agreements between the US and France. A section on Stockpile Stewardship authorises co-operation on "theoretical, numerical and experimental simulation methods". A section entitled "Nuclear Safety and Security" covers exchange of information on aspects of nuclear weapons design including research, development, testing, fabrication, transportation and disassembly of the nuclear and explosive components. It also establishes an agreement on "use of facilities" and "long term visits or assignments of technical personnel to participate in joint projects". 17

Enhanced nuclear co-operation between the US and France also opens new opportunities for co-operation between Britain and France. In the past, this was restricted by the 1958 US-UK Mutual Defence Agreement, which requires US consent before the UK can communicate any information acquired under the Agreement to a third party and vice versa. With enhanced official US-French co-operation, it seems likely that US consent has also been given to increased information transfers between the UK and France.

There is now no obstacle to three-way co-operation, or for one of the parties to act as a conduit for information transfer to another. Data from the three nuclear weapons programs can therefore be pooled, enhancing resources for weapons designers from all three countries.

4.7 Current Projects

With the signing of the Comprehensive Test Ban Treaty, the focus of US, UK, and French nuclear co-operation is now stockpile stewardship – maintaining nuclear arsenals without testing. Stockpile stewardship is also a major component of the 1996 MOA between the US and France.

France

France's Préparation a la Limitation des Experimentations Nucleaires (PALEN) programme was originally designed to reduce the number of nuclear tests conducted. It is now intended to develop the means and techniques necessary to maintain the credibility of France's nuclear deterrent in a post-test environment, and as such the programme has

renamed Programme de Simulation des Essais NuclÉaires (PaSEN).

The French nuclear simulation programme is intended to guarantee both the safety and reliability of its current nuclear weapons and those that replace them, along with assuring the long-term reliability of its deterrence policy. Simulation will allow evaluation of the effects of ageing on the weapons and help to maintain the lifetime of the weapons. 18 Simulation will be used, together with data from the last French testing campaign, to complete the warheads for the ASMP Plus missile and for the M51 missile. 19 The first warhead to be developed entirely without testing will be the version of the TNN for the M51 missile, otherwise known as TNO (see above). The French National Assembly Defence Budget report for 1997 stated that,

a transfer of expertise is planned between those older staff who have participated in tests, and those younger ones who have only worked with simulation programmes. The success of the transfer of expertise is one of the key points of our simulation programme. A failure, if it happened, would only become detectable in around fifteen years time, by which time it would be irreparable and unchangeable. 20

France is building a number of new facilities for stockpile stewardship including a Megajoule laser, which will be located at Barp, in Gironde, for research in the thermonuclear field. The Megajoule laser will allow nuclear fusion of very small quantities of material in order to measure the physical processes at work. The first tests of the Megajoule laser are not expected until 2006. 21

Recent analysis of the National Assembly report concerning nuclear waste at French nuclear weapons establishments shows that it is likely that scientists at Moronvilliers, in Champagne, have been conducting hydrodynamic or hydro-nuclear explosive laboratory experiments at the plant. France is also building the AIRIX radiographic machine at Moronvilliers, which will study the non-nuclear functioning of the weapons, with the help of experiments in which the nuclear materials will be replaced by inert material. AIRIX is expected to be operational in 1999, operating on one axis with the second axis of analysis becoming available in 2003. 22

The 1996 US-French MOA gives US and French scientists extensive access to each other's laboratories, so US scientists will have access to both the AIRIX and the Megajoule laser. In return, French scientists will be able to use US facilities such as the Nevada Test Site and the proposed National Ignition Facility. The National Assembly noted in 1997 that although the two programmes are currently on an equal footing, the US programme will begin to pull ahead of France from early next century for budgetary reasons.

The United Kingdom

In 1996, the UK Ministry of Defence reported that the Comprehensive Test Ban Treaty had necessitated changes in the way in which it sustained,

confidence both in our underwriting of in-service weapons and in our ability to develop new warheads which may be required in the future... we are now looking to a further enhancement of 'above ground' experiments and computer simulation to provide the necessary confidence. 23

In 1994, MoD Assistant Chief Scientific Adviser (Nuclear) Tony Quigley told the House of Commons Defence Committee that the MoD was "talking actively with the Americans, and with the French... on how to co-operate effectively in the use of... [stockpile stewardship] facilities". 24 This work includes above ground experiments involving the use of explosives but no nuclear yield, lasers, or computer simulations. 25

In 1995, the MoD reported its capabilities:

we have for many years employed a range of techniques such as above ground experiments, work with lasers and computer simulation in addition to underground testing to underwrite the safety and reliability of our weapons stockpile. In the absence of testing

we intend to develop our experimental techniques and facilities in such areas, and also to exploit the large quantities of data that we have acquired from past underground testing and other work. These will be progressive developments, undertaken in continuing co-operation with the United States, which will contribute to the safe stewardship of Trident throughout its service life as well as to sustaining capabilities to meet future requirements. We have also had some discussions with the French authorities on issues related to nuclear weapons stewardship... 26

One US project that will be of particular interest to the UK is the SLBM Warhead Protection Program (SWPP), a collaboration between the US Navy and the Department of Energy. 27 The SWPP was established to “maintain the capability to jointly develop replacement nuclear warheads for the W76/Mk4 and W88/Mk5 should new warheads be needed in the future”. 28 Given that the UK Trident warhead is thought to be based on the US W76/Mk4, the UK is likely to be following this programme closely.

4.8 Conclusion

The extent of nuclear co-operation between the US, France, and the UK on stockpile stewardship indicates the commitment by all of these governments to retain their nuclear weapons programmes for the near future.

Of the two European nuclear-weapon states, France has by far the more ambitious programme. Despite ratifying the Comprehensive Test Ban Treaty, it plans to build a number of new facilities and aims to develop and deploy at least two further nuclear warheads over the next decade. The UK is investing less in stockpile stewardship, but is clearly keen to work with the US and France. It presumably wants to keep its options open, either to extend the life of its existing Trident warhead or for the development of a replacement or an upgrade for Trident in the future.

These programmes highlight the difference between the stated goal of the European nuclear-weapon states to make systematic and determined efforts to reduce nuclear weapons globally, and their actual intentions to retain their own nuclear arsenals in the long term.

Chapter 5: NATO Europe

The United States first introduced nuclear weapons into Europe for its own forces. Beginning in the late 1950s, however, additional US weapons were deployed to equip allied forces of some NATO countries. At the height of the Cold War, the total of US nuclear weapons stored in Europe exceeded 7,000 warheads. Today, there are fewer than 180 US nuclear bombs in Europe. While all weapons are under US custody, in times of war they could be used by both US and Allied air forces.

The mid- to long-term future of these remaining weapons will be decided in the months to come. Several political processes will influence the outcome of this decision:

- NATO is rewriting its “Strategic Concept”, which is the strategic rationale for the Alliance. NATO will have to decide on the future role of its nuclear weapons and posture. Russia is also developing a new military doctrine and will have to decide about the role of its nuclear weapons.
- NATO has come under a two-fold attack: from the nuclear members of the Alliance, for not meeting their disarmament commitments under Article VI of the NPT; and from NATO members participating in the Alliance’s nuclear sharing programmes, for violating their commitments under Articles I and II of the same treaty. NATO will have to respond to this criticism within the NPT review process, either at the 2000 Review Conference or sooner.
- Next year NATO will welcome new members. At some point, the Alliance will have to

decide whether and how to continue enlarging. Further enlargement raises questions about the involvement of new members in extended deterrence.

It is also possible that formal US-Russian talks on START III could begin, or the current background discussions about the framework for future nuclear disarmament could become more official. If either of these happen within the timeframe of the above three processes, it greatly increases the chances that NATO nuclear policy head towards one of two options: either NATO will have to re-emphasise the role of its nuclear weapon posture, or it will be reduced. In the first case, US nuclear free-fall bombs will continue to be deployed in Europe and assume additional military functions, such as in countering proliferation. In the second, they might be withdrawn or eliminated as part of future arms control measures.

5.1 US Nuclear Deployments in Europe

The United States continues to deploy a maximum of up to 180 B-61 nuclear bombs in NATO Europe.¹ They are stored in seven European countries, six of which are nominally non-nuclear weapons states. As part of withdrawing most of the nuclear weapons from Europe, all but 13 nuclear weapons storage sites in Europe were closed down. Nine of these sites are used to store nuclear weapons during peacetime. Four are in a caretaker status – no weapons are stored, but the facilities are available for use during crisis and war. All 13 storage sites are on air bases. NATO built modern, more secure storage facilities on each base during the 1990s. Today, in all likelihood, all nuclear weapons are stored in these “Weapons Storage and Security Systems” (WS3) vaults – small underground bunkers built into the floor of hardened aircraft shelters. NATO no longer needs the separate nuclear weapons storage sites it formerly used. Table Three below lists the locations and the number of vaults built at each Air Base.

The US also continues to deploy dual-capable aircraft – F-16s and F-15Es – in Europe. US F-16 aircraft are deployed at Aviano Air Base (AB) in Italy and Incirlik AB in Turkey, and F-15E Strike Eagles are based at RAF Lakenheath in the United Kingdom. Spangdahlem AB in Germany also hosts US F-16 aircraft, but it is not clear whether nuclear tasks are assigned to flying squadrons of the 52nd Fighter Wing stationed there.² Six NATO non-nuclear weapons states (Belgium, Germany, Greece, Italy, The Netherlands and Turkey) each maintain one unit fully trained to join the US in employing nuclear weapons in times of war.

Table 3: NATO Nuclear Weapons Storage Sites (1998) 3

Air Base	Country	No of Vaults	Operational Date	Base Operated by
Araxos	Greece	6	Completed a	Greek Air Force
Aviano	Italy	18	22 Jan 1996	US Air Force
Balikesir	Turkey	6 b	Completed a	Turkish Air Force

Brüggen	Germany	10c	12 Jun 1995	Royal Air Force
Büchel	Germany	11	9 Aug 1990	German Air Force
Ghedi-Torre	Italy	11	Completed	Italian Air Force
Incirlık	Turkey	25	Completed a	Turkish/US Air Force
Klein Brogel	Belgium	11	3 Apr 1992	Belgian Air Force
RAF Lakenheath	UK	33	18 Nov 1994	US Air Force
RAF Marham	UK	24c	14 May 1995	Royal Air Force
Memmingen	Germany	11b	9 Aug 1990	German Air Force
Noervenich	Germany	11b	28 Jun 1991	German Air Force
Ramstein	Germany	54d	24 Jan 1992	US Air Force
Murted AB Akinci	Turkey	6b	Completeda	Turkish Air Force
Volkel	Netherlands	11	13 Sep 1991	Netherlands Air Force
Total	NATO	214		
Total	UK	34c		

a According to the Department of the US Air Force, completion of these bases was scheduled for April 1998, but this has not yet been confirmed in publicly released documents. The Headquarters of the US Air Forces in Europe, in information released on 12 February 1998, lists Ghedi Torre as operational but not Araxos, Akinci, Balıkesir or Incirlik. However, it is believed that installation is now complete at all bases.

b According to the Department of the US Air Force, these sites are in caretaker status. Apparently, no weapons are currently stored at these sites.

c By April 1998, the Royal Air Force had removed from service its WE-177 nuclear free-fall bombs. By August 1998, the last British free fall bombs were dismantled. NATO command and the UK have declared that the RAF sites at Brüggen and Marham are no longer needed and will be deactivated. The RAF plans to withdraw entirely from Brüggen by 2002.

d Does not include one additional training vault.

Two countries, Germany and Turkey, operate additional units at lower levels of readiness. These units are on air bases operating on a nuclear caretaker status. NATO wings prepared to operate nuclear weapons are shown in Table Four below.

NATO policy still requires the Alliance to “maintain adequate nuclear forces in Europe”.

A credible Alliance nuclear posture and the demonstration of Alliance solidarity and common commitment to war prevention continue to require widespread participation by European Allies involved in collective defense planning in nuclear roles, in peacetime basing of nuclear forces on their territory and in command, control and consultation arrangements. Nuclear forces based in Europe and committed to NATO provide an essential political and military link between the European and the North American members of the Alliance. 4

Table 4: NATO Wings Maintaining Nuclear Weapons 5

Air Base Unit	Type of Aircraft	Aircraft	Operated By	US Units
Araxos Air Base, Greece	116th Combat Wing	A-7 E	Greece	731st MUNSS (former 716th)
Aviano Air Base, Italy	31st Fighter Wing	F-16	USA	31st Logistics Group (HQ)
Balikesir Air Base, Turkey	9th Wing	F-16	Turkey	none, 39th Logistics Group responsible
Büchel Air Base, Germany	33rd Fighter Bomber Wing	Tornado	Germany	817th MUNSS
Ghedi-Torre Air Base, Italy	6th Wing	Tornado	Italy	31st MUNSS (former 616th)
Incirlik Air Base, Turkey		on rotation	USA	39th Logistics Group (HQ)
Kleine Brogel AB, Belgium	10th Wing Tactical	F-16	Belgium	52nd MUNSS
RAF Lakenheath, UK	48th Fighter Wing	F-15 E	USA	48th Equipment Maintenance Section
Memmingen AB, Germany a	34th Fighter Bomber Wing	Tornado	Germany	none, 817th MUNSS responsible
Murted AB Akinci, Turkey a	4th Wing	F-16	Turkey	none, 39th Logistics Group responsible
Noervenich AB, Germany a	31st Fighter Bomber Wing	Tornado	Germany	none, 817th MUNSS responsible
Ramstein AB, Germany	86th Airlift Wing	C-130	USA Theater Transport, Vault Maintenance	6th Munitions Flight
Spangdahlem AB, Germany	52nd FighterWing(?)	F-16	USA	52nd Logistics Group (HQ)
Volkel AB, Netherlands	1st Fighter Bomber Wing	F-16	Netherlands	752nd MUNSS

a Caretaker status, reduced readiness in peacetime

5.2 NATO: Nuclear Weapons for Non-Nuclear-Weapon States

Since the 1950s, a significant portion of the arsenal of US-controlled tactical nuclear weapons in Europe have been allocated and deployed for use by non-nuclear NATO member states. This remains true for a portion of the remaining weapons. In the event of war, these weapons could be deployed on aircraft belonging to the non-nuclear-weapon states hosting the weapons. As early as 1964, a formerly top secret description of US policies on nuclear weapons by Charles E. Johnson of the National Security Council, outlined the consequence of this policy: “As a result of NATO’s commitment to the nuclear mode of defence, the non-nuclear NATO partners in effect become nuclear powers in time of war”.⁵ In 1969, after a number of countries had already signed the NPT, US Secretary of State Dean Rusk issued a unilateral statement to the US Senate. The statement described the US interpretation, explaining that the US and its European allies considered the “transfer of nuclear weapons or control over them” illegal under the Treaty “unless and until a decision were made to go to war, at which time the treaty would no longer be controlling”.⁶ The statement was published in the records of the US Senate and thus assumed to be known to all signatories.⁷ However, Leonard Meeker, working at the Office of the Legal Advisor in the Department of State at the time, warned in 1966: “Should we decide to leave the wartime exception implicit we would want to make it perfectly clear at Geneva what we were doing, lest we later be accused of having negotiated a treaty under false pretences”.⁸

Many nations doubt that NATO could rightfully claim a wartime exception from

obligations under the NPT and thus consider NATO nuclear sharing and especially the wartime exclusion a violation of the Treaty. At an April 1998 NPT meeting, the 113 member states of the Non-Aligned Movement recommended that all nations should “refrain from, among themselves, with non-nuclear weapons states, and with States not party to the Treaty, nuclear sharing for military purposes under any kind of security arrangements”.⁹ NATO doctrine is the only instance of nuclear sharing.

Six non-nuclear-weapon states parties to the NPT – Belgium, Germany, Greece, Italy, The Netherlands, and Turkey – have full-fledged “nuclear sharing” arrangements with the US. They are thus prepared to become nuclear-weapon states in time of war. Each of these countries has a bilateral nuclear co-operation agreement, known as Programs of Co-operation, with the US. The Programs of Co-operation provide for communication of classified information for

- A) the development of defence plans;
- B) the training of personnel in the employment of and defense against atomic weapons and other military applications of atomic energy;
- C) the evaluation of the capabilities of potential enemies in the employment of atomic weapons and other military applications of atomic energy; and
- D) the development of delivery systems compatible with the atomic weapons which they carry.¹⁰

All NATO members are parties to the 1964 “Agreement between the Parties to the North Atlantic treaty for Co-operation Regarding Atomic Information”. Bilateral agreements contained in secret notes exchanged between the US and NATO governments hosting US nuclear weapons described both sides’ responsibilities. These notes were not made available to national parliaments by the governments involved. The host country provides the delivery systems, external security during transport and storage, land for storage sites, and infrastructure for US personnel. The US furnishes personnel for maintenance, custody and safety of the weapons on allied bases.¹¹

Secret notes exchanged between the US and the host nation as well as classified NATO guidelines govern the process of nuclear planning and consultation and the authorisation for the use of nuclear weapons in NATO. NATO’s nuclear planning and consultation process is guided by “Political Principles” last updated during the Glenneagles meeting of the Nuclear Planning Group in October 1992. It encompasses guidelines for nuclear planning, selective use of nuclear weapons and major nuclear response, consultations, and considerations for the employment of nuclear weapons. These include provisions that the views of those allies whose territory or forces would be most seriously affected by the use of nuclear weapons should be given special consideration.

Today, all members of NATO can play a role in the Alliance’s nuclear decision-making through participation in the NATO Nuclear Planning Group and its subordinate bodies, since full-fledged participation in all aspects of nuclear sharing is no longer a prerequisite for participation. Thus NATO non-nuclear-weapon states are eligible in nuclear planning and consultations during peacetime, crisis and in the context of military exercises.

5.3 The Effects of NATO Enlargement

NATO’s extended deterrence will cover new members and they are eligible to participate in NATO nuclear sharing. Both Russia and critics of NATO nuclear sharing have expressed concern about this aspect of enlargement. Russia fears that NATO could retain the option to threaten its territory with nuclear weapons deployed closer to Russian borders. On the other hand, non-nuclear-weapon states have noted that expansion will increase the number of countries dependent on nuclear deterrence.¹²

NATO frequently reiterates that it has “no plan, no reason and no intention” to deploy nuclear weapons on the territory of its new members. However, it has been unwilling to make this commitment legally binding.

Negotiations between NATO Secretary-General Javier Solana and Russian Foreign Minister Yevgeni Primakov led to the “Founding Act on Mutual Relations, Co-operation and Security between NATO and the Russian Federation”. During the negotiations, US Secretary of State Madeleine Albright set out the US position on its nuclear weapons in Europe for the US Senate Armed Services Committee:

As you know, Russia would also like us to make absolute commitments in the charter about the deployment of nuclear and conventional forces on the territory of new members. But we will not compromise on this issue.

All we have done, and all we will do, is to restate unilaterally existing NATO policy: that in the current and foreseeable security environment, we have no plan, no need, and no intention to station nuclear weapons in the new member countries, nor do we contemplate permanently stationing substantial combat forces.¹³

However, Russian concerns continued, focused on the possibility of infrastructure preparations for crisis and wartime deployments of nuclear weapons. As a result, within the NATO-Russia Founding Act, NATO elaborated slightly on its position. The Alliance stated “it has no intention, no plan, and no reason to establish nuclear weapons storage sites on the territory of those members, whether through construction of new nuclear storage facilities or the adaptation of old nuclear storage facilities”.¹⁴

During Senate hearings on ratification of NATO enlargement, Albright and US Secretary of Defence William Cohen added some additional “no’s” to the first three. Both confirmed that there are no plans to:

- train new members states’ pilots in nuclear missions during peacetime,
- nuclear certify these countries’ aircraft, or
- transfer equipment or infrastructure to support these countries’ dual-capable aircraft in a nuclear role.¹⁵

Furthermore, they stated that the US does not intend to conclude bilateral Programs of Co-operation with the new member states.¹⁶ Finally, Albright and Cohen made clear that new members would not be required to buy nuclear-capable aircraft.¹⁷ In total, these politically binding commitments provide Russia with some reassurance that NATO has no option for a quick breakout from the self-constraints entered under the Founding Act.

However, the new members to NATO will, contribute to the development and implementation of NATO’s strategy, including its nuclear component. New members will also be eligible to join the Nuclear Planning Group (NPG) and its subordinate bodies (NPG Staff Group, High Level Group, and the Senior-Level Weapons Protection Group), and to participate in nuclear consultations during exercises and crisis.¹⁸

In addition, NATO has made it clear that “New members will be expected to support the concept of deterrence and the essential role nuclear weapons play in the Alliance’s strategy of war prevention as set forth in the Strategic Concept.”¹⁹ It is therefore not surprising that the candidates for NATO membership have been some of the most determined opponents of proposals for a Central European Nuclear-Weapon-Free Zone.

5.4 Current NATO Nuclear Doctrine

NATO’s Strategic Concept of 1991 requires “widespread participation by European Allies involved in collective defence planning in nuclear roles, in peacetime basing of nuclear forces on their territory and in command, control and consultation arrangements.”²⁰ The remaining US tactical nuclear weapons deployed in Europe now play a “political” rather than a military role. They symbolise the US commitment to Western Europe as well as European countries’ commitment to share the risks and roles of extended deterrence. In the Strategic Concept of 1991, this link between US nuclear weapons and its commitment to Europe is expressed as follows: “The presence of North American conventional and US nuclear forces in Europe remains vital to the security of Europe, which is inseparably

linked to that of North America".²¹

US officials make two arguments for maintaining US tactical nuclear weapons in Europe. First, the US will not withdraw its remaining nuclear weapons unless US troops are also withdrawn. Second, US nuclear weapons cannot be withdrawn from NATO Europe because of the opposition from non-nuclear-weapon states who perceive these weapons as the ultimate guarantee of extended deterrence. The same rationale was reflected in MC 400, the new military strategy NATO approved in December 1991.²²

At the North Atlantic Council meeting on 3 June 1996, NATO approved a revised version of that military strategy, called MC 400/1. MC 400/1 commits the Alliance to maintain a reduced, but more flexible, nuclear posture for the foreseeable future. It neither mentions nor revokes NATO's long-standing policy of retaining the option of "first-use" of nuclear weapons. It also does it commit NATO to using nuclear weapons only as a "last resort", a position taken during the London Summit in 1990 but never repeated. Nuclear weapons are described as having an essential stabilising role in Europe, guarding against uncertainties (such as risks resulting from proliferation of weapons of mass destruction) and serving as a hedge, in case a substantial military threat to NATO re-emerges.²³

NATO will no longer maintain detailed nuclear war plans for the use of nuclear weapons in specific scenarios. Instead, like the US, it is developing a so-called "adaptive targeting capability".²⁴ This capability is designed to allow major NATO commanders to develop target plans and nuclear weapons employment plans on short notice, during a contingency or crisis, from pre-developed databases containing possible targets.

5.5 NATO's Future Nuclear Doctrine

Within the NATO-Russia Founding Act, signed in May 1997, the Alliance promised to review its 1991 Strategic Concept, NATO's principal guiding document. During the July 1997 Summit the Alliance launched the review. NATO's Foreign Ministers meeting in December 1997 set out the terms of reference for the update and substantive work began in early 1998. During the first half of 1998, ideas were collected for necessary changes. Actual drafting of new text began in September by NATO's international staff, with a first draft distributed at the meeting of Defence Ministers in Portugal that month. Some in the Alliance had hoped to have agreement on the new Concept ready as early as NATO's Autumn Ministerials in December 1998, but this now seems unlikely. This is particularly true in view of the statements by German officials for the need to examine NATO's first-use policy. NATO Heads of Government will approve the updated Strategic Concept at their next summit in April 1999.²⁵ Before that, NATO intends to brief Russia on the new strategy in the framework of the NATO-Russia Permanent Joint Council.²⁶ However, NATO did not offer to consult with Russia about it. Instead, the Alliance is waiting to see whether Russia proposes putting the Strategic Concept on the agenda of the Permanent Joint Council.

5.6 US Perspectives on NATO Nuclear Strategy

The US is creating new roles for nuclear weapons. Based on the Nuclear Posture Review and the 1997 National Security Strategy, the newest version of the National Military Strategy foresees a change in the role of NATO-deployed nuclear weapons. Strategic nuclear forces serve,

as a vital hedge against an uncertain future, a guarantor of our security commitments to our allies, and a deterrent to those who would contemplate developing or otherwise acquiring their own nuclear weapons. Strategic weapons remain the keystone of US deterrent strategy. A mix of forward deployed non-strategic nuclear and conventional weapons adds credibility to our commitments.²⁷

The rationale for maintaining non-strategic nuclear weapons is shifting. While NATO still perceives nuclear weapons' function to be primarily a link between the US and its

European allies and a symbol of intra-alliance solidarity, US armed forces increasingly perceive the arsenal deployed in Europe as a mere add-on to the role of US strategic forces.

Changes in the role of nuclear weapons in the US national strategy have led to this difference. According to the new US doctrine, “the fundamental purpose of US nuclear forces is to deter the use of weapons of mass destruction” (nuclear, chemical, and biological) and their means of delivery by hostile governments.²⁸ The objective is to enhance freedom of action for US and allied forces in out-of-area missions as well as to protect US and allied territories. The mission also includes retaliatory strikes once opponents have used weapons of mass destruction.²⁹

Often maintaining the “first-use” option is justified as the logical consequence of deterring and possibly retaliating against the use of biological and chemical weapons by actors who do not possess nuclear weapons. However, US proponents do not exclude the pre-emptive use to eliminate enemy WMD and their delivery means and supporting infrastructure “before they can be employed against friendly forces. For these reasons, offensive operations against enemy WMD and their delivery systems should be undertaken once hostilities become inevitable or commence”.³⁰ The first-use of tactical nuclear weapons is now considered an option within offensive counter-proliferation missions and as part of an emerging doctrine for managing crisis. President Clinton’s Presidential Decision Directive 60 also reflects the increased role of US nuclear weapons in offensive counter-proliferation.³¹

Recent changes in the role of sub-strategic (and strategic) nuclear weapons in the US national strategy also indicate that the US no longer limits the threat to use nuclear weapons against states or government-controlled targets. Numerous official US documents highlight the dangers of non-state actors acquiring and threatening to use weapons of mass destruction.³² These non-state actors (such as terrorists, organised crime, transnational companies or fanatic religious groups) have come to the attention of US military planners. The US military’s list of “likely targets” for US sub-strategic weapons, including US tactical nuclear weapons deployed in Europe, now includes “nonstate actors (facilities and operation centers) that possess WMD”, along with underground facilities or WMD owned by enemy governments.³³

To the authors knowledge the United States is the only nuclear-weapon state considering the use nuclear weapons against non-state actors. Even though the likelihood of use against terrorist targets is remote, the change is significant. It encourages military planners to study such options and to present them to politicians for consideration. In addition, non-state actors generally operate on state territory. The Joint Chiefs of Staff do not explain whether this fact would legally limit the use of nuclear weapons to US territory, or whether targeting against other countries would be considered as well.

5.7 European Perspectives on NATO Nuclear Weapons

While the US has moved its national doctrinal developments a long way towards integrating nuclear weapons into offensive counter-proliferation missions, its European NATO allies have been more cautious. Since 1994, two senior NATO bodies have studied counter-proliferation. Their recommendations, as well as a special set of NATO force goals agreed in late 1996, focused only on improving intelligence capabilities and defensive military and non-military measures against the threat from weapons of mass destruction. No requirements for action on new conventional or nuclear offensive military capabilities were developed. This clearly reflects the more cautious course of action in the European NATO countries.

Most European countries are hesitant to follow the US path of active engagement in offensive counter-proliferation, especially if nuclear weapons are involved. European countries still perceive nuclear weapons as a tool of deterrence or a last resort; almost all

cannot imagine giving these weapons a role in counter-proliferation. This is particularly true in the case of targeting non-state actors with WMD capabilities. In fact, serious European questions about the future of US nuclear weapons in NATO may be raised by US pressure to include such options into NATO's officially acknowledged and agreed military options.

However, throughout the Alliance's history, its doctrine and strategy development have been driven by changes to the national US strategy, especially in the nuclear field. The changing role of non-strategic nuclear weapons in US doctrine thus might cause the initiation of a new round of discussions in the context of NATO's strategy review. European fears of US-led changes in doctrine may have contributed to most European NATO member states' initial efforts to avoid discussions about any changes to NATO's nuclear policy.

5.8 Perspectives on NATO's Nuclear Posture

NATO's strategy review will have to address a number of issues relating to nuclear weapons, including NATO's future approach to arms control and the role of nuclear weapons in NATO's political and military strategy. NATO last revised its Strategic Concept in 1991, when the Soviet Union still existed. The strategy review therefore is the Alliance's first opportunity to address many aspects of its nuclear policy and posture comprehensively in the context of the new security environment in Europe.

However, several European officials have indicated that many nations initially wanted to leave the nuclear sections of the Strategic Concept untouched.³⁴ Diplomats feared that even considering changes would open a Pandora's box. For example, in the early summer of 1998, Dutch officials expressed the opinion that NATO should maintain the nuclear paragraphs in the Strategic Concept. Most analysts also doubted that NATO would rework its nuclear strategy.³⁵

However, it is more likely that NATO will finally review the nuclear sections of its strategy. Some already point to this option. The new German government stated, for example, that during future work on the Strategic Concept "the nuclear component" of NATO's strategy "will be examined, too".³⁶ German officials have also raised the Alliance's policy of retaining the right of first-use as an issue for discussion. (See Chapter 6.4.) In background interviews, diplomats from other NATO countries have expressed similar points of view. There are several reasons why a review is likely:

- NATO's new strategy process is a window of opportunity for change. After the review is completed, no new major change to NATO's posture can be expected for the short to midterm;
- Both the proponents of giving the Alliance's nuclear posture a stronger role in offensive counter-proliferation and the proponents of reaching a US-Russian agreement on verifiable disarmament of non-strategic nuclear weapons will seek the reflection of their position in NATO's strategy. Neither will want a doctrinal freeze;³⁷
- NATO countries are interested in reducing the risks resulting from Russian tactical nuclear weapons. They also would like to discourage Russia both from officially adopting a "flexible response" strategy based on a first-use doctrine, and from trying to counter-balance conventional inferiority with tactical nuclear weapons;
- NATO's nuclear members, especially the US, will need to address or pre-empt the criticism they are facing for violating their commitments under Articles I, II and VI of the NPT. All NATO members are interested in safeguarding the NPT after the nuclear tests in South Asia;
- There is a clear alternative for the future. Either NATO's European-deployed nuclear posture assumes new tasks and missions or it will be eliminated because it no longer provides the Alliance with a necessary or unique capability.

It remains to be seen whether the US will push NATO to agree to widened nuclear tasks

within the new Strategic Concept or whether those more interested in arms control and verifiable disarmament will prevail. The debate will be complicated. However, elements in the US military support reducing the role of non-strategic nuclear weapons. Air Force General Eugene Habiger, commanded-in-chief of US Strategic Command, stated in March 1998, "It is time for us to get very serious about tactical nuclear weapons. If you look at the gross numbers of tactical nuclear weapons that are in Russia today, we must begin to parlay that element into START III, and I have every expectation that we will".³⁸ See Chapter 6.3 below for a more detailed discussion.

5.9 Conclusion

The number of US nuclear weapons deployed in Europe has fallen to a Cold War low in the last ten years. NATO acknowledges that these weapons no longer play a primarily "military" role. The Alliance now faces a major choice: Will European-deployed US nuclear weapons assume new roles and missions such as offensive counter-proliferation operations, or will these weapons be removed in the interest of renewed emphasis on nuclear arms control? The decline in nuclear weapons' numbers and their military value in the European security context have left European NATO nations sceptical about their future role.

The US has clearly outlined that NATO's new members are unlikely to have US nuclear weapons deployed on their territory. There will be no nuclear co-operation agreements nor training and infrastructure for aircraft to carry out nuclear roles. Nuclear weapons are evidently no longer required to cement the relationship between the US and NATO's European members. Thus, the idea that the US nuclear presence in Europe provides the ultimate guarantee of the US commitment to NATO Europe is finally becoming outdated, nine years after the end of the Cold War.

Previously, nuclear arms control has been left to bilateral negotiations between the US and Russia. The NATO-Russia Permanent Joint Council and its nuclear experts working group provide the first opportunity for the UK, France, and the NATO non-nuclear-weapon states to participate alongside the US and Russia in a permanent forum for discussion of nuclear weapons issues.

Chapter 6: Nuclear Risk Reduction in Western Europe

Nuclear weapons' role in Western European security must be re-examined. The nuclear tests in South Asia demonstrate the failure of Western non-proliferation policy and the need for urgent action. The revision of NATO's Strategic Concept, to be completed by April 1999, and the first NPT Review Conference under the Treaty's strengthened review process in 2000 provide specific opportunities for improving nuclear policies. The driving force for changes in nuclear doctrine and posture in Western Europe, as well as for support for nuclear non-proliferation and disarmament, should be a calculated strategy of risk reduction.

At present, the conventional wisdom in Western Europe is that the continued possession of nuclear weapons by France, the UK, and NATO does not affect either proliferation or non-proliferation. The questionable nature of this 'wisdom' is increasingly apparent, highlighted by the nuclear tests by India and Pakistan. Unless the nuclear-weapon states make substantial changes, the future of the entire non-proliferation regime is at stake. Ambassador Jayantha Dhanapala of Sri Lanka, President of the 1995 NPT Review and Extension Conference, and now Under-Secretary General for Disarmament at the United Nations, has said, "Unless there is substantial progress – evidence in the nuclear disarmament field – we are going to have very serious erosion of the confidence of states parties to the Treaty".¹

Ambassador Thomas Graham, former Special Advisor to President Clinton for Arms Control and Disarmament and the person who led the successful US campaign to make the NPT permanent, recently put the case even more strongly:

In my judgement, we are approaching a crossroads for the continued viability of the NPT. One course would be continued lack of progress in nuclear disarmament and de facto recognition of India and Pakistan as nuclear-weapon states. If this course of action is followed, it is likely that by the 2000 Review Conference the NPT will begin to come apart and, over the next decade or so, 15-20 additional nuclear-weapon states will appear. Alternatively, there is another course of action that could save the NPT regime. It would involve the five nuclear-weapon states committing themselves by 2000 to, in the next five to ten years, negotiating deep cuts in their nuclear arsenals down to the low hundreds, with ultimate prohibition remaining the goal. In this context, India and Pakistan would be expected to reverse their programs and eventually join the NPT as non-nuclear-weapon states. It is essential for the preservation of the Treaty that the number of nuclear-weapon states not exceed five.²

India, Pakistan, and Israel remain outside the NPT regime. Unless nuclear weapons are delegitimised as a means of providing security, there is a real danger of erosion of the international non-proliferation regime.

To strengthen that regime, Western Europe should develop and promote a strategy that will create a non-nuclear security regime. Increasing reliance on nuclear weapons does not answer concerns about the spread of weapons of mass destruction – nuclear, chemical and biological. Instead, Western Europe should help to develop a verifiable international regime to control and eliminate all weapons of mass destruction, contribute to the costs of disarmament and to address security needs through co-operative arrangements rather than military force.

There are six essential steps that Western European states need to take to create a more secure, non-nuclear Europe. France and the UK, Europe's nuclear-weapon states, must play the lead role in implementing these steps. However, Western Europe's non-nuclear-weapon states will have to make substantial contributions, including pressuring the nuclear-weapon states and working in NATO. Implementing these recommendations would begin to create a truly sustainable disarmament process and contribute to the development of a co-operative security regime.

These steps are:

1. Commit to and take programmatic action toward the rapid elimination of nuclear weapons;
2. Reduce the alert status of nuclear weapons;
3. End the deployment of non-strategic nuclear weapons and give up the option of wartime nuclear weapons use by non-nuclear-weapon states;
4. Halt first-use policies by France, the UK, and NATO;
5. Include commitments by France and the UK on the future of their nuclear arsenals in the START III context;
6. Initiate a European Co-operative Threat Reduction Programme.

These steps outline a comprehensive nuclear risk reduction strategy for Western Europe. The list begins with the most important and broadest steps, and proceeds to less far-reaching initiatives. Most importantly, the last five steps would all follow from a sincere undertaking of the first.

The six steps closely correspond to many of the crucial provisions in the New Agenda Coalition's June declaration and UN First Committee resolution. That resolution exposed a growing debate in NATO over the Alliance's nuclear doctrine. (See Chapter 1.3 for a description of the resolution.) That debate, between the nuclear- and non-nuclear-weapon states, may be exposed during the discussions over the Alliance's Strategic Concept. (See Chapter 5.5.)

Not included in the list are the traditional, yet important, items on the nuclear non-proliferation and disarmament agenda. These include further progress on the bilateral START process, ratification and entry-into-force of the Comprehensive Test Ban Treaty, and agreement on treaty on a fissile material production cut-off at the Conference on Disarmament. Each of those steps is significant, but does not fully address the implications of the end of the Cold War. Those goals also already have near universal endorsement – only time and some political will are required to achieve them.

The six steps also focus on options for Western Europe, rather than for all states or all nuclear-weapon states. Russian ratification of START II is the one step in the current regime that would do the most to advance disarmament. The proposals outlined in this report would aid and support Russia in taking that step, but are also critical to creating a new security environment that will allow further progress.

Each step is described in detail below. Wherever possible, the political factors that will influence decisions to implement the steps are also outlined.

6.1 Commit To and Take Programmatic Action Toward the Rapid Elimination of Nuclear Weapons

The five nuclear-weapon states party to the NPT are legally committed to nuclear disarmament under the Treaty. That commitment was strengthened at the 1995 NPT Review and Extension Conference in the Principles and Objectives for Nuclear Non-Proliferation and Disarmament. That document called for a “programme of action” that included the “determined pursuit by the nuclear-weapon States of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons”.³ The International Court of Justice, in its 1996 Advisory Opinion on nuclear weapons, reconfirmed this commitment. The Court unanimously found that there is an “obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international controls”.⁴

The importance of the commitment

A series of studies and initiatives have repeatedly highlighted the need for a clear commitment to complete elimination. For example, the high-level Canberra Commission on the Elimination of Nuclear Weapons, convened by the Australian government, emphasised the importance of this step:

This commitment would change instantly the tenor of debate, the thrust of war planning, and the timing or indeed the necessity for modernisation programs. It would transform the nuclear weapons paradigm from the indefinite management of a world fraught with the twin risks of the use of nuclear weapons and further proliferation, to one of nuclear weapons elimination.⁵

More recently, eight nations led by Ireland issued a call for rapid progress on nuclear disarmament. The eight nations – Ireland, Brazil, Egypt, Mexico, New Zealand, Slovenia, South Africa, and Sweden – sought “a clear commitment to the speedy, final and total elimination of their nuclear weapons and nuclear weapons capability” from both the nuclear-weapon states and the nuclear-weapon-capable states.

As described in Chapter 1.3 on p.8 above, the June declaration led to a UN First Committee resolution. Voting on the resolution showed a clear split between the nuclear-weapon and non-nuclear-weapon states in Europe. Every non-nuclear-weapon state in NATO except Turkey abstained, despite heavy pressure from France, the UK and the US to vote against it. The first operative paragraph of the resolution called on the nuclear-weapon states to make an “unequivocal commitment to the speedy and total elimination” of their nuclear arsenals.

Studies on elimination

A natural result of that commitment would be government programs and studies, from the highest level on down, on the practicalities of elimination. As discussed earlier, in its Defence Review the United Kingdom announced its intention to develop expertise in verification of the reduction and elimination of nuclear weapons. This is just one of the technical issues that will require detailed research before the goal of elimination can be achieved.

Both France and the UK should undertake studies on how to reach elimination. These studies could take place before making a commitment to rapid elimination.

The European Council should mandate the European Commission to conduct a similar study, highlighting contributions that each EU member can make to elimination. Important topics that need to be researched include: the transition from low numbers of weapons to zero; permanent maintenance of the verification regime; storage and/or destruction of nuclear materials; and how to handle break-out if it occurs.

Multilateral discussions on elimination

As part of the “programme of action” on nuclear disarmament called for in the Principles and Objectives for Nuclear Non-Proliferation and Disarmament, the nuclear-weapon states should agree to multilateral discussions on disarmament. In view of their NPT commitments and the demands from the vast majority of countries around the globe – both friendly and non-aligned – the nuclear-weapon states should join discussions on elimination, even without a commitment to that goal. These discussions would not necessarily begin with negotiations. They would serve as a forum for raising ideas and highlighting concerns, a place where the nuclear-weapon states could report on their progress toward disarmament, and all states could propose new initiatives.

These discussions can and should take place in three different forums, each of which would serve its own purpose. None should or would detract from bilateral negotiations between Russia and the United States on START III or other disarmament steps.

At the Conference on Disarmament

The first forum for discussions is at the Conference on Disarmament in Geneva. At the 1997 NPT Preparatory Committee (PrepCom) meeting for the 2000 Review Conference, South Africa called for the creation of an ad hoc committee at the Conference on Disarmament to discuss nuclear disarmament.⁶ New Zealand, Canada and others supported similar ideas.⁷ In January 1998, South Africa formally submitted to the CD a draft resolution to create such a committee “to deliberate upon practical steps for systematic efforts to eliminate nuclear weapons as well as to identify if and when such steps should be the subject of negotiations in the Conference”.⁸ The draft was carefully worded to avoid calling for negotiations on a treaty eliminating nuclear weapons in the CD, as this frequent non-aligned proposal has been firmly resisted by the nuclear-weapon states. The South African proposal was quickly welcomed by a wide variety of states, including New Zealand, Brazil, Ireland, and Japan. Canada proposed a similar committee connected with negotiations on a fissile material production ban.⁹ Belgium has proposed that the CD create “a framework where nuclear disarmament issues could be explained, followed, questioned and answered”.¹⁰ The previous German government considered it “appropriate and legitimate that discussions should take place in the multilateral forums devoted to disarmament on how member states can contribute to effective measures in the field of nuclear disarmament”.¹¹ The new government is presumably even more supportive of the idea.

The European Union should endorse the South African proposal. The current UK position, to include its nuclear arsenal in disarmament negotiations when “satisfied with verified progress towards our goal of the global elimination of nuclear weapons” does not

conflict with the idea of a committee to discuss efforts to eliminate nuclear weapons.¹² The proposal does not commit any state to commence negotiations on the elimination of nuclear weapons. It simply proposes a forum for discussions, for raising proposals, and pursuing ideas for disarmament.

In light of these many demands, in March 1998 the troika of past, present, and upcoming Presidents of the CD was charged with undertaking "intensive consultations" on nuclear disarmament. UK Ambassador to the CD Ian Soutar, who was the President of the last 1998 sessions and thus leader of the final troika, has stated that no consensus emerged on any of the proposals. He noted that the Non-Aligned Movement strongly endorsed establishing an ad hoc committee on disarmament in some form, but that some states opposed this idea, particularly the nuclear-weapon states. He recommended, however, that the troika resume consultations when the CD opens in 1999.¹³

When confronted with proposals for an ad hoc committee or similar forum, the nuclear-weapon states typically make one of two objections. The first is to highlight the continued need for bilateral progress between the two states with the largest arsenals: Russia and the United States. The nuclear-weapon states point to the substantial progress already made, and express their view that this is the only path to further disarmament.

The second objection is to note that there already exist forums for discussions on disarmament, in the UN's General Assembly and First Committee, at the Disarmament Commission, and in the NPT context, for example.

Neither of these objections are sufficient grounds to continue to refuse such discussions. The proposals put forth do not seek to interrupt the bilateral US-Russian progress. A forum for discussions at the CD would be supplement that process. Negotiations on disarmament would not take place, unless all parties felt there were worthwhile objectives that could be obtained. Nor would the proposal duplicate other forums. The General Assembly is a forum for considering resolutions, and can indicate support for particular approaches, but is not an open-ended forum for discussions. The Disarmament Commission is not designed to provide the long-term focus that discussions on the elimination of nuclear will require. And to date, the nuclear-weapon states have refused to use the NPT enhanced review process as a forum for discussing next steps in the disarmament process. The CD has none of these problems.

In the NATO-Russian Permanent Joint Council

The second forum for discussion on elimination is the NATO-Russian Permanent Joint Council. The Joint Council has already established a working group on nuclear weapons that has three items on its agenda. Adding a fourth – discussions on the elimination of nuclear weapons – is both feasible and logical. More importantly, the existence of this working group demonstrates that nuclear-weapon states are willing to discuss disarmament issues in a multilateral forum, even one that includes non-nuclear-weapon states. Unlike the broader mandate for the Conference on Disarmament, the Joint Council should focus on the specific issues facing Europe. The Joint Council also has the capability to reach agreements more quickly than is normally feasible at the Conference on Disarmament. Two of its agreed areas of work – tactical nuclear weapons and President Yeltsin's statement on de-alerting nuclear weapons – should be among the next steps to the disarmament process as a whole.

Talks among the five

A final forum is five-power talks among the nuclear-weapon states, perhaps with the inclusion of a UN observer to provide reports to other states when appropriate. Unlike the Permanent Joint Council, this would have the advantage of including all the declared nuclear-weapon states. At the same time, discussions in a five-power forum would be simpler than the 60-plus states that could be involved at the CD.

This forum would allow the nuclear-weapon states to discuss the necessary conditions for the elimination of nuclear weapons. This is perhaps the best forum to further discussions on verifying elimination of warheads and creating sustainable storage regimes for fissile materials. At present, the nuclear-weapon states consider much of this information highly secret, as details about building weapons can be revealed during the destruction process. Discussions in this forum could create a regime that could lead to an open process of elimination without giving away nuclear secrets.

A final forum should also be mentioned. As described in Chapter Four, the UK and France have used their Joint Commission on Nuclear Policy and Doctrine to discuss non-proliferation policy. They should now use it to co-ordinate their early entry into the START process.

6.2 Reduce the Alert Status of Nuclear Weapons

On 25 January 1995, the routine launch of a US scientific rocket off the western coast of Norway set off alarms in Russia, and almost led to global disaster. The first reports from Russia's early warning system indicated the rocket was potentially a Trident submarine-launched missile aimed at Russia. For the first time ever, President Yeltsin activated his nuclear suitcase. Russia was literally minutes away from deciding whether to order a retaliatory strike. Finally, Russian officials correctly determined that the missile would land hundreds of kilometres out to sea, and the emergency passed.¹⁴ In 1997, reports in the US media indicated that deteriorating Russian command and control systems might have led to missiles switching to "combat mode" without warning.¹⁵ US systems have made similar errors in the past. These incidents demonstrate the dangers of maintaining the high alert status typical of the Cold War era.

Earlier De-alerting Steps

NATO has already taken steps to reduce the alert status of some nuclear systems, particularly for tactical weapons. Thousands of warheads have been completely withdrawn and are being destroyed or stored in the United States. Aircraft no longer sit on Quick Reaction Alert, with their electronics preheated and loaded with nuclear weapons, ready for immediate take-off.

As described in Chapter 2, in its Defence Review the UK announced that Trident submarines will now be "routinely at a 'notice to fire' measured in days rather than the few minutes' quick reaction alert sustained throughout the Cold War". At present, few details are available on how this 'notice to fire' status was implemented. Comments from UK officials indicate this is operational or procedural change, rather than a technical one. For example, crews will not constantly be on stand-by alert, and there will be less emphasis on being in constant communication. As a safety measure to reduce the likelihood of accident or miscalculation, this step is praiseworthy. France should immediately declare and implement an identical policy.

According to UK officials, however, this step is not a de-alerting measure. It will not be verifiable externally. Instead, the UK views it as a confidence-building measure, similar to the agreements to detarget nuclear missiles reached with Russia. Those agreements are also unverifiable.

Because the "notice to fire" status is not verifiable, its benefits are minimised. Outside parties cannot confirm the status, so there is no way to ascertain if it was abandoned for a higher level of alert. Russian officials have already stated that they will be unwilling to place their nuclear forces on reduced alert status unless it can be confirmed that British, French, and Chinese forces are de-alerted.¹⁶

This raises difficult but not insurmountable issues. Both France and the United Kingdom rely primarily on a single submarine at sea at a time – it is the latter's only nuclear force. This makes verifying the status and location of the submarine more complicated, as this could make the submarine vulnerable to attack. For the United States, it is feasible to

reveal the location and status of one submarine at a time in a force of four to six at sea.

Next Steps

Solutions to this dilemma are available. For example, US submarines en route to their launch stations are on a modified alert status from which it takes approximately 18 hours to bring the submarine to full alert, ready for launch within minutes.¹⁷ British and French submarines could maintain this status indefinitely, and it is possible to verify this status externally without revealing the submarine's location. One aspect of modified alert is that the missile launch tubes are blocked until the flood plates are removed. It is possible to place an electronic seal on the flood plate. This seal would communicate with a buoy that would be released by the submarine. After a sufficient time delay to disguise the location of the submarine, the buoy broadcasts information confirming that the seals are still in place.¹⁸

Similar verifiable steps that could be taken include removing guidance systems from missiles, or shutting down power to the missiles.¹⁹ These would increase the amount of time required to deliver missiles to their targets by hours or days.

Further steps

More far reaching steps are also possible. In its Defence Review, the British government reported that it considered removing warheads from missiles and storing them separately ashore, and ending the permanent patrol of Trident submarines. The Review rejected both options: "Either step would undermine the stabilising role that Britain's nuclear deterrent forces would otherwise play in a developing crisis".²⁰

One of the primary arguments used against these steps is that it would lead to a "race to re-alert" that would be more destabilising than the current situation. For example, deploying a nuclear-armed submarine during a time of tension could be perceived as a provocative act that might lead to further escalation.

This argument fails in two important respects. First, if both countries began re-alerting their forces, the end result would merely be a return to the present status – a fully alerted and deployed force. Neither side could have confidence that it had re-alerted its forces sufficiently to launch a disarming first strike, so neither would attack.

More importantly, a substantive and verified de-alerting regime would allow both sides to know how long and what steps it would take to re-alert forces. Both sides would know when the other began re-alerting, and would have ample time to follow suit if necessary.

Thus, both France and the UK should take additional steps to reduce the alert status of their nuclear weapons, and develop ways to make that status verifiable. If permanent patrolling of the submarines is ended, both countries could announce when and if a submarine was going on a training mission patrol. It could allow for verification by national technical means (NTM) that either no missiles or no warheads are on board. This would serve as a confidence-building measure, and indicate the reduced importance of nuclear weapons to European security.

It is important to note that de-alerting should not be seen as a substitute for further disarmament. It is merely one step to reduce the immediate danger of accidental, inadvertent or mistaken nuclear launch. The ultimate goal must remain the elimination of nuclear weapons.

The NATO-Russia Permanent Joint Council could discuss each of these steps and agree implementing measures.

6.3 End the Deployment of Non-Strategic Nuclear Weapons and Give Up the Option of Wartime Nuclear Weapons Use by Non-Nuclear-Weapon States

Various estimates place the total Russian tactical nuclear arsenal at between 7,000 and 22,000 warheads.²¹ According to an unofficial Russian source, 13,700 of Russia's 21,700

tactical nuclear weapons are to be eliminated under the program resulting from the 1991 unilateral reductions taken by Russian President Gorbachev, following earlier steps by US President Bush.²² Another estimate puts operational Russian tactical nuclear weapons at 4,000, a level that could fall to the hundreds over the next decade as weapons reach the end of their service lives.²³ The United States maintains less than 1,000 tactical nuclear weapons in its operational arsenal, of which approximately 180 are in Europe.²⁴ The United States also maintains a “hedge” stockpile of warheads that could be re-deployed should circumstances warrant. Tactical nuclear weapons make up a portion of the 2,500 warheads in the hedge.²⁵

The West has three concerns about tactical weapons. First, the number, location, and operational status of the remaining Russian warheads are unknown. Second, Russia's ability to maintain command and control of its nuclear arsenal is, by most accounts, deteriorating. Finally, there is the danger of a sharp turn for the worse in the Russian political situation. US concerns, combined with Russian awareness that its tactical forces are deteriorating even faster than its strategic arsenal, were the driving factors in the language on tactical nuclear systems in the 1997 Helsinki agreements outlining a framework for START III.²⁶ On the other hand, the deterioration of its conventional forces drove Russian doctrinal changes and increased reliance on forward basing of tactical nuclear forces. NATO enlargement exacerbated this concern. NATO should make strenuous efforts in the CFE process to reduce Russian concerns by cutting the Alliance's conventional forces, and enhancing related confidence-building measures.

Current talks in the NATO-Russia Permanent Joint Council

NATO and Russia have begun discussions on non-strategic arsenals in the NATO-Russia Permanent Joint Council. However, Western countries are dissatisfied with the initial exchanges, and concerns about the Russian non-strategic forces remain. In June 1998, NATO's Defence Planning Committee and the Nuclear Planning Group called “upon Russia to further review its tactical nuclear weapons stockpile with a view toward making additional significant reductions”.²⁷

On the other hand, Russia continues to object to NATO expansion and links its reliance on tactical nuclear weapons to NATO's enlargement. NATO's statements that it will not deploy nuclear weapons on the territory of new Alliance members provide some reassurance, yet Russia's demand that this pledge be put in a legally-binding form has not been met. Russia has also proposed the withdrawal of all nuclear weapons to national territory. Only US nuclear weapons deployed in Europe do not already meet that objective.

Several proposals have been set forth to address the continued presence of tactical nuclear weapons in Europe. They include the creation of a Central European Nuclear-Weapon-Free Zone (NWFZ), withdrawal of weapons to national territory, and complete elimination of tactical nuclear weapons. Both the Canberra Commission and the New Agenda Coalition called for ending the deployment of non-strategic nuclear weapons. Each of these proposals has merit, but lacks the critical support of one or more essential players.

Two options are described below: including tactical nuclear weapons in START III, and reciprocal unilateral steps by Russia and the US to reduce nuclear weapons. Both options need to be considered and pursued as appropriate.

Option One: Include tactical nuclear weapons in START III

One of the best approaches would be to include tactical weapons in the next round of the START process. Broad support is mounting for this option. In the Helsinki agreements, the two countries agreed “that in the context of Start III negotiations their experts will explore, as separate issues, possible measures relating to nuclear long-range sea-launched cruise missiles and tactical nuclear systems, to include appropriate confidence-

building and transparency measures.”²⁸ The head of U.S. Strategic Command, Air Force General Eugene Habiger, has stated that he anticipates that START III will place limits on tactical nuclear weapons.²⁹ John Deutch, former US Central Intelligence Agency head, and Ashton Carter, former US assistant secretary of defence, proposed an arms control regime that would set limits on total holdings of nuclear warheads, including non-strategic weapons.³⁰ A recent study by the National Defense University and Los Alamos National Laboratories comes to the same conclusion.³¹ The authors of this report have long advocated such a regime.³²

In the simplest model, START III would set an aggregate total for all active and inactive strategic and non-strategic warheads. Within the limitations set, the agreement would allow the freedom to mix warheads of different categories, according to national needs and plans. The United States could choose to eliminate all or almost all its tactical weapons, while Russia could maintain several hundred or more, thus meeting its concerns about smaller nuclear neighbours. In any scenario, in exchange for the withdrawal of US nuclear weapons from Europe, Russia would agree in a legally binding manner to further substantial reductions in its tactical nuclear arsenal. The agreement would end the deployment of nuclear weapons off national territories. Finally, mutual transparency would become mandatory, through an accounting regime would provide information on the numbers and locations of warheads.

There are many advantages to tackling both tactical and strategic weapons in one framework. First, as outlined in Helsinki, START III will take on the transparency of strategic nuclear warhead inventories and the destruction of strategic nuclear warheads. It is advantageous to apply new rules for transparency and verified warhead dismantlement to both tactical and strategic weapons. Second, such an approach would avoid the duplication and additional time that would be necessary to reach separate agreements. Third, dealing with tactical and strategic weapons under the same treaty will allow increased flexibility to address asymmetries in Russian and US postures. Fourth, it would address Russian concerns about US forward-based systems. Finally, it would eliminate the artificial US-Russian arms control distinction between tactical and strategic weapons, which has become increasingly superficial since the end of the Cold War.³³ The integration of strategic and non-strategic nuclear weapons under joint limitations will promote irreversibility of reductions and increase confidence on both sides in the regime.

Additionally, an agreement of this type could give the force of international treaty obligation to the reductions in tactical nuclear forces already carried out unilaterally by Russia and the United States during the course of the 1990s. The West has long been concerned about Russian implementation of the commitments to reductions made by Gorbachev and the Russian military. A treaty would verify reductions on both sides.

In parallel, France and the United Kingdom could use the agreement on verification of warhead destruction to substantiate the reductions they have undertaken in recent years. For example, the United Kingdom, even without a formal treaty, could allow Russian inspectors the same access that they will get from the United States under START III. Russia could then verify the destruction of the UK's withdrawn WE-177 gravity bombs. In exchange, Russia could allow the UK to access the data gathered by the United States when it verifies Russian reductions.

This does not mean, however, that agreement will be easy. In response to its declining conventional forces, Russian military officials frequently reaffirm the need for stronger reliance on nuclear weapons. Some European states may be reluctant to support the withdrawal of US nuclear weapons from Europe, fearing that it will indicate a decline in US commitment to the continent. New NATO members in particular may fear the potential revival of the Russian threat.

Furthermore, the regime to verify dismantlement and destruction of strategic and tactical warheads will require far more intrusive and specialised inspections than under any

present treaty. Once destroyed, the two sides must create a verifiable storage regime for the residual components.

However, there is strong support for a START III that includes non-strategic weapons. From General Habiger on down, the US military is committed to that goal. US officials have hinted that the Clinton Administration is seeking to create its arms control legacy by getting the first agreement on verified warhead destruction. The US Department of Energy already has a substantial program with Russian scientists on this topic. The Russian military, aware of the rapid and almost inevitable decline of their own forces, may be more willing than it appears to agree to a broad START III that includes non-strategic weapons and verified elimination of warheads. The Chemical Weapons Convention provides some useful parallels for intrusive inspections, but a great deal of work needs to be done in this area.

Option Two: Reciprocal Unilateral Steps

A second option to end the deployment of tactical nuclear weapons is for Russia and the United States to undertake a series of reciprocal unilateral, but verifiable, actions for all nuclear weapons. This initiative would be similar to the unilateral steps taken by Presidents Bush and Gorbachev in 1991. Unlike the Bush-Gorbachev reductions, however, these steps would include verification of the reductions and of the storage of the leftover fissile materials. This option has several benefits.

First, it can be done quickly. Rather than the months or years that agreeing a full treaty can take, the two countries can begin to take steps immediately, and continue rapidly. Second, it should appeal to both countries. Russian forces are expected to decline to a level of 1,000-1,500 in the next decade, regardless of the US arsenal. Thus, Russia will want to ensure US forces move toward the same levels, while the US will want to verify the Russian reductions.

Third, it would avoid the complications of parliamentary approval that bedevil or have bedeviled the Chemical Weapons Convention, START II and the Comprehensive Test Ban Treaty, and so on. The US Senate and Russian Duma frequently have held up treaties for reasons unrelated to national security and in opposition to national interest. To compensate for the lack of parliamentary approval, both Presidents would provide detailed information, preferably in unclassified form, on the reductions made and on the status of verification.

Fourth, it would provide a simple way to include France and the United Kingdom in the process, and potentially China as well. Each of the five could provide information on the status of their forces, detail reductions taken, and verify cuts by the others. Each would have to provide information on and access to their forces to be able to verify others' reductions. While this step would not be necessary in the early stages of the US-Russian reductions, it would become vital as their forces approached the level of 1,000.

Finally, it would be a seamless way to integrate strategic and non-strategic forces. The verification procedures apply equally well to warheads of any type, as well as to the safe storage of fissile materials. Ideally, the verification procedures would allow Russia and the US to confirm the unilateral reductions taken by both Bush and Gorbachev.

The role for Western Europe

Under either START III or a reciprocal step approach, Western Europe's crucial role would be to support of the removal of US tactical nuclear weapons from Europe. The new German government is known to be considering indicating that it could support withdrawal. The UK is confident that its Trident system can fulfil the sub-strategic role traditionally taken by gravity bombs. The British effort, announced in the Defence Review, to study verification of reductions in nuclear arsenals, can also contribute to either approach.

European nations have traditionally argued that full integration of NATO nuclear planning and the existence of nuclear sharing programmes demonstrate a serious American commitment to the defence of Europe. They have also feared that a nuclear withdrawal would be followed by a US conventional pullout and the end of NATO. Others argued that Europe and North America must equally share the risks and burdens of nuclear defence. With the end of the Cold War and the disappearance of any military threat to NATO, these arguments are no longer valid.

Ending the deployment of US tactical nuclear weapons in Europe would also end the most provocative aspect of NATO's nuclear sharing: the preparations for and the possible use of nuclear weapons by non-nuclear-weapon states during times of war. As discussed above, at the 1998 PrepCom, the Non-Aligned Movement (NAM) for the first time formally objected to NATO's nuclear sharing policy and recommended ending it.

End nuclear training programs and remove infrastructure

Thus, along with withdrawing US nuclear weapons, NATO should stop training pilots from non-nuclear-weapon states for nuclear missions and remove all associated infrastructures for those states' territories. As described in Chapter 5, each country has one wing of fighter aircraft trained to use nuclear weapons in war, as well as facilities for storing nuclear weapons.

As NATO recently made clear, nuclear weapons' "fundamental purpose is political: to preserve peace and prevent coercion and any kind of war." 34 The military role for US tactical nuclear weapons deployed in Europe is absolutely minimal. There is no need for forward deployment, and the political costs far outweigh the benefits. The withdrawal of such weapons would neither weaken US commitment to Europe, nor encourage Russian military adventurism.

6.4 Halt First-Use Policies by France, the UK, and NATO

As the UK stated in its Strategic Defence Review,

the collapse of Communism and the emergence of democratic states throughout Eastern Europe and in Russia means that there is today no direct military threat to the United Kingdom or Western Europe. Nor do we foresee the re-emergence of such a threat. 35

NATO conventional forces in Europe are vastly superior to any conceivable threat, including the slim possibility of a reconstituted Russian army. For these reasons, the two nuclear-weapon states in Europe and NATO should declare no-first-use policies.

In practice, any state that used nuclear weapons would gravely damage its national interests and position, generating massive international and public opposition. The political and economic cost of being the first to use nuclear weapons against a non-nuclear-weapon state would be particularly high. In the present environment, any NATO state that did so would become a pariah, shunned by the international community.

NATO needs to translate its 1991 commitment only to use nuclear weapons as a last resort into a military doctrine that precludes first-use. It is inconceivable, in all but the most extreme circumstances, that a non-nuclear-weapon state could mount a conventional attack that would threaten the existence of a nuclear-weapon state. Even Israel has always managed to repel conventional attack without recourse to nuclear weapons.

Furthermore, any use of nuclear weapons, especially first-use, would damage the international non-proliferation regime permanently. Further use of nuclear weapons would be seen as an option, and dozens of states would reconsider their non-nuclear status.

Militarily, there is increasing recognition that nuclear weapons are ineffective in achieving strategic objectives. US General Colin Powell revealed that although the military considered nuclear use, no viable option could be found during the 1991 Gulf War.³⁶

It is difficult to envisage circumstances in which it would be in the interest of the France, the UK, or NATO to initiate the use of nuclear weapons. In NATO's case, the question of

whether to use nuclear weapons in a wartime scenario would put extreme pressure on the Alliance, as member states would have differing ideas about whether nuclear use was appropriate or not.

The case of chemical and biological weapons

One scenario frequently suggested for using nuclear weapons is to respond, or even pre-empt, the use of chemical or biological weapons. Former Commander-in-Chief of US Strategic Command, General Lee Butler, describes using nuclear weapons as a solution to chemical or biological attack as an “outmoded idea”. According to Butler: “Conventional retaliation would be far more proportionate, less damaging to neighboring states and less horrific for innocent civilians”.³⁷

In addition, planning for the use of nuclear weapons against non-nuclear-weapon states undermines the security assurances given to non-nuclear-weapon states signatories to the NPT and the non-proliferation regime as a whole. The discussion on security assurances at the 1998 NPT PrepCom highlighted the continued importance placed on this issue by non-nuclear-weapon states, as well as the reluctance of the nuclear-weapon states to provide any additional guarantees.

Finally, it is important to recognise that relying on nuclear weapons to handle worst case scenarios is to rely on a weak instrument. For any imagined scenario “requiring” nuclear use there is another even worse case where political issues preclude nuclear use. It is these true worst cases which provide the overriding imperative for risk reduction strategies and non-nuclear responses.

The likelihood of change

Politically, adopting a no-first-use policy faces substantial obstacles. The nuclear tests by India and Pakistan, in some minds, increase the need for a nuclear “deterrent”. Uncertainty about Russia’s future also increases support for maintaining first-use policies.

At present, the United States military may be the greatest obstacle to a NATO no-first-use policy. As described in Chapter 5, the United States has traditionally led changes in NATO military doctrine, particularly in nuclear policy. There is a debate within the US Administration and military on first-use, but that debate is some way from changing current policy. For example, during his recent visit to China, President Clinton publicly rejected a no-first-use policy.

At the same time, no-first-use would have considerable support. In Germany, the coalition treaty agreed by the new government called for a “campaign to lower the alert status of (NATO’s) nuclear weapons and for a renunciation of the first-use of nuclear weapons”.³⁸ German Foreign Minister Joschka Fischer said “We must discuss [no-first-use] openly in the alliance without creating the impression that Germany is going its own way now”.³⁹

Within the European Union, Ireland and Sweden, as part of the New Agenda Coalition and elsewhere, have called for no-first-use declarations. In the agreement forming the ruling coalition, the new German government agreed to pursue no-first-use policies, and German officials have pledged to raise the issue in NATO. As described above, the UK Labour Party committed in pre-election documents to pursuing a no-first-use policy on a multilateral basis with allies, but merely reiterated its previous negative security assurances in its Defence Review. Recently, Belgian and Canadian officials have discussed the possibility of NATO ending reliance on first-use. Largely because of the advisory opinion of the International Court of Justice on the general illegality of threat or use of nuclear weapons, the Canadian Parliament is undertaking a review of the country’s nuclear policies, including first-use.

6.5 Include Commitments by France and the UK on the Future of Their Nuclear Arsenals in the START III Context

The slow progress on START II underlines the question of how and when the three smaller nuclear powers should become involved in the process. In the past, bilateral negotiations have been justified on the grounds that they could be completed quickly and efficiently. However, the recent impasse in US-Russian negotiations and the extension of the deadline for full implementation of START II by five years, to 31 December 2007, imply that it would be short sighted to leave the UK, France, and China outside the strategic arms reduction process indefinitely.

Directly involving France and the UK in START III is unnecessary. The 1997 Helsinki framework agreement already provides the outline of a treaty between Russian and the United States. However, politically-binding commitments from France and the UK, for example, to not increase the size of their arsenals would create a more co-operative and stable environment.

First, in the short term, these commitments could help with the Russian Duma's ratification of START II. In the longer term, they would contribute to nuclear weapon's decreasing relevance to European security.

Under current governments, both France and the UK should be able to commit to not increase their arsenals. However, as described in Chapter 3, France does have plans to introduce new weapons to replace much of its existing arsenal. At the same time, the French programme has already faced delays and reductions, and France is still feeling the sting of international criticism following its 1995 resumption of nuclear testing. A French commitment to cancel its planned new systems, particularly if made in the context of the Russian-US reductions, would promote further bilateral reductions, and strengthen the international non-proliferation regime.

6.6 Initiate a European Co-operative Threat Reduction Programme

European Union nuclear-weapon states and non-nuclear-weapon states can contribute to strengthening nuclear disarmament and to safeguarding the international non-proliferation regime. One way to do so would be an integrated European Co-operative Threat Reduction Programme, designed to parallel and add to the US Nunn-Lugar programme. This could be co-ordinated through the European Union-Russia Co-operation Council.

Building on experience already gained in EU-Russia co-operation on civil nuclear programmes, a European programme could assist in:

- safeguarding nuclear weapons-capable materials and knowledge;
- strengthening Russian export control regimes;
- strengthening safety and security at nuclear facilities;
- handling and converting of excess nuclear weapons materials; and
- contributing to disarmament.

It could also assist in similar tasks for biological and chemical weapons disarmament, areas beyond the scope of this report.

While many separate projects on individual aspects of the problems already exist in several European countries, much remains to be done. In addition, there is a substantial lack of co-ordination and integration for European projects. Any initiative to widen European activities in this field and strengthen co-ordination is likely to find wide support throughout the foreign policy communities in European countries.

The EU-Russia Co-operation Council was created as part of the EU-Russia Partnership and Co-operation Agreement in 1994. However, ratification of the Agreement was delayed, and it only entered into force in December 1997. The Co-operation Council held its first meeting in January 1998. It stressed that the EU and Russia are “strategic partners for peace, stability, freedom and prosperity in Europe and that they share a responsibility for the future of the continent and beyond”.⁴⁰ Subjects discussed included (civil) nuclear

safety, cross border co-operation, and foreign and security policies. From this, it is clear that, in some areas, Russia can be expected to welcome non-US-options to solve its disarmament and non-proliferation problems.

While it involves some non-NATO nations, any substantial European Co-operative Threat Reduction Programme would also constitute an intra-alliance burden-sharing initiative. NATO, through the Permanent Joint Council, should consult on and contribute to the programme. Its budget should equal or exceed the US Co-operative Threat Reduction Programme, and should be co-ordinated through the existing EU Technical Assistance to the Commonwealth of Independent States (TACIS) structures. Such a programme would be a logical development of existing EU co-operation in the non-proliferation field. They would find themselves supported by the vast majority of the non-nuclear-weapon states throughout the world. The creation of such a programme would also give great depth and substance to the EU-Russia partnership.

If such a programme proved feasible, the extension of this programme to all EU Associated and Partner nations would dramatically strengthen its effectiveness. This would bring virtually all central and eastern European countries, and the states of the CIS into the regime.

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3 No modernized nuclear weapons storage capability has been built at Spangdahlem. However the air base has an inactive Cold War-era nuclear weapons storage facility. Nuclear Surety Inspections are taking place for the 52nd Fighter Wing. It is not clear whether they are limited to the 52nd Logistics Group, responsible for the Munitions Special Support Squadrons in Buechel, Kleine Brogel, and Volkel, or whether flying squadrons have been inspected as well. However, even if they were inspected, this would not necessarily indicate the presence of nuclear weapons in Spangdahlem. They could be deployed in Ramstein. If nuclear weapons are stored in Spangdahlem, as assumed by the Natural Resources Defence Council, Spangdahlem would be the only overseas location at which the USAF nuclear weapons are not stored in modernized vaults. Excess vaults were available and already paid for in 1995, when the decision to reduce the construction program for vaults was taken by NATO's SLOWPIG working group. Cf. William M. Arkin, Richard S. Norris, Joshua Handler, "Taking Stock: Worldwide Nuclear Deployments 1998", Nuclear Weapons Databook, Natural Resources Defense Council, Washington, March 1998, p.25, (available on the web at: <http://www.nrdc.org/nrdcpro/fppubl.html>), and Otfried Nassauer, et al., op. cit.

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12 See, for example, "Statement by the Permanent Representative of South Africa, Ambassador K.J. Jele, to the First Preparatory Committee Meeting for the 2000 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons", 8 May 1998.

13 Secretary of State Madeleine K. Albright, "Prepared statement before the Senate Armed Services Committee, Subject: NATO Enlargement", US Department of State, Washington, D.C., 23 April 1997.

14 NATO/Russia, "Founding Act on Mutual Relations, Cooperation and Security between the North Atlantic Treaty Organization and the Russian Federation", Paris, 27 May 1997, p.8.

15 "Question for the Record Submitted by Senator Harkin to Secretary of State Albright", Senate Appropriations Committee, Washington DC, 21 October 1997. See also, "Questions for the Record Submitted by Senator Harkin to Secretary of Defense Cohen", Senate Appropriations Committee, Washington DC, 21 October 1997.

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17 Ibid.

18 Ibid.

19 Ibid.

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23 Otfried Nassauer, et al., *op. cit.*

24 For an examination of US policy, see Hans Kristensen, *op. cit.*

25 Final Communiqué, Ministerial Meeting of the North Atlantic Council held at NATO Headquarters, Brussels, 16 December 1997.

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28 Joint Chiefs of Staff, Doctrine for Joint Theater Nuclear Operation, JP 3-12-1, Washington, 9 February 1996, p.V.

29 For a more detailed description of these developments in US nuclear doctrine see Hans Kristensen, *op. cit.*

30 Joint Chiefs of Staff, Doctrine for Joint Theater Nuclear Operations, *op. cit.*, pp. III-8.

31 First reported in R. Jeffrey Smith, "Clinton Directive Changes Strategy on Nuclear Arms", *Washington Post*, 7 December 1997, p.1.

32 See for example: Joint Chiefs of Staff, Joint Nuclear Operations, JP 3-12, Washington, December 1995; Joint Chiefs of Staff, Concept for Future Joint Operations, Washington, May 1997; Department of Defense, Proliferation: Threat and Response, Washington, May 1997.

33 Joint Chiefs of Staff, Doctrine for Joint Theater Nuclear Operations, *op. cit.*, pp. VIII, III-6, III-7. When questioned, after BASIC and BITS published this fact in August 1998, a DoD spokesperson replied "we are confident that we can mount an effective response to terrorism without using nuclear weapons" but added "Nevertheless, we do not rule out in advance any capability available to us. I stress that these policies have to do with a situation in which the US our allies or our forces have been attacked with chemical or biological weapons" (See DoD-Spokesperson Fax to B. Bender, 26 August 1998). To say the least, either US policy is deliberately highly ambiguous or the Joint Chiefs of Staff have a different interpretation of US strategy and doctrine than the US Department of Defense.

34 Interviews by the authors conducted during September-October 1998.

35 See for example: Karl Heinz Kamp, *op. cit.*, or Paul Cornish, "Die NATO vor der Jahrtausendwende – Neue Aufgaben, neue Mitglieder- neue Strategie?" in NATO Brief, No 3, 1997, pp.21-24.

36 Deutscher Bundestag, *op. cit.*, p.5.

37 Both positions exist in the US Administration as well. While the Joint Chiefs of Staff take the position that sub-strategic weapons should play a role in offensive counter-proliferation, others are more interested in negotiating verified disarmament for these weapons. During the Helsinki Summit in March 1997, the US and Russia decided to discuss tactical nuclear weapons.

38 Quoted in Elaine Grossman, "STRATCOM Chief Calls for START III Limit on Tactical Nuclear Weapons", in *Inside the Pentagon*, 9 April 1998, p.6.

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6 "Intervention by the South African Delegation to the First Preparatory Committee Meeting for the Year 2000 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons: Nuclear Weapons, Disarmament, International Peace and Security, and Security Assurances", New York, 9 April 1997.

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8 Statement by Ambassador J.S. Selebi, South African Ambassador to the Conference on Disarmament, 20 January 1998.

9 Rebecca Johnson, "The CD Adopts Agenda, But Not Yet a Programme of Work", Geneva Update No. 38, Disarmament Diplomacy, Acronym Institute, London Issue No 22, January 1998.

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12 Labour Party, *New Labour: because Britain deserves better*, *op. cit.*

13 Ambassador Ian Soutar, interview with the author, 27 October 1998.

14 First reported in "Norwegian scientific rocket causes global scare", by Rolf Soderlind, Reuters, Oslo, 25 January 1995. A more detailed description appeared in Bruce G. Blair, Harold A. Feiveson and Frank N. von Hippel, "Taking Nuclear Weapons off Hair-Trigger Alert", *Scientific American*, November 1997, p. 76. Available on the web at: <http://www.sciam.com/1197issue/1197vonhippel.html>.

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16 Information conveyed to the authors by Frank von Hippel from discussions he has had with Russian officials.

17 Bruce G. Blair, et al., *op. cit.*

18 Richard Garwin and Aaron Tovish have proposed this type of system. See, for example "Verifying the de-alert status of submarines on patrol", in *De-Alerting Alert*, No. 2, January 1998. Available on the web at: <http://www.fas.org/cusp/alert/dealert2.htm>.

19 Bruce G. Blair, et al., *op. cit.*

20 "Supporting Essay Five", op. cit., para.13.

21 The first figure comes from "One on One", Gen. Eugene Harbinger (Interview), Defense News, March 10-16, 1997, p.70. The second is from testimony by Gen. Harbinger before the Senate Armed Services Committee on 31 March 1998, cited in Elaine Grossman, op. cit.

22 Cited in Jurgen Dragsdahl, "NATO-Russia Cooperation Stuck in Neutral", BASIC Reports No. 64, 4 June 1998.

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24 According to Taking Stock: Worldwide Nuclear Deployments 1998, 970 US tactical nuclear weapons remain, a mixture of B-61 gravity bombs and submarine-launched cruise missiles. The 180 figure is based on information received by Joshua Handler of Princeton University under the Freedom of Information Act request and other information from Otfried Nassauer, et al., op. cit.

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27 Final Communiqué, Ministerial Meeting of the Defence Planning Committee and the Nuclear Planning Group on 11th June 1998, Press Release M-DPC/NPG- 1(98)72, 11 June 1998, para. 8. Available on the web at: <http://www.nato.int/docu/pr/1998/p98-072e.htm>.

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31 U.S. Nuclear Policy in the 21st Century: A Fresh Look at National Strategy and Requirements, Executive Report, July 1998, Center for Counterproliferation Research, National Defense University, Center for Global Security Research, Lawrence Livermore National Laboratory. Summary available on the web at: <http://www.ndu.edu/inss/strforum/forum145.html>.

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35 Strategic Defence Review, op. cit., para 3.

36 Colin Powell, My American Journey, Random House, New York, September 1995.

37 R. Jeffrey Smith, "The Dissenter", The Washington Post, 7 December 1997.

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40 Document 5273/98 (Presse 15), 27 January 1998, First Meeting of the Cooperation Council Between the European Union and the Russian Federation.