The Future of Nuclear Weapons in Europe

Does Britain Need Nuclear Weapons?

A Report from the British Pugwash Group

Tom Milne

The future of the British nuclear deterrent lies with Trident nuclear missile submarines. By 1999 Trident missiles will be the UK’s only nuclear weapons. Britain’s planned fleet of four submarines should be operational and carrying out regular patrols by the turn of the century; Trident is due to remain in service until at least 2020. Each submarine carries 16 missiles and will deploy with up to 96 warheads a boat. Ninety-six warheads is a self-imposed limit; in theory, each submarine could carry more than twice this number. Each warhead is independently targetable and has an estimated explosive yield of 100kt. The cost of the nuclear deterrent for 1994/95 was £3.8 billion, about 16% of the defence budget. This includes the cost of conventional support forces that are also used to support non-nuclear military capabilities.

Nuclear weapons are a centre piece of UK defence policy. The British government argues that independent nuclear forces make an important contribution to NATO and, in a general sense, provide the ultimate safeguard of Britain’s security.

The value of British nuclear forces to NATO, the government believes, is that they provide a ‘second

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The Franco-German Nuclear Tandem

Mycle Schneider

Whereas the French and German military cooperation has not made much progress over the last 40 years, the nuclear industries of both countries have built up intensive co-operation in sensitive fields, which the military establishments might appreciate one day.

In the fall of 1995, after the French government had launched its surprise offer to extend the nuclear umbrella to Germany, one institution analysed carefully the reactions of their Western ally: the Western European Union (WEU). The result written up by that rather discrete European defence institution sounds frustrated. “The reactions of the German political officials can be qualified as prudent and polite. One could in fact expect nothing better, given the vivid hostility of public opinion to the nuclear tests and to nuclear arms in general.”

The French offer, just like in the case of the decision to resume nuclear testing, was not preceded by any major consultations with any of France’s European partners. The offer itself was fairly vaguely defined in speeches by President Chirac and Prime Minister Alain Juppé at the end of August 1995. Alain Juppé has invented the term of the “concerted deterrence” (dissuasion concerté) because the term “extended deterrence” (dissuasion élargie),

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What Comes After Nuclear Testing?

Why did Jacques Chirac stop after six nuclear tests? On earlier occasions, French military experts had estimated 20 tests to be necessary, but in summer 1995 Chirac had to cut the number to eight. Some experts assume that six tests were not sufficient to complete the nuclear modernization program (see the contribution by Tarig Rauf). One possible explanation is that the potential military gain by continued testing was not worth the political damage of being the world’s “nuclear pariah” (together with China). Thus, every test prevented could be seen as a success of global anti-nuclear protests.

While the world’s attention was drawn to the public showdown between Chirac and Greenpeace, developments behind the scenes were less recognized by the public. First of all, Chirac’s offer to share French nuclear weapons under a European “umbrella” reflected an on-going discussion on the role of nuclear weapons in a common European foreign and security policy. The reaction in Germany was not only negative (see the excerpts of an article by Mark Hibbs). This is one of many indicators that German political elites, aiming at an increasing role as a world power, are trying to achieve a major influence on the international nuclear parquet. This does not necessarily imply an interest in building national nuclear weapon capabilities - which would be a clear violation of the NPT - but could lead to various activities to circumvent these restrictions. One possibility is analyzed in a paper by the German lawyer Dieter Deiseroth, who learned that the German government had signed the NPT with a war reservation, in agreement with the US government. If this interpretation is legally correct, Germany might get rid of its NPT restrictions in case of war.

While Germany already has an advanced civil nuclear program, French-German nuclear cooperation could provide a basis for a closer exchange of civil and military nuclear technologies (see the title story by Mycle Schneider). Since France is far ahead in this nuclear tandem, Germany is trying to catch up by strengthening its national nuclear status. While attempts to build a research reactor near Munich, using highly-enriched uranium (HEU) is still widely discussed, the proposal to use the Hanau nuclear plant near Frankfurt to process the plutonium of Russian nuclear weapons did not find much acceptance (see the critical analysis by Wolfgang Liebert).

British nuclear weapons will play a crucial role in European nuclear gambits. While the UK is cancelling some of its nuclear weapons programs, the country’s future nuclear status will rely on the Trident submarine, which will have a dual role for strategic and tactical purposes. Tom Milne provides some results from a report of the British Pugwash group on whether Britain would live better without nuclear weapons.

Without any doubt the cessation of French nuclear testing as well as Chirac’s and Clinton’s proposal for a zero yield test ban have improved the conditions for a Comprehensive Test Ban Treaty (CTBT) in 1996. However, some obstacles remain, above all the continued persistence of China on nuclear testing and peaceful nuclear explosions, but also possible circumventions by computer simulations and other “treaty-consistent” activities, including “subcritical testing”. India, concerned about technological supremacy of both China and the USA, is currently playing the “advocatus diaboli” in the CTBT negotiations by insisting on linkages to nuclear disarmament. Praful Bidwai and Achin Vanaik analyze Indian motives, perceptions and reactions.

Although the CTBT negotiations must soon be brought to a successful end, this should not be an argument against critical questions about circumvention and continued weapons research and development. André Gsponer provides some background information about a fourth generation of nuclear weapons, aiming at replacing nuclear explosions by advanced science and technology, and Martin Kalinowski takes position against attempts in the USA to perform six subcritical tests starting this summer. Paul Walker points to the dangers that the Republican defense policy poses to the international arms control process, including the ABM Treaty, START II and the Chemical Weapons Convention. Jonathan Dean outlines his ideas on reducing the danger from nuclear weapons by doing further steps towards nuclear disarmament.

The News section provides additional information about the newly founded Abolition 2000 Network, the Canberra Commission on the Elimination of Nuclear Weapons, a Nuclear Weapon Convention, the CD negotiations in Geneva, the review of a book on Pakistan’s atomic bomb, a previous INESAP Workshop on nuclear weapons in Europe (of which some contributions can be found in this issue), the planned INESAP Conference in Sweden and the Atomic Mirror Pilgrimage in the UK.

In a separate leaflet to this issue you find a questionnaire in which the readers of the INESAP Information Bulletin have the opportunity to give us feed-back about their positive and negative critique.

Jürgen Scheffran
from the British Pugwash Group.

The case for British weapons outside the NATO context, as an ultimate guarantee of UK security, is equally unconvincing. The UK plans to arm some Trident missiles with one or a few warheads each to make possible a lower level or “sub-strategic” use of nuclear weapons. The idea as expressed by the British government is that the UK should have “the capability to undertake a more limited nuclear strike in order to induce a political decision to halt aggression by delivering an unmistakable message of our willingness to defend our vital interests to the utmost.”

Presumably the UK would use nuclear weapons only to respond to a threat from weapons of mass destruction or conventional aggression backed up by a nuclear deterrent. Although there is no reason for the UK to anticipate such threats, keeping nuclear weapons ‘just in case’ seems to many to be good sense. Looked at more closely, however, this reasoning is specious. A strike against a nuclear-armed opponent, even if limited in size and designed to bring hostilities to an end, might be met by full scale nuclear retaliation on Britain. No consideration could be given to using nuclear weapons if there is any prospect of such a retaliatory strike. Nuclear weapons might deter nuclear attack from a ‘rogue’ state but it is the government’s view that deterrence could not be relied on in such circumstances and British nuclear weapons are not for this purpose. This leaves chemical and biological weapons. Britain has no plans to counter these weapons with nuclear force. Rather it goes along with a strong body of professional opinion that favours conventional military action/deterrence in response to chemical or biological weapons attack or threat.

No benefit from nuclear weapons

The authors of the report could find no scenario in which independent nuclear action by the UK would be a realistic option. Britain could in theory have won the Falklands war quickly and militarily cheaply by threatening or attacking Argentina with nuclear weapons but this was inconceivable in practice because of the wholly disproportionate savagery of a nuclear attack. (The UK has not seriously contemplated using nuclear weapons in any of the conflicts in which it has been involved since deploying nuclear weapons 40 years ago.) Thus talk of sub-strategic nuclear strikes does not reflect real plans. While it is not possible to be certain that circumstances will never arise in which Britain would not benefit from having nuclear weapons, this is true for all nations and it is not feasible for Britain to maintain nuclear weapons for its security indefinitely while this option is denied to others.

A less spoken about but nevertheless powerful basis of support for independent British nuclear weapons is the belief that they give the UK a more prominent role in world affairs than it would have without them. In particular, keeping nuclear weapons may help Britain to remain a permanent member of the Security Council. If this is so, then this significantly increases British influence in the world. This may be seen as an argument against independent nuclear disarmament; indeed, against nuclear disarmament by Britain under any conditions. But if Britain’s permanent membership of the Security Council and influence in the world rests on its possession of nuclear weapons, two distressing conclusions can be drawn. First, rather than symbols of Britain’s power and standing, nuclear weapons are symbols of its decline. No-one would suggest that the USA would go unheeded, or would be removed from the Security Council, if it did not have nuclear weapons, nor that non-nuclear weapon states such as Germany or Japan lack power and influence. Second, it would confirm, and would be seen as confirming, that nuclear weapons confer international influence and prestige, which will provide an incentive to proliferators and thereby undermine Britain’s security. It is arguable that today Britain would gain more prestige by leading efforts to rid the world of nuclear weapons. Robert O’Neill, writing in October 1995, suggests that there might even be a domestic political advantage for a British party that takes up this cause.

The main conclusion drawn in the report is that British nuclear weapons make no contribution to British or world security, nor did they during the Cold War. The main recommendation is that the UK should play a leading role in work for a world free of nuclear weapons. Specifically, the report recommends three initiatives to the British government, which the au-
thors judge will promote world nuclear disarmament and are achievable politically. First, propose that work on the elimination of nuclear weapons begin in the Conference on Disarmament in Geneva. Second, propose and work for multilateral disarmament talks between all nuclear weapon states to follow on from START II. Third, seek to gain general acceptance that the only purpose of nuclear weapons is to deter nuclear attack, and aim to agree a treaty on no first use of nuclear weapons between the nuclear weapon states.

Waste of resources

It is not pie in the sky to suggest that it might soon be those who wish to retain UK weapons who have to justify their position rather than those who want to get rid of them. There is widespread unease about cuts being made to Britain’s conventional armed forces. The opportunity may arise to portray nuclear weapons as useless, a waste of money and resources, detracting from overall fighting capability. Indicative of this is the prediction made in November 1995 by Sir Michael Atiyah, President of the Royal Society, that “history will show that the insistence on a UK nuclear capability was fundamentally misguided, a total waste of resources and a significant factor in our relative economic decline over the past 50 years.”

The political initiatives recommended to the British government have to some extent been pre-empted by the Canberra Commission on the Elimination of Nuclear Weapons set up by Australia’s Prime Minister Paul Keating. The impact of a nuclear weapon state throwing its weight behind the initiative would be huge, nevertheless. An additional, distinctive British contribution would be if the Aldermaston laboratory were directed to turn a significant portion of its energies to the many scientific questions involved in nuclear disarmament. This would be a viable task for the establishment which is not involved in nuclear attack, and aim to agree a treaty on no first use of nuclear weapons between the nuclear weapon states.

Notes


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Mycle Schneider: The Franco-German Nuclear Tandem. Continued from page 1

as he explains, “can lead to the suspicion of paternalism”.

The new expression is in fact not even far from the concept of the strategic consultations as even envisaged by some SPD leaders in Germany.

By the end of the year, both heads of State, President Jacques Chirac and Chancellor Helmut Kohl, signed a joint letter to the heads of State of the other member States of the European Union, where they define as priority goal in particular “to permit the Union to have a more visible and more determined common foreign and security policy (...). This implies that the foreign and defence policies of each of our countries are brought significantly closer to each other around clear objectives and priorities... which have still to be defined.

Nevertheless, the WEU in particular is far from giving up the perspective of a joint European defence system. “Everybody agrees not to interpret the French offer as if the question was ‘to have a finger on the button’”, states its report, “the question is rather to think over a project of concerted strategy in the nuclear domain.” The question is how, when and with whom.

The complexity of the political and strategic problems involved has left earlier attempts to solve the European nuclear question without further steps towards any integrated system. The specific German situation has always been a particular barrier. It is all the more surprising that the quoted WEU report considers it “interesting to recall” the secret agreements on defence and armaments, including the nuclear arms dimension, between France, Germany and Italy in 1957-58. On New Year 1957, the French and German defence ministers Bourgés-Maunoury and Strauss signed a secret agreement which included common efforts towards a nuclear weapons program. In a protocol dated November 25, 1957, Italy joined the agreement. That protocol covered as “a matter of priority” the co-operation in the fields of aeroplanes, missiles and military applications of nuclear energy. On April 8, 1958, a further agreement was signed on the construction of the primarily military uranium enrichment plant at Pierrelatte. But with the arrival of De Gaulle as President on July 1st, 1958, the agreements were cancelled. In fact, the man who blocked the agreement was Pierre Guillaumat, De Gaulle’s minister of defence. Almost 10 years ago, Pierre Guillaumat told me in an interview that “we perfectly knew that military atomic energy in Germany would have meant the entry of the Russian army into the
FRG. They would not have tolerated that. I told Strauss so.” To the question whether Strauss did understand or merely accepted that point of view, Guillaumat answered: “What do you want, it was me who said no. If I had said yes, he would have accepted. I had not signed [the agreement], so I did not renounce my word.”

The situation back then, can “under no circumstances be compared to the current French proposal”, stresses the WEU report. But it is “also interesting that the Germans have not always been hostile towards a discussion concerning the military nuclear problems”. The German position is considered crucial. “The nature of the German response will be very important from a political point of view. A positive response would open the door to a European doctrine of deterrence where the nuclear garanties of the United Kingdom, but also of France, would be extended to other countries.”

Is a solution of the nuclear question on the horizon? In fact, the European defence establishment stays rather pessimistic.

The third surprise announcement, after the testing resumption and nuclear umbrella offer, orchestrated by the French Government over the last few months is the potential reintegration into NATO’s military command structure. Jacques Baumel, president of the defence commission of WEU and vice-president of the French National Assembly’s defence commission, commented that France’s comeback inside NATO - France left the integrated command in 1966, but stayed a member of NATO - “is an important turning point of our strategy, the end of a certain idea of France and the sad consequence of the European’s incapability to create a real European defence outside of NATO”. What does not work outside NATO shall work from inside?

“The political nuclear fission in the civil and military atom in the use of nuclear energy has failed. It has never existed.”

Petra Kelly, during the Bundestag debate on the NPT and nuclear ambitions of the FRG, 5 June 1986

Whereas the direct approach to the nuclear weapons question continues to pose inextricable problems since the Franco-German nuclear weapons connection came to an abrupt end, the co-operation of the two plutonium industries flourished ever since.

Already in 1959 the international consortium EUROCHEMIC was founded under Franco-German leadership. Its primary goal was the construction and operation of a spent fuel reprocessing plant in Mol, Belgium. The plant was already put into active operation in 1966, exactly at the same time when the French CEA (Commissariat à l’énergie atomique) started up its UP2 plant at La Hague. The EUROCHEMIC plant operated only until 1974, the consortium was dissolved in 1982. At that time Germany and France were with 34% and 28% by far the largest shareholders.

In 1971 United Reprocessors were founded, the capital was devised in equal shares between the CEA, the German KEWA and British Nuclear Fuels. United Reprocessors aimed at the commercialisation of reprocessing.

The UP2 plant was financed at least half out of the military budget of the CEA. Between 1966 and 1975, UP2 reprocessed only gas-graphite-reactor fuel, some of it for defence purposes. In 1976 COGEMA (Compagnie Générale des Matières Nucléaires) was established as daughter company and got the reprocessing plant with a new light-water-reactor head-end as a birthday gift. In the 13 years from 1976 to the end of 1988, COGEMA reprocessed only 245 MT of fuel for EDF (Electricité de France), while it reprocessed more than 2,000 MT of foreign, mainly German spent fuel. Between 1979 and 1983, the UP2 plant reprocessed also some fuel from the French Phénix breeder reactor in dilution with gas-graphite fuel. Phénix is known to have produced weapons grade plutonium in its blankets for defence purposes. German utilities have also signed contracts over the reprocessing of 2.498 t of spent fuel to be reprocessed at the UP3 plant which started operation in 1989. This corresponds to a 35% share of the total investment into the construction of the plant. The quantity under contract is to be reprocessed until the year 2000.

The Franco-German-Italian triangle was “re-established” in 1972 with the creation of NERSA (Centrale Nucléaire à Neutrons Rapides, SA), the builder and owner of the Superphénix fast breeder reactor. This reactor operates with about seven tons of plutonium in the core. It produces excellent weapons grade plutonium in its blankets. Its destination is unclear. So far, because of its very bad operating record, in ten years of operation fuel has not been discharged yet.

Currently the German utilities are re-negotiating with COGEMA post-2000 reprocessing contracts which were originally signed in 1990 but contain a “political” clause which allows the utilities to re-negotiate the terms of the agreements. According to various sources, it seems that the new wording of the contracts would allow for the transfer of German origin plutonium to France. In parallel, German utili-
ities are negotiating with the French MOX industry on the fabrication of MOX fuel for German reactors. It is obvious that the realisation of these contracts would mean a significant step back as to the limitation of the plutonium economy in Europe. It is remarkable to note that the co-operation between French and German plutonium industries has been going fairly smoothly for almost 40 years. The strategic significance of tons of German separated plutonium (at least ca. 1.7 tons in Germany, and probably around 15 t mainly in France and Belgium) without any use for the immediate future is obvious. The risk export - on health and proliferation levels - of the German plutonium problem should not be carried into the next century.

Notes
1 UEO, “La reprise des essais nucléaires français dans le Pacifique”, document 1488, 7 November 1995
2 Jacques Chirac declared for example: “While building up its defense, the European Union could wish that the French force de dissuasion plays a role in this defense.” And Alain Juppé stated that “cooperation can no longer ignore the nuclear dimension of our common security.” ibidem
4 Le Monde, 9 December 1995
5 Interview with the author and Georg Blume, Paris, 10 September 1986
6 Le Monde, 19 January 1996
7 100% Deutsche Gesellschaft für die Wiederaufarbeitung von Kernbrennstoffen
8 Originally 51% EDF (F), 33% ENEL (I), 16% RWE (D); RWE left its share to SBK, the Kalkar builder/owner company; SBK is now 68.85% RWE, 14.75% SEP (NL), 14.75% ELECTRABEL (B), 1.65% NE (UK)
9 IANUS, Fact Sheet, January 1996, draft

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Tomorrow, a Eurobomb? by Marc Hibbs

(Excerpts from Bulletin of the Atomic Scientists, Jan/Feb 1996, pp. 16-23)

During an annual meeting of French ambassadors last August 31, President Jacques Chirac announced that France might eventually offer its nuclear weapons to a common European defense. France, said Chirac, “would take an initiative at an appropriate time on this subject and in concert with its principal partners.” A week later, Prime Minister Alain Juppé explained that France would invite Germany to join it and Britain, Europe’s two nuclear weapons states, in future discussions toward creating a system of “concerted deterrence” in Europe, using the force de frappe, a force that would, as before, remain independent of NATO. […] The day after Juppe’s statement, German Foreign Minister Klaus Kinkel said publicly that he found the French proposal “very interesting,” but did not go into details. Anxious spokesmen later explained that, no, the foreign minister’s interest did not mean that Germany sought to “co-possess” nuclear weapons in any way, “not even through the back door.”

But foreign policy spokesmen for Chancellor Helmut Kohl’s CDU/CSU-led coalition were somewhat bolder, hinting that, as Europe moved toward unity and since rogue states and Russian nationalists who could come to power might get the bomb - Germany should press for the “Europeanization” of those nuclear weapons now in French and British hands. After a discussion with French cabinet ministers and military commanders, Friedbert Pflüger, spokesman on disarmament affairs for the CDU/CSU, reported that “everybody, with no exceptions, said we need a Europeanization of the deterrent.”

On the other side of the ledger, the opposition reacted negatively to the French announcement, raising the specter of secret France-German diplomacy, guided by Bonn, eventually achieving for the newly reunified and assertive country a finger on the nuclear trigger. They pointed out that past German leaders had repeatedly opposed making non-proliferation commitments that would foreclose the possibility that Germany might someday become a nuclear-armed state. They also noted that Kohl’s opponents, who in 1990-91 were assured that German forces would not engage in “out of NATO area” military activities, were helpless when Kohl established a presence for German strike aircraft in the ex-Yugoslavia in 1995. […] Germany joined the Nuclear Non-Proliferation Treaty (NPT) in 1969 only after a stormy domestic debate during which treaty opponents were branded as lackeys of Moscow and Washington, and the treaty itself was labeled a “nuclear Versailles” by those who toyed with the idea of a German nuclear bomb capability. […] But German support for indefinite extension was not a foregone conclusion. Diplomatic sources said that defense ministry officials, supported by experts at the Stiftung Wissenschaft und Politik, a think tank in Ebenhausen close to conservative government parties, argued internally that if the NPT were to be indefinitely extended, Germany would be legally blocked from equal partnership in a future nuclear-armed European Union (EU). These sources said that experts in the defense ministry agreed to support an indefinite extension only after a legal analysis suggested that an indefinite extension would not prevent Germany from acquiring nuclear weapons if it sought to do so in the future. Experts pointed out that the NPT had originally been formulated to allow the possibility of a European nuclear defense option. They also noted that, under Article 10, any NPT member was free to quit the treaty if it found that its “supreme interests” were in jeopardy. [...]

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France Ends Nuclear Tests

Tariq Rauf

On January 27, 1996, France conducted its last nuclear test term conducted by President Jacques Chirac as “the definitive end of French nuclear testing.” Over the past five months, despite strong worldwide protests, France conducted six nuclear tests at its test-site in the South Pacific (Centre d’Expérimentations du Pacifique) citing a need to develop computer simulations designed to check the reliability of French nuclear warheads. Nuclear test explosions were conducted on: 1) September 5, 1995, at Mururoa, 20 kilotons (KT); 2) October 2, at Fangataufa, 110 KT; 3) October 27, at Mururoa, 60 KT; 4) November 21, at Mururoa, 40 KT; 5) December 27, at Mururoa, under 30 KT; and, 6) January 27, at Fangataufa Atoll, 120 KT.

Many arms control experts, however, believed that the real reason for the new series of tests was to certify a new nuclear warhead (TN-76/TN-100) for the M-45/M-5 submarine-launched ballistic missiles, as well as to develop nuclear simulation techniques to predict the performance of French nuclear warheads in the absence of nuclear explosive testing under a Comprehensive Test Ban Treaty (CTBT) – currently under negotiation in Geneva – that France has committed itself to sign.

The resumption of French nuclear weapon testing evoked exceptionally strong criticism internationally and resulted in France being considered a nuclear “pariah,” particularly by nations in the South Pacific. Even some European Union (EU) countries showed their opposition by supporting test ban resolutions at last year’s UN General Assembly, to the undisguised displeasure of France. Only Colonel Mu’ammur al-Qadhafi, the Libyan leader, endorsed Chirac’s plan.

The following section provides a brief assessment of France’s nuclear testing and force modernization program.

The French Nuclear Weapons Programme¹

Gerboise Bleue, the first French nuclear test, was conducted on February 13, 1960, in Algeria, with a yield estimated at 60 to 70 kilotons (KT). All subsequent French nuclear explosions have been conducted on colonial territories, first in Algeria and then, following Algerian independence in 1962, in the Tuamotu Archipelago (which includes the uninhabited Mururoa and Fangataufa Atolls) in the South Pacific. France, though, claims that all its tests have been conducted on “French” territory.

French nuclear weapon designers seeking to be independent of both the United States and the United Kingdom, being excluded from the Manhattan Project, have been relatively backward and slow as compared to the advanced declared nuclear weapon states. Thus, in general, France has required about five times as many nuclear tests as Britain – the official number is 210, while an unofficial estimate is 216, tests by France; as compared to 45 tests by the United Kingdom. France accounts for nearly 10 percent of the 2,045 nuclear test explosions to date.

Despite French claims and assertions of nuclear independence, in reality, after strong initial opposition, France benefitted in the 1970s and 1980s from highly-secret United States nuclear assistance. This included help in the development of advanced nuclear warhead and missile designs, as well as help in the development of France’s first multiple-warhead submarine-launched ballistic missile (M4A). The 1985 U.S.-France “Agreement for Cooperation on the Safety and Security of Nuclear Activities and Installations for Mutual Defense Purposes” authorizes transfer to France of U.S. restricted data on nuclear weapons, material, and equipment “to improve the recipient nation’s atomic weapon design, development, or fabrication capability to optimize the safety and security of the recipient’s nuclear activities or installations.” Recently, the United States offered to share its computer simulation technology for non-explosive reliability testing of warheads with France in an attempt to dissuade further French testing. Reportedly, after initial reluctance, France accepted the U.S. offer. Computer simulation remains an inexact science, as it is currently not feasible to exactly predict the yield of an advanced nuclear warhead. Data from previous tests are used to develop computer models predicting the yield of new warhead designs, and these models are continuously revised based on new data from additional tests. Such data is used to predict the expected yield of boosted primaries and secondaries in advanced warheads. (The energy released by exploding a boosted primary is used to produce an uncontrolled chain reaction in the secondary, thus achieving a large explosive yield from a small warhead.)

French (as well as other) nuclear weaponeers utilize three sources of data, other than nuclear detonations, to study the dynamics of nuclear explosions. Hydrodynamic experiments are used to slow warhead behavior from the point of triggering to the point at which a nuclear chain reaction occurs. Inertial-confinement fusion relies on high-intensity lasers to heat and compress beads of deuterium and tritium in order to study fusion (thermonuclear) characteristics. Hydronu-
clear experiments, or aborted bombs, use explosives with yields of kilograms (rather than kilotons) to test for reliability and safety of nuclear explosives. France is also currently developing plans to build a new facility to conduct hydronuclear tests utilizing high-energy lasers and to develop a test simulation computer program. This facility called PALEN (Préparation à la Limitation des Essais Nucléaires) would be built outside Bordeaux at a cost of over $2 billion over the next five years. Thus, some in the arms control community remained skeptical of French government claims to fully abide by a policy of adhering to a true zero-yield CTBT.

French nuclear strategy underwent significant change since the ending of the Cold War. Under the Mitterand government, while nuclear forces remained the “pivot” of French strategic policy, they nevertheless were restructured, alert levels were cut back, and procurement and deployment plans somewhat reduced in the period following 1990-91. Ground-based ballistic missiles (sol-sol ballistique stratégique) were reduced with the withdrawal from service of Pluton short-range missiles and placement in storage of 30 medium-range Hadès missiles, leaving 18 S-3D intermediate-range (3,500 km) missiles in service, which will become obsolete in 2005. Due to fiscal constraints, plans to replace the S-3D IRBMs with new missiles (M5) or with a ground-based version of the existing M-45 submarine-launched missile (SLBM) have been canceled. The air-sol longue portée (ASLP) standoff nuclear missile is also doubtful, though the air-sol moyenne portée (ASMP) medium-range missile likely will be deployed, on 45 Mirage 2000N-K2 dual-capable bombers of the Forces Aériennes Stratégiques and on 15 such aircraft of the Forces Aériennes Tactiques. Only sea-based strategic force modernization continues unchecked, with 4 third-generation Le Triomphant class missile submarines (SSBNs) being built (with the first entering service in 1996), each carrying 16 six-warhead (MIRVed) M-45 SLBMs – the new M-5 SLBM will likely now enter service in 2010. By 1993, 4 first-generation Redoubtable class missile submarines were modernized, to the standard of the single L’Inflexible class second-generation SSBN, and each retrofitted with 16 M-4 (6 MIRVed warhead) SLBMs.

Conclusion

The French government claimed that it needed the recent series of nuclear weapon tests in order to ensure the safety and reliability of its nuclear arsenal, as well as to develop computer simulation techniques to certify nuclear weapons in a laboratory environment. In reality, France already maintained nuclear warheads of proven and mature designs in its arsenal, and the new TN-75 warhead was certified before President Mit-terand ordered a cessation of French testing. It seems highly probable that the new round of tests commissioned by the Chirac government was for the development and certification of the TN-76/TN-100 warhead – the latest French design – even though the new M-45/ M-5 submarine-launched ballistic missiles could be fitted with the fully tested TN-75 warhead (whose design was optimized in 1991). French officials have also claimed that their TN-70, TN-71, and TN-75 warheads required reliability checks (through explosive testing) because these designs are highly optimized, i.e. they have a very precisely computed shape to present a very low radar cross-section. They noted that previously it had taken France up to 13 or more tests to certify new designs, hence they claimed that the planned eight tests would be too few to certify a new warhead. However, with sophisticated computer technology, the United States can certify new designs with only four tests. Some arms controllers therefore believe that the six tests recently carried out by France might now be sufficient to certify the new TN-76/TN-100 warhead.

The near-universal international condemnation of French nuclear testing has shown that the international community will no longer tolerate additional tests by the nuclear weapon states, and has lent additional support for the conclusion of a Comprehensive Test Ban Treaty (CTBT) to be signed before the end of the year. Inside France itself, over 60 percent of the population opposed Chirac’s policy on testing and the national consensus on nuclear weapon issues was permanently fractured. Furthermore, some of France’s non-nuclear weapon EU allies also distanced themselves from French nuclear policy, thus demonstrating the schism in the EU over the future role of (French) nuclear weapons.

Notes


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Germany’s NPT Obligation Not Under Condition of War?

Dieter Deiseroth

In INESAP Bulletin No.6, Dieter Deiseroth has given a survey of Germany’s attitudes towards nuclear weapons after indefinite extension of the Non-Proliferation Treaty (NPT), including the question of active participation within NATO’s nuclear strategy. Meanwhile, the author has extended his work towards a historic analysis of conditions for Germany’s membership in the NPT. In the following, some excerpts from a recent paper, translated and modified from the longer German version, are reprinted. This contribution provides some background information on how binding the NPT would be for Germany in case of war.

The Rusk interpretation

There are reports about a document submitted to the German Federal Cabinet in spring 1969, in which one can read that the German government end of 1968/early 1969 had achieved within NATO a satisfying US interpretation of the term “transfer of control” of nuclear weapons, which is regulated by the NPT. The exact wording is not known. As far as known, this interpretation was not presented to the German Parliament (Bundestag) during the ratification process.

It is certainly known that on April 20, 1967 the former US Foreign Minister Dean Rusk had stated to the NATO Council six “declarations of interpretation” of which one concerned the so-called “war reservation”. In the memorandum of the Federal Government to the NPT, which was presented to the Bundestag during the ratification procedure, it was mentioned that Rusk had explained to the US Senate Foreign Committee on July 10, 1968:

The NPT “does not deal with regulations about the dislocation of nuclear weapons on allied territory, because this would not include transfer of nuclear weapons or control over such weapons, as long as a decision to make war has not been taken, in which moment the treaty would no longer be valid”.

In other words: This declaration of interpretation not only indicates that the US government did not feel hindered by the NPT to deploy nuclear weapons on the territory of their NATO allies. In addition, this statement implies that according to the opinion of the US government the NPT with all its obligations would “no longer be valid” from the time at which “a decision to make war was taken”.

From the wording one could also conclude that the regulations on the dislocation of nuclear weapons on allied territory would exclude a “transfer of nuclear weapons or control over such weapons” only as long as a decision to make war has not been taken.

The German daily newspaper “Die Welt” was provoked by this interpretation to the following statement: “It is remarkable that the Minister explicitly emphasizes the irrelevance of the NPT in case of war. It is worth noting that in this context he spoke of the decision to make war, but not of a war declaration. This nuance is interesting since it leaves the possibility to put the treaty out of operation, even without a war declaration.”

From the context of the explanations in the memorandum for the Bundestag it becomes clear that the German government has adopted the declaration of interpretation of the US Foreign Minister.

The “war reservation” raises the question who would eventually be responsible to take a decision to make war. And: who would have to judge whether such a decision was taken, making the NPT irrelevant? In the literature it is reported that these questions had been debated during ratification in the US Senate and had been answered in the sense that the “war reservation” would only refer to wars in which the major powers would participate, i.e. a “general war” (but not a “limited local conflict”).

This means: Should this interpretation, stated by the US government and explicitly adopted by the German government during parliamentarian legislation, be legally effective, then Germany could, after the time of “decision to make war”, take a nuclear status and receive control over nuclear weapons “directly or indirectly”, in contradiction to Article II of the NPT. Then the NPT would be put out of operation and become invalid.

During a military conflict Germany then could receive atomic bombs from its allied nuclear weapon states USA and eventually Great Britain or France and deploy them with its nuclear delivery systems to the place of detonation. This would imply that Germany, different from Foreign Minister Klaus Kinkel’s repeated statement, had not renounced (nuclear) weapons of mass destruction for all times in a legally binding way.

As far as known, the Rusk interpretation of 20 April 1967, including the war reservation, has been given notice by the US government to the former Soviet Union on 28 April 1967, who received it without comment, according to the German memorandum. Supposed this information is true, the legal effectiveness of the war reservation depends on the following questions:

1. In formal respects: Did the German government during signing or ratifying the NPT inform the other
member states about the war reservation in written form and did they agree, at least tacitly?

2. In substance: Is the war reservation compatible with the “objective and purpose” of the NPT?

This is not the place to analyze these difficult questions in detail and finally answer them. As far as evident, such an analysis has been performed by nobody in Germany publicly.

What can be concluded is the following: If the “war reservation” would be effective international law, this would have fatal consequences for the NPT: The NPT would be valid for Germany only as long as a “decision to make war” has not been taken. After this moment the treaty would no longer be valid. The basis for its universal validity would be lost. The NPT’s central objective, to prevent the proliferation of nuclear weapons (beyond the five nuclear weapon states USA, Soviet Union / Russia, France, UK and China) could not be achieved any more. All states, who had declared such a war reservation or would do so at entry into the treaty, would be free in case of war, just when the use of nuclear weapons becomes relevant, to acquire nuclear weapons, contrary to the central “objective and purpose” of the NPT.

What can be done?

1. Influence the future NPT Review Process: The NPT member states need to clarify during the review process whether and which states have declared a war reservation and what this would imply for international law. An opportunity would be the next NPT Review Conference 2000 and the meetings of the Preparatory Committee (PrepComs), beginning in 1997. Non-governmental organizations (NGOs) could play an important role by clarifying the nuclear status of NATO member states and by organizing an expert workshop on this issue.

2. Legal clarification: German parliament should clarify as soon as possible which conditions and interpretations have been stated by German authorities to other NPT member states during the process of signing and ratification. In particular, the meaning of the “war reservation” must be made clear. If necessary, a special parliamentary committee must be established. Another questions is whether German participation in NATO operations with nuclear weapons is compatible with the NPT. Most effective, but politically difficult to achieve by two-third majority would be an amendment to outlaw nuclear weapons by the German basic law. Another option would be to initiate a legal case at the highest German Court.

3. Initiate work on a Nuclear Weapons Convention (NWC): A more fundamental solution to the problem would tie up to the proposal of former Soviet General Secretary Gorbachev, made on January 16, 1986, to eliminate all nuclear weapons step by step until the year 2000. This would be in correspondence with the obligation agreed to in Article VI of the NPT to begin negotiations on “a treaty on general and complete disarmament under strict and effective international control”. This would also be compatible with what the German Foreign Minister Klaus Kinkel has said at the UN General Assembly on 27 September 1995, where he supported complete disappearance of nuclear weapons according to Article VI. A Nuclear Weapons Convention, complementing the Biological Weapons Convention and the Chemical Weapons Convention would be consequent: why are biological and chemical weapons banned, but not nuclear weapons which are much more destructive?

A Nuclear Weapons Convention would include, in particular:

1. the complete ban on development, production, storage, use or threat of use of nuclear weapon systems (on the ground, in water, air and outer space);
2. the creation of a control regime to effectively verify compliance with a convention with far reaching competences (based on the model of the UN Commission in Iraq);
3. the explicit regulation that any use of nuclear weapons, even as a reaction to a previous attack, has to be seen as a “crime against humanity”;
4. the binding regulation that any research and development of nuclear weapons, all war plans and all military doctrines, including and preparing for the use of nuclear weapons, would be illegal; all persons participating deliberately in the working out of such plans, are seen as accomplices or assistants of a criminal undertaking and are prosecuted by national and international (to be created) prosecutors;
5. the explicit demand to all citizens in all states to undertake any possible and reasonable steps to uncover violations of the Nuclear Weapons Convention (and other disarmament treaties) and to report these to the UN or other responsible control agencies, as well as a regulation that no member state should be allowed to impose any sanctions against these citizens because of this “civil verification”.

Notes:

1. D. Deiseroth, Germany and Nuclear Weapons After the Indefinite Extension of the NPT, INESAP Information Bulletin No. 6, July 1995, pp. 21-23
2. The complete paper in German language has been published in two German newspapers and can be requested from the author. See Frankfurter Rundschau, January 29, 1996; Special supplement to Freitag, November 24, 1995
3. See M. Küntzel, Bonn und die Bombe, 1992, p. 197
4. Bundesstagsdrucksache 7/994, p.17 (translated from German)

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Russian Plutonium to German MOX?

Comments on the Hanau Debate

Wolfgang Liebert

An investment ruin

A turning point has been reached. The Siemens factory at Hanau (Germany) entirely abandons the production of fuel elements. It had started more than 30 years ago with the ALKEM company, later on involved in scandals, and now has found its termination. The red-green Hessian State Government, which after a lapse of several years regained power five years ago, had fought hard with all political and legal means against the plutonium handling in Hanau.

At the end of July 1995 the power supply companies had refused to continue to finance the new production plant (under construction) for mixed oxide (MOX) fuel elements containing plutonium. A few days later, Siemens had to follow up by completely giving up the Hanau facilities. Although more than 1.2 thousand million DM had already been spent in the construction, this solution is – from the economic point of view – in comparison the most reasonable, as additional annual costs for the use of fuels containing plutonium, as opposed to the usual uranium fuels, amount to the considerable sum of up to 80 million DM annually for a typical gigawatt nuclear power station. These extra costs, resulting from the expensive handling of the dangerous plutonium, caused an increasing degree of uneasiness for the companies operating the nuclear power plants.

The environmental and peace movement, supported by independent scientists has always kept a close and critical eye on plutonium economy. It is and was an important argument, that the recycling of plutonium causes a multiplication of the long-lasting and ecologically dangerous actinide elements, which have a half-life of tens of thousands of years. The use of plutonium in reactors would not even noticeably stretch the uranium reserves. The separation of plutonium by reprocessing the spent fuel also produces additional nuclear waste. Even if this would not be the case with the employment of new reprocessing technologies, the amount of necessary storage space in a final depository would be equally increased notwithstanding the fact that it cannot be presently provided in a convincing and safe manner. These facts as well as the frequent use of the environmental pollutant and bomb material plutonium is considered as superfluous and dangerous, its processing and transport were clearly indicated as the main annoyance for the critics who finally gained the upper hand.

Simultaneously, the energy supply companies urged the government to alter the German Atomic Law in such a way that the direct permanent disposal of nuclear waste – which will be more likely a long-term temporary storage – will be legitimised as an equal 'solution for the problem of waste disposal' instead of the uneconomic reuse of plutonium. The legal base for the nuclear energy industry in Germany has indeed been amended in mid of 1994 by a so-called "Article Law". In the wake of this amendment some energy supply companies organised the gradual abandoning of the unloved use of plutonium.

But Siemens was obviously not willing to accept the bitter idea of an investment ruin in Hanau. With regard to the future they worked out a study in cooperation with the Society for Reactor Safety (GRS) and the Russian Nuclear Ministry (Minatom). This study, which was completed in spring of 1995, pleaded for alternative forms of use of the Hanau factory: once completed and licensed, Hanau could soon be the protagonist in the elimination of the Russian plutonium stemming from nuclear disarmament. But the Siemens management itself assumes that the processing of Russian weapons plutonium in Germany is more or less unrealistic. Who reasonably believe that Russia would deliver its weapons material to Germany, of all countries? Additionally, the opposition of the citizens, of the environmental movement as well as of the Hessian State Government would have to be unavoidably expected.

Nevertheless, there is also the possibility of transferring the technology itself to Russia and to dismantle and export part of the technical components which are already installed at Hanau. This would be a good prospect for Siemens, as losses might be compensated, the technical standard could be maintained by cooperation with the Eastern partners, and the gaining of practical experience would be granted by permanent cooperation for the next decades. This would hold true even if the abandoning of nuclear energy in Germany – as it is feared by Siemens – became a reality.

Swords into ploughshares?

Siemens had received support by the German Liberal Party, the FDP, when its leader of the parliamentary group, Mr. Hermann Otto Solms, declared wholeheartedly at a parliament session in Bonn in the end of June 1995 that the world needed Hanau. Germany could render "a unique and excellent service for the global elimination of nuclear weapons". The German foreign office and the FDP would love to make a good stand in world politics by butting into the debate about nuclear weapons and weapons material, which is being monopolized by the ‘real’ nuclear powers.

When, more than three years ago, the idea of MOXing weapons plutonium at Hanau became for the
first time a topic in political debates in Germany, all parties were unanimously calling it great nonsense. Therefore, it was quite astonishing that the recent hot debate concerning Hanau had been triggered off by one single voice from the German peace research. Already during the course of the conference on the Non Proliferation Treaty (NPT) in New York, the Peace Research Institute Frankfurt announced at the end of April of 1995 that Hanau could pretty soon transform Russian weapons plutonium into fuel elements for power stations, if “the red-green Hessian Government would be prepared to make such a sacrifice for the sake of disarmament”.

Indeed, plutonium from dismantled warheads could be processed in a way that it could be loaded into MOX fuel elements, which then would partly make up the fuel for nuclear power plants. For that purpose, someone looking for ‘fast solutions’ could only take those reactors into consideration for which there already exists a license. In Germany, there are presently eleven such light water reactors which – with one exception – are only allowed to contain plutonium in one third of the fuel elements. Thus only approximately 400 kilograms of plutonium could be absorbed annually per gigawatt power station.

Ten reactors – depending on the actual availability – would have to run for at least 25 years, or better 30 years, in order to transform 100 tons of weapons plutonium. In this case, about 115 tons of plutonium would be the final product, since new plutonium would be produced by the uranium isotope U-238 which also makes part of the fuel. After reprocessing this plutonium, it could then be theoretically re-used for weapons production. However the mixing of the plutonium with nuclear waste caused by the reactor operation itself would form an effective barrier for some several hundred years against the direct access to the weapons material which, however, could be surmounted by the well-known reprocessing technology. All things considered, the result would effectively be the production of plutonium where the original goal was to get rid of it. An advantage of the MOX option is that the isotopic vector of the weapons plutonium originally put into the process would change so that the product, if seperated again, would not be as weapon-useable as before.

Once completed, the fuel elements factory at Hanau could transform plutonium up to a maximum rate of 5 tons per year. A preparatory period of several years must be considered in the plan, and the results of the licensing procedure are not determinable. Moreover, various aspects of transportation and of the handling of the plutonium are linked with environmental risks and the danger of diversion of bomb material. The plutonium industry management believes in the safety and security of the facilities and procedures but critics repeatedly refer to the basic faults in the material balances of plants working with plutonium and, in their opinion, the allegedly predictable rate of an almost 100% accident-freedom of such plants is not at all well-founded. The same is true for the safety and security of the various transports. Every mistake could result in serious consequences for the health of the residents or for global security.

Moreover, the MOX method is in no way economical. It would require a ‘massive financial persuasion’ of the operating companies in order to use the fuel from weapons material instead of the much cheaper and more usual uranium. The reprocessing costs, which significantly contribute to the overall price of MOX fuel, would only virtually disappear (the weapons plutonium already is separated!) since Russia would have to be paid an appropriate price for the plutonium. It would be a dangerous misbelief that one could, on the quiet, evade the costs for waste disposal and drop them to zero by getting rid of the then-produced nuclear waste by transferring it back to Russia. And it seems that no-one seriously believes that Siemens and the other companies would voluntarily write off their investments in Hanau as losses, without including them into the calculations for the MOX fuel prices.

Therefore, the MOX method is by no means quick and cheap, and it is quite questionable from the ecological point of view: it would preserve an essential part of the plutonium technology, which is particularly sensitive and by no means proliferation resistant, for many decades and even longer than the already proclaimed ‘Stop’ of the Hanau plant.

In addition to that, a MOX transformation of Russian weapons plutonium would have a direct influence on energy politics in Germany. While the quarrel on a timely abandoning of the use of nuclear energy, based on rational arguments, has already been going on for many years without concrete results, the transformation of weapons plutonium would stipulate the use of nuclear energy in Germany for further 30 years – with all risks connected with it. Furthermore, at least 9,000 additional tonnes of nuclear waste would have to be expected without having provided for adequate storage space or location.

**Technology transfer to Russia?**

Is there a chance to absorb the Russian plutonium in other European nuclear programs? Only France and Belgium are possessing the necessary technologies and MOX experience but it is predictable that no interest in taking over the Russian plutonium will emerge.

What is the state of facts in Russia? At present, plutonium processing to fuel elements in larger extents is not feasible. According to Russian statements, only four reactors of the VVER 1000 type would possibly be able to operate with MOX. The transformation of 100 tons of weapons plutonium would correspondingly last in theory more than 50 years – bad prospects. Moreover, one has to wonder whether the western complaints
regarding the unsafety of the old Soviet nuclear industry can be taken seriously. And is the risk-potential of the Russian reactors to be even increased by loading them with fuel elements containing plutonium? Or is one to imagine the construction of new reactors in Russia in accordance with the ambitious plans of MINATOM, which have only not been realized so far due to a financing gap?

Above all, the plutonium would in no way be disposed of or eliminated, but quite the reverse, the total quantity would even slightly increase. In principle, it is retrievable. The radiological barrier is, of course, a protection against non-governmental access lasting for centuries. But wouldn’t it make much more sense then to mix weapons plutonium directly with the nuclear waste which exists in plenty, without producing new waste and without making the expensive and dangerous detour via reactors? Plutonium mixed with nuclear waste and then stored in vitrified form would apparently bring about at least almost the same result without having a number of negative side effects. (Cf. the studies of the US National Academy of Science, which were presented in the INESAP Information Bulletin J.Husbands, No. 2, July 1994 p.18; M. Miller, No.7, Oct. 1995, p.18).

What is the most probable result of the debate on processing and use of Russian weapons plutonium in Germany, in which proponents of the proposal made are emphasizing the crucial bonus that the plutonium would be withdrawn from the unsafe and unsecure Russian hands? Another argument of the MOX proponents is, that the Russians attach great value to their plutonium, which had been produced with so many sacrifices and therefore actually do not want to regard it as dangerous waste that has to be eliminated. It is being argued that Russia should not be offered the vitrification option since it would deny the aspect of the produced plutonium being a fissile material useful for energy production. In the same breath Siemens and other parties are stressing that the German MOX option was one virtually bound to fail, not being sustainable in politics. Besides that, the responsible Russian minister Mr. Mikhailov already has turned down the idea of even a theoretical consideration of transferring weapons plutonium to Hanau in Germany for subsequent local processing and utilisation.

In contrast, there is no doubt that the Russian supporters of nuclear energy would very much like to get technological assistance from the West - especially from Germany – in order to establish a nuclear industry utilising plutonium in their country. There are already German-Russian talks on the construction of a pilot MOX fuel element factory on Russian grounds. In this connection it becomes particularly obvious that in debating a German MOX option there is no logical consistency: The main argument at all times is, that it is an urgent task to bring the weapons-relevant plutonium under control. But exactly this becomes impossible if the plutonium processing should be taking place in Russia itself. Particularly, it has been repeatedly stressed that the Russian nuclear policy is not at all willing to reveal its secrets and particularities. Moreover, some supporters of the MOX idea are already indicating not to exert too much pressure on Russia by demanding the quick acceptance of Western style security and safeguard standards for plants of this kind in order to make the whole matter more feasible for them. But on the other hand, the control and safeguarding of military equipment is still much better than that on the civil sector.

Also, due consideration should be given to the justified suspicion that Russian officials would at first utilize all of the substantial reserves of plutonium stemming from the civilian sector – these are at least 30 tons, which are stored in an unbelievably insufficient manner at Majak – and only afterwards switch over to employing the weapons plutonium which is considered much more valuable. This would mean another severe loss of time.

**Bad consequences of the Hanau debate**

Consequently, the rashly talking about the “historically unique chance for a solution” for the Russian weapons-plutonium in Hanau and Germany will lead to the much more probable mock-solution in Russia itself. This means that the dangerous and long-term handling of plutonium in the Russian nuclear industry is to be expected, even though German technology and Siemens would be involved in it.

It would be more considerate, though, to admit especially on the scientific front, that an optimal technology for the disposition of plutonium does not exist to the present day. If the Russian plutonium from dismantled warheads is considered such an imminent and quickly-to-be-solved problem, why then do the Western countries not buy the material for a good price, as it is being projected in the case of hundreds of tons of Russian highly enriched uranium which are presenting a similiar danger for the spread of nuclear weapons? In this way, one could buy time for finding a much more sustainable solution.

One thing can presently be told for sure: The debate about a possible contribution of Hanau to the question of disarmament has wrongly focused the necessary discussion about the handling of existing amounts of plutonium, serves questionable interests and will support, be it consciously or unconsciously, the undesirable mock-solutions.

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A Case of Jitters?
The CTBT Debate in India

Praful Bidwai, Achin Vanaik

Is India, the first nation to campaign for a Comprehensive Test Ban Treaty (CTBT), in 1954, developing cold feet over signing one? There are disturbing signs that it is.

Unlike in 1993, in 1995 India refused to co-sponsor a resolution on the CTBT in the UN General Assembly. In September, the Chairman of India’s Atomic Energy Commission, R. Chidambaram, for the first time linked the CTBT to a timetable for global nuclear disarmament. He told the International Atomic Energy Agency that a “CTBT will be meaningful only if it is linked firmly to the total elimination of all nuclear weapons within a well-defined time framework, say, within the next 10 years”.

Since then, foreign minister Pranab Mukherjee has repeatedly demanded that “the CTBT must contain a binding commitment on the international community to take further measures within a timeframe, towards the creation of a nuclear-free world”. Even Prime Minister Rao made similar statements at the Non-Aligned summit in Cartagena and during the UN’s 50th anniversary session in October 1995. Remarkably, India failed to condemn the October 2 French nuclear test for a full eleven days and afterwards criticised it only in a feable and faltering manner.

Pressure by pro-bomb lobby

As yet, these do not conclusively suggest a policy change. They seem more in the nature of testing of the waters or a tentative preparing of the ground. But they are nonetheless worrying, given the steady pressure being mounted by the Indian pro-bomb lobby and even by nuclear ambiguists determined to keep the nuclear weapons option open at all costs.

The hesitation on the CTBT represents a departure from New Delhi’s hitherto established position that while partial and selective measures for horizontal non-proliferation (such as a South Asian nuclear weapons-free zone) are unacceptable, it would support all “universal, global and non-discriminatory” disarmament measures. The CTBT as an example of the latter was just such a measure worthy of full and unconditional Indian support.

The jitters about the CTBT within the government, and more obviously within the bomb lobby outside it, are clearly the result of the imminence of a CTBT. As long as it was a distant prospect, both the government and the bomb lobby could afford to occupy the moral high ground on the issue as well as use its long-time adherence to such a proposal as justification for not having pursued regional disarmament measures. It is only in the last two years that members of the Indian bomb lobby have begun to raise objections to the non-proliferation or nuclear restraint aspect of the CTBT vis-a-vis threshold nuclear weapons powers as a reason to be wary of it. Before this, not a single prominent member of this lobby opposed a CTBT or made it conditional on securing an agreement in some other area.

The internal debate on the CTBT has thus changed in a fairly dramatic way. The basic reason for this is the fear among decision-makers and pro-bomb decision-shapers that should India accede to a CTBT, it would effectively cap future nuclear preparations in such a way as would rule out the possibility of India ever being able to have a credible deterrent equation vis-a-vis China. For this very reason, it has become important for anti-nuclear campaigners in the subcontinent to secure Indian accession to a CTBT. This would make South Asian denuclearisation much more obviously relevant and pave the way for official and public thinking to move in this direction in the future.

The current debate on the CTBT is mostly taking place in the media, but the government is paying heed to it. One view – represented most ably by a former army chief of staff – is that India already has a stockpile of fissile materials adequate for a minimum deterrent vis-a-vis China, i.e. a few atomic bombs (untested but so what?) which could be deployed on submarine-based missiles (this delivery system must be improved). Hence adherence to a CTBT by India is not really a problem.

A variation on this theme is the view that accumulation of 700 to 800 kg of weapons-grade plutonium should suffice for the construction of a minimum deterrent vis-a-vis China. This stockpile should be in place before or by 1999 when a CTBT takes effect, or when India can somewhat belatedly accede to it. However, the exponent of this view has shifted his
position to making Indian adherence to a CTBT conditional on the establishment of a definite timetable for full global disarmament accepted by all the NWSs.

In general, the view that a CTBT does not militate against India developing the wherewithal for a “credible minimum deterrent” with respect to China has very few takers within officialdom or within the camp of nuclear hawks and ambiguists. By far, the most common argument against the CTBT has been based on the claim that circumstances have changed from the past when India (and even its bomb lobby) were among the most ardent advocates of the treaty.

The argument focuses a) on the changed motives of the NWSs, particularly of the U.S. in wanting a CTBT; b) on the loopholes that could or would exist in the proposed CTBT which would give unfair advantage to the more developed NWSs; c) on the changed global context such as represented by the indefinite and unconditional extension of the Nuclear Non-Proliferation Treaty (NPT) last May. This last argument is something of a red herring. Arguments against the CTBT do not go beyond three years. They certainly do precede the discussion on extending the NPT and the NPT Review Conference itself.

On purely logical grounds, the Indian critics of the CTBT have no case. The real issue has never been something so intangible as the mix of motives of the NWSs in wanting a CTBT. The issue is the objective significance and impact of a CTBT regardless of motives. But the NWSs have not helped matters since they, particularly the U.S. as the leading nuclear power, are widely seen as being more interested after the end of the Cold War in preventing horizontal proliferation than in moving towards rapid and full global disarmament. This was evidenced also in the manipulation used to secure an indefinite extension of the NPT. Such hypocrisy on the part of the NWSs does have a damaging effect on public perceptions in India about the credibility and purpose of a CTBT. Regrettably, this gives advantage to the hawks who oppose the treaty with their own mix of motives.

Conceptually, a CTBT has always been a nuclear restraint and capping measure to prevent threshold or potential nuclear powers going further up the ladder of nuclear escalation, as well as a means to inhibit vertical proliferation and development of more and more sophisticated weapons. Indeed, had it come, say, a decade earlier, it would almost certainly have been followed soon enough by some kind of international fissile materials cut-off treaty which would have denied India the breathing space to accumulate the plutonium stockpile it now has. This would be the case if India had signed a CTBT even when, as the CTBT’s current critics say, the “context was different”.

Nothing has happened in the last ten of fifteen years that has made a qualitative change to the already existing nuclear imbalance between the NWSs and threshold or de facto nuclear states like India. Unless India intends to go openly nuclear in the near future – and for all the pressure of the bomb lobby, a government in New Delhi will have to think many times before taking such a momentous step – refusal to sign a CTBT will simply leave India where it is now, with no improvement in its security.

**Weakened credibility**

In fact, by refusing to sign a CTBT, India will have exposed its own long-standing commitment to “universal, global and non-discriminatory” disarmament to be hollow. Such a refusal will alienate other countries – not only the NWSs – and increase India’s isolation on this issue. Its claim to a larger role in the U.N., particularly to a permanent seat on the Security Council, will be greatly weakened. India will have damaged its credibility even within the Non-Aligned Movement, of which it has been a founder and leading member.

Regionally, New Delhi will only add to suspicions amongst its neighbours. In particular, its semi-clandestine nuclear rivalry with Pakistan will probably worsen. Already the two are engaged in an undeclared race to acquire fissile materials and capacities. India’s refusal to sign a CTBT will also enable Pakistan to plausibly refuse accession to a treaty on the grounds that while it is willing, it cannot sign it so as long as India does not.

There is no serious evidence that the Indian government is planning to go openly nuclear in the near future. Of course, this position could come in for reassessment if the right-wing Hindu chauvinist Bharatiya Janata Party were to come to power at the Centre. But there is no good reason to think that it will be able to do so soon. Thus, objections and reservations to the CTBT by most of its current critics should be seen primarily as an expression of their fear of its capping consequences.

While a CTBT might not effectually prevent the development of deliverable, fairly compact fission-based nuclear weapons – India tested a relatively crude fission assembly in 1974 –, it certainly will make it virtually impossible for India to graduate to the fusion-thermonuclear league to which all the existing NWSs belong. This is seen as a long term “disadvantage”. However, it is not linked to a larger game-plan or a worked out strategy for India to go nuclear soon.
Had this game-plan existed, then at least a measure of coherence could be assigned to the government’s or bomb lobby’s objections. As things stand, however, the nature of the current debate over the CTBT is just another example of India’s “reactive” and inertial diplomacy, or more accurately non-diplomacy, on nuclear matters.

However, there is one source from which these objections could receive real legitimacy and authority. This has been seized by CTBT opponents. This pertains to the comprehensive character of a CTBT and the question of zero-yield testing. Indian critics play up “asymmetry” in the capability to conduct hydronuclear or low-yield tests, but do not emphasise the fact that the idea of a true zero-yield CTBT has not been unanimously welcomed in the circle of NWSs or that it has not had a consensus within the American nuclear establishment. Such an emphasis would run counter to the CTBT opponents’ effort to paint pressure for a CTBT as a more or less calculated and collective attempt by the NWSs to perpetuate nuclear colonialism.

Matters are, of course, more complex than what even a diluted version of a “conspiracy theory” in regard to a CTBT would suggest. But the bottom-line is that anything short of a true zero-yield CTBT would play strongly into the hands of all those in and out of the government who do not want India to sign any kind of a global test ban treaty.

**Partial test ban?**

If the only kind of test ban treaty that is likely to emerge is not fully comprehensive, then it should only be promoted as a (more advanced) Partial Test Ban Treaty (after the 1963, 1967 and 1972 partial, outer space and seabed treaties respectively); signatures should be solicited on that basis.

Pretending that a partial test ban treaty is a CTBT would make it impossible for even Indian anti-nuclear campaigners to endorse Indian accession to such an agreement. But even a more advanced Partial Test Ban Treaty, at this stage, i.e., after the end of the Cold War, would be a terrible let-down and would certainly greatly damage the prospects for institutionalising a process of progressive denuclearisation involving South Asia.

Already reports of dissent in the American establishment after President Clinton’s announcement of a commitment to a true zero-yield CTBT in August this year have been picked up by Indian critics of the CTBT to point a finger at the NWSs’ deceit. On November 4, the U.S. energy department announced plans for six “zero-yield” tests with “nuclear materials” in 1996 and 1997, raising suspicions about Washington’s intentions and commitments.

If the NWSs really want to exert maximum pressure on threshold states like India to join a CTBT regime, then there should be no loopholes allowing hydronuclear testing. This would be the best means of meeting the official Indian position within the Conference on Disarmament.

This position relies on a definition of “tests” proposed by Natural Resources Defence Council of the U.S., and includes “any nuclear weapon explosion or any other nuclear test explosion or any release of nuclear energy caused by the assembly or compression of fissile or fusion material by chemical explosive or other means.”

As it is, members of the Indian bomb lobby have made a great deal of noise about laboratory testing possibilities in the industrially advanced countries, without bothering to inform their audience that such efforts at establishing an “informational test site” do not come under the purview of even a fully comprehensive test ban treaty dealing with actual testing. Therefore this is not an argument against joining a CTBT regime. But this is still an opinion-shaping argument in the wider public debate, although not a legitimate objection to a CTBT that can stand close scrutiny.

Nonetheless, the best way to deal with the issue of laboratory testing is to carry a critical reference to it in the preamble of a CTBT, facilitating the movement towards a separate treaty dealing with it in a universally satisfactory manner.

A CTBT allowing loopholes is another matter. The Chinese position is that either a CTBT have no loopholes whatsoever, or it have large enough loopholes to enable it to compensate for testing disadvantages vis-a-vis the more advance NWSs, e.g. the U.S.. This real Chinese worry and unease has now been picked up by some Indian hawks to suggest that India could usefully hitch Chinese fears to its own opposition to the CTBT. This is, diplomatically speaking, perhaps clutching at straws. But it indicates the growing determination to find any excuse that might justify an Indian refusal to sign a CTBT.

As things stand, there is no guarantee that even a fully comprehensive, no-loopholes zero-yield treaty will ensure Indian accession. But it is probably the only kind of treaty that has a reasonable chance.

(This article has been finished on December 7, 1995, before the New York Times reported on testing preparations in India) Praful Bidwai and Achin Vanaik work at the Nehru Memorial Museum & Library. Address: First Floor (rear), Anand Villa, 1 Jaipur Estate, Nizamuddin East, New Delhi 110 013, India
First generation nuclear weapons are all-uranium or all-plutonium atomic bombs. The science and technology of these weapons is widespread, and their intrinsic simplicity is such that their successful development does not require nuclear testing. Today, these weapons constitute the main horizontal proliferation threat. A major military quality of these weapons is that they potentially lead to very reliable, rugged and compact designs. An example is the W33 artillery-fired atomic projectile (first deployed in 1956) which has a yield of 5-10 kt for a weight of about 100 kg.

Second generation nuclear weapons are two-stage thermonuclear devices. A tritium-boosted fission bomb is used to implode and ignite a secondary system in which fusion reactions produce most of the yield. The development of these weapons required extensive testing and resulted in high-yield (100-500 kt) weapons with yield-to-weight ratios comparable to the best first generation nuclear weapons. Progress on these weapons has been slow and the scientific understanding of the details of the secondary system is still incomplete. Nevertheless, after more than 50 years of research and development, no really significant progress is to be expected for this generation of weapons. This is possibly the main technical reason why a comprehensive test ban treaty (CTBT) is now militarily acceptable.

Third generation nuclear weapons are “tailored” or “enhanced” effects warheads (such as the Enhanced Radiation Weapons (ERW), Reduced Residual Radioactivity (RRR) or Electromagnetic Pulse (EMP) bombs) or nuclear-driven “directed energy” weapons producing beams or jets of X-rays, electromagnetic waves, particles, plasmas, etc. Like many tactical nuclear weapons, these devices never found any truly convincing military use. Moreover, none of them provided any decisive advantage (such as significantly reduced collateral damage, absence of radioactivity, etc) and their development would have required a large number of nuclear test explosions. For these reasons, the development of this third generation of nuclear weapons is the most directly affected by a CTBT.

Fourth generation nuclear weapons are based on atomic or nuclear processes that are not restricted by a CTBT. In contrast with second generation nuclear weapons, their development will be essentially science-based, making use of many recent advances in fundamental or applied research. In common with first generation nuclear weapons, they could allow for rather simple and rugged designs, although the special materials they will be made of might be much more difficult to manufacture than plutonium or enriched uranium. Fourth generation nuclear weapons may provide really significant military advantages (especially for tactical uses since most of them will produce no residual radioactivity), and considerable political advantages since their development will be restricted to the most technologically advanced countries - which already possess thermonuclear weapons to deter any potential aggressor or proliferator. A number of fourth generation nuclear weapons have been under consideration for a very long time: clean fusion bombs, antimatter bombs, particle and laser beam weapons, laser-triggered bombs, atomic and nuclear isomers, etc. In what follows, we take three examples which have in common the fact that the key scientific instruments for their development are inertial confinement fusion (ICF) devices such as the ones which are planned in the USA (National Ignition Facility - NIF) and France (Laser Megajoule - LMJ).

(1) Metallic hydrogen
The modeling of the interior of the giant planets such as Jupiter (which mainly consists of hot, dense hydrogen), has been the object of considerable work in the weapons laboratories. The reason is not only that understanding the physical properties of planetary interiors is relevant to certain aspects of thermonuclear weapons and ICF, but also that hydrogen is expected to be in a metallic state. It is since long expected that above a certain pressure, hydrogen could be converted into a dense crystalline solid at room temperature, which could be maintained for long periods without containment. Metallic hydrogen is expected to be 25 to 35 times more explosive than TNT, possibly the most powerful chemical explosive conceivable. Research on metallic hydrogen is part of the NIF scientific program.

(2) Nuclear isomers
High explosives have energy contents of the order of 5 kJ/g. Nuclear isomers have available energies of about 1 GJ/g, close to those released by nuclear reactions (e.g. 80 GJ/g is released by fission). A systematic study of the properties of nuclear isomers, and of ways to release their energy, is under investigation in several laboratories. The USA and France
started collaborating on this subject under SDIO and NATO contracts. Nuclear isomers can be produced through heavy-ion collisions, or by nuclear synthesis in a burst of neutrons from an ICF micro-explosion. The most promising triggering mechanism uses a high-intensity laser, releasing the energy instantaneously in the form of X-rays, as in a fission explosive, but without producing radioactivity. Like metallic hydrogen, nuclear isomers have the potential to be used as “conventional” weapons, or as triggers in “clean” fusion weapons.

(3) Antimatter

Research on antimatter weapons started in the late 1940s. As with most scientific undertakings, progress has been slow. However, since the capture of the first antiprotons in a magnetic trap in 1986, several crucial measurements have been made. For example, about 16 neutrons are produced by stopped annihilation in uranium. This means that a very small amount of antiprotons would be sufficient to boost a nuclear explosion, or to initiate a chain reaction in a highly compressed pellet of plutonium or uranium. More important, microgram quantities of antiprotons would be enough to trigger a large-scale thermonuclear explosion, or a powerful X-ray of gamma-ray laser. Many military applications of antimatter are feasible, and this explains why antimatter is today possibly the most important fourth generation nuclear weapons research and development program. In the USA, this research is coordinated by the Air Force and former SDIO. At the present time, three main laboratories are involved in the production of antiprotons: CERN (Switzerland and France), FNAL (USA) and IHEP (Russia). These laboratories use large accelerators to produce antiprotons in very small amounts. However, the use of high-energy lasers may result in conversion efficiencies one million times higher than with the use of accelerators. Experiments on the production of antimatter are planned at NIF. To start with, these experiments will study relativistic plasmas and ponderomotive effects near the energy density for electron-positron production.

The arms control problem of fourth generation nuclear weapons is not only that their development circumvents the limitations of a CTBT which, according to an authoritative interpretation, would merely “ban explosively driven or other rapidly assembled systems of fission yield sufficient to melt the fissile material – of the order of 100 grams of high explosive equivalent”.

The real challenge is that their development is much more closely related to purely scientific research work than it was for weapons of previous generations. Just as military laboratories are opening themselves more and more to non-military research, fundamental research in most areas of modern science is becoming more and more ambivalent. In the case of fourth generation nuclear weapons however, the military character of the “civilian” research on which they are based is clear. In the three examples listed above, the fundamental research, whether in the fields of astrophysics, nuclear physics or elementary particle physics, is devoted to understanding extreme states of matter: very high pressures, very high energy densities, very high energies. If no quantitative or qualitative limit is put on the fundamental research concerned with these asymptotic states of matter, the dynamics of technological innovation will make the development of new weapons based on the resulting knowledge unavoidable.

In conclusion, a necessary condition to achieve the chief purpose of the CTBT (which is to fossilize the technology of nuclear weapons as a first step towards general and complete nuclear disarmament), is to include effective measures of preventive arms control in the treaty, such as internationally binding restrictions in all relevant areas of research and development, whether they are claimed to be for military or civilian purposes.

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When the Republican Party took control of the United States Congress just over a year ago, it vowed to “strengthen national defense.” This promise was undefined at the time, but the first Republican defense budget and authorization bill for fiscal year 1996 now provides considerable insight into the Republican strategy.

Predictably, the FY96 defense bill, vetoed by President Clinton in December but likely to pass in revised version in February 1996, increased President Clinton’s annual spending request by some $7 billion from $257.8 billion to $264.7 billion. Amidst major federal government and budget cutbacks, and a Republican commitment to eliminate the annual budget deficit in seven years, this rise in military spending, approaching past Cold War averages, is striking. More troublesome, however, is the broad attack on arms control, disarmament, and nonproliferation policies and, more specifically, on the 1972 Anti-Ballistic Missile (ABM) Treaty.

When Clinton vetoed the FY96 Defense Authorization Bill in December, he cited the direct threats to the ABM Treaty as his primary reason. He was referring to the “Ballistic Missile Defense Act of 1995” (subtitles C and D of the bill) which seeks to establish policy guidance, research and development priorities, and strict limits on Russian-American arms control negotiations regarding theater (TMD) and national missile defense (NMD) systems. The Act also sets new, ambitious goals for allied cooperation in TMD/NMD development.

North-Korean attack on Alaska?

The Act argues that “the emerging threat” of ballistic missile proliferation is sufficiently great to warrant crash development and deployment of missile defenses both at home and abroad. It cites (contrary to most intelligence reports) North Korea as an example of a rogue country that “may deploy an intercontinental ballistic missile capable of reaching Alaska or beyond within five years”. It further warns in threat hyperbole that “determined countries can acquire intercontinental ballistic missiles in the near future and with little warning by means other than indigenous development.”

The Republicans therefore added almost $1 billion to the Clinton request for ballistic missile defense, raising the FY96 total for Star Wars research, development, and procurement to $3.7 billion. Included in this large sum would be a core program consisting of four major missiles — Patriot Advanced Capability-3 (PAC-3 or Erint), Navy Lower Tier, Navy Upper Tier and Theater High Altitude Area Defense (THAAD), as well as a space-based satellite sensor package called “Brilliant Eyes.”

The goal for this new Star Wars initiative is to deploy effective theater missile defense systems, the next step up in technology from the flawed Patriot system in the 1991 Gulf War, before the end of the 1990s. Such a goal may appear a valid, necessary, and indeed a gallant effort to protect U.S. and allied forces in regional conflicts from future possible SCUD-type missile attacks; the dilemma is that the testing and deployment of many of these systems could violate the 1972 ABM Treaty which limits missile defenses in order to preserve the strategic nuclear deterrent system and preclude an offensive missile race.

Recent reports of the Congressional Research Service, as well as many analyses of arms control experts, point out that THAAD testing and space-based missile cueing, for example, could violate the ABM Treaty. In an effort to prevent this from happening, the Clinton Administration has been quietly negotiating mutual understandings and clarifications to the ABM Treaty with the Russians. Unfortunately for arms control, the new Act specifically prohibits the Defense Department from implementing any modification to the ABM Treaty “that would limit artificially the capability or deployment of TMD systems.” The Act also prohibits any FY96 military funds from being expended “to implement an agreement or any understanding with respect to interpretation of the ABM Treaty, between the United States and any of the independent states of the former Soviet Union...that...would restrict the performance, operation, or deployment of United States theater missile defense systems.”

Furthermore, the FY96 Act establishes a “National Missile Defense policy” which requires deployment of a NMD system by 2003, strongly urges
the President to negotiate amendments to the ABM Treaty to permit such deployments (the Treaty and its Protocol now limit ABM interceptors to 100 at a single site) and, should negotiations fall, urges the President and Congress to consider withdrawal from the Treaty.

**ABM Treaty and START II**

The ABM Treaty, signed by Russian and American negotiators in 1972 as part of the first historic Strategic Arms Limitation Talks (SALT) package, is viewed by most arms control experts as one of the keys to nuclear arms control in this century. Not only does this legislation thereby threaten a major building-block of nuclear arms limitations and East-West stability, it also threatens offensive missile limits. Representatives of the Russian Duma as well as of the Yeltsin administration have stated emphatically (both publicly as well as to this author personally) that the death of the ABM Treaty will also kill the START II Treaty, ratified last month by the U.S. Senate but still languishing in Moscow’s Parliament. Fortunately the Missile Defense Act is now removed from the revised Defense Authorization Bill in Washington, but it is being reintroduced by its supporters in the Senate as a free-standing piece of legislation.

Also of interest is the effort in Congress this year to entice NATO allies into more active involvement in Star Wars. Section 238 of the Bill, entitled “Ballistic Missile Defense Cooperation with Allies”, urges the President to undertake cooperative “development, deployment, and operation of ballistic missile defenses” with allies and friends and “to take the initiative within the North Atlantic Treaty Organization to develop consensus in the Alliance for a timely deployment of effective ballistic missile defenses by the Alliance.” In congressional parlance, this is another way of saying that “burden-sharing” (reemphasized in Subtitle D of the Bill) should pick up much of the expanded Star Wars investment.

The Republicans also very carefully rescinded nine earlier public laws regarding Star Wars, including Section 234 of the FY94 Defense Authorization Bill which specifically required any missile defense system to strictly comply with the ABM Treaty.

Many related sections in this year’s defense legislation similarly portend a difficult future for nuclear arms control, including support for a renewed B-2 stealth strategic bomber program; for a third nuclear-powered Seawolf attack submarine and an expensive follow-on submarine; for backfit of all older Trident ballistic missile submarines with new nuclear warheads; for a robust “stockpile stewardship” program for nuclear weapons-related research and development at the three major weapons laboratories - Los Alamos, Sandia, and Livermore; for hydrodynamic testing of nuclear-related materials at the Nevada Test Site; strict limits on “cooperative threat reduction” (CTR or “Nunn-Lugar”) programs to help Russia dismantle nuclear, chemical, and biological weapons; and reaffirmation of past allegations of Soviet treaty violations.

The good news is that the START II Treaty has been ratified in Washington and that the U.S. continues to push for a zero-yield comprehensive test ban treaty in 1996. However, also very important this year will be allied support for maintenance of the ABM Treaty; for Russian ratification of the START II Treaty; for Russian and American ratification of the Chemical Weapons Convention; and for critical evaluation of any requests for major, new burden-sharing investments in Star Wars technology. The Cold War may be perceived as over, but hard-line politics in both Moscow and Washington could reignite it in the near future.

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**Gingrich calls for U.S. defense against nuke attack**

*Roswell, Ga (Reuters) -* House Speaker Newt Gingrich Saturday challenged President Clinton’s assertion that the United States is safe from Russian missiles and called for a limited defense system capable of protecting American cities from nuclear attack.

At a town hall meeting in this Atlanta suburb, the Georgia Republican warned of a future threat from countries such as China, Iran or North Korea, and likened U.S. vulnerability to Britain’s lack of preparedness for the rise of Nazi Germany in the 1930s. [...] Gingrich, whose home district includes a major Lockheed defense plant and Dobbins Air Force Base, said assurances the White House has received from President Boris Yeltsin about Russia’s nuclear strategy could be compromised by political instability in the former Soviet state.

“Even if Yeltsin told him the truth, it takes less than an hour to re-target a missile,” he said.

Source: johnpike@fas.org, Feb. 5, 1996
Reducing the Danger From Nuclear Weapons

Jonathan Dean

We do not talk about it much publicly, but today, the greatest threat to our national security is from the arsenals of those countries that already have nuclear weapons, rather than those that secretly seek them.

Under present circumstances, these dangers arise mainly from Russia and China. They can come through forcible seizure of weapons by extremists, through theft or illegal sale of warheads or fissile material, migration of weapons specialists, rogue or accidental launch of ballistic missiles, or through emergence of authoritarian regimes which threaten use of nuclear weapons.

Even covert attack through smuggling nuclear weapons into our cities can most plausibly be carried out by existing nuclear weapon states.

Coping with Nuclear Dangers

There are two main ways of dealing with these dangers. The administration is following both approaches, but without coordinating them with one another.

One way is to maintain a sizable nuclear deterrent as a hedge against possible dangers from Russia or China, as the administration is doing. This approach has the weakness that it cannot cope with most of the dangers just described, like diversion of nuclear materials, accidental launch, nuclear terrorism or covert attack. Moreover, this approach keeps nuclear weapons in play as a central factor in world politics. It provides a rationale and encouragement for covert development of nuclear weapons capability. And it can lead to dangerous arms racing and expansion of arsenals in times of bad political relations between nuclear weapon states, which will almost surely come.

I do see some positive benefit in having some nuclear weapons in the hands of the five declared nuclear weapon states above and beyond deterring actual use of these weapons. The possession of these weapons creates a useful restraint in the relationships between China, Russia and the U.S. Imagine for yourselves where Washington-Beijing dealings over the Taiwan issue, or Washington-Moscow dealings over Ukraine and NATO expansion, would stand today if both sides did not have nuclear weapons. Since constructive relationships among the major powers are the main key to world peace, nuclear weapons therefore appear to have a function of political as well as military deterrence. But this function can be provided more safely and more cheaply at a far lower level of weapons.

The other approach the administration is following is to help Russia secure its stocks of warheads and fissile material by improving accountability and physical security of storage. These programs are essential and we should devote even more resources to them, rather than less. But the programs will take a long time to implement – about 20 years on my count.

Even if successful, because both sides will be maintaining a hedging deterrent, the programs will leave dangerously large arsenals in Russian hands at the end of the process. Moreover, the administration is not attempting to link the level of its hedging nuclear force to success in the program for more secure storage of materials – or to take actions which will reduce these dangers from the Russian arsenal on an enduring basis. We have to do something that is more comprehensive than this in dealing with the nuclear dangers that face us and more rapid in its effects.

This other road is the road of irreversible disarmament to a small residual force for each of the declared nuclear weapon states, then of immobilizing this remaining small arsenal so that it cannot be used for surprise attack, and also of bringing the remaining nuclear weapon states – Israel, India and Pakistan – into the regime, while using these changes to leverage the support of non-weapon countries for a much tighter non-proliferation regime. This second course is safer and cheaper, but it needs more public and governmental support. It also conforms with the recently renewed obligation of the U.S. and other weapon states in the Nonproliferation Treaty to move toward elimination of nuclear weapons.

Irreversible Nuclear Disarmament

In their last three meetings, Presidents Clinton and President Yeltsin have stated that their common goal was irreversible reduction of nuclear arms, and they established a working group to help them define this objective.

Some of the things the two governments are talking about – exchange of data on warheads and fissile material, spot checks of this data, improvement
of material accountability and safe storage, observation of the process of dismantling warheads, and monitored storage of weapons-grade plutonium declared excess to individual national needs—some of these things come close to irreversible disarmament. But they are not there yet.

In fact, we are still in the era of arms control, through START agreements that withdraw nuclear arms from operational deployment, but that permit storing the bulk of them along with reserve warheads and stocks of fissile material, leaving open both the possibility of weapons diversion and of rapid expansion of deployed arsenals in times of crisis.

Instead, to meet these dangers, we should be thinking about genuine nuclear disarmament, and we should begin to negotiate on it now, even before START II is ratified. Doing so could help with ratifying START II in the Russian Duma.

What is needed for genuine nuclear disarmament are three steps:

- First is a comprehensive system of reciprocal on-site monitoring of all stockpiles of warheads and fissile material in Russia and the U.S. to reduce the possibility of forcible seizure, theft, or illegal sale. This has to be reciprocal to be acceptable. The danger in the U.S. is small although not zero.
- Second is agreement by Russia and the U.S. to stop production of fissile material for weapons, to dismantle all warheads withdrawn from operational deployment by arms control agreements and to transfer their entire fissile content, their explosive charge, to internationally monitored storage, and also to agree to produce no new warheads other than replacements.
- There has been some movement here: This May, the two governments concluded what amounts to a bilateral agreement to end production of fissile material for weapons, and announced that they will hand over to bilaterally-monitored storage fissile material excess to their defense needs.

The idea of placing fissile material in monitored storage is an innovative idea. It moves in the right direction. But under this new agreement, each country will determine on its own what is “excess” to its needs. The process is wholly voluntary. It has no direct connection to negotiated reductions of deployed weapons. Instead, this process should be made comprehensive and obligatory.

- The third component of irreversible disarmament is agreement to destroy missiles withdrawn from operational deployment, with agreed exceptions for space research and satellite launch, and to cease production of all missiles of over 100 kilometers range with the same exceptions.

Destroying these missiles would establish a basis for a worldwide regime prohibiting production of long-range missiles and provide additional insurance against the possibility of concealed warheads. At the least, this action would give real authority to our efforts to control export of missiles or components through the Missile Technology Control Regime, a voluntary organization of producers.

The time to apply this approach is now, when START II is in considerable difficulty in the Russian Duma. A verifiable obligation by both the U.S. and Russia to dismantle all warheads withdrawn from operational deployment under the START treaties would help to answer Russian concerns about possible future breakout by the U.S. from START through uploading or remounting stored warheads on its remaining missiles.

When all three of these measures are in operation, they will add up to irreversible nuclear disarmament, the phrase used by President Clinton and President Yeltsin at their recent meetings.

The key actions are: monitoring existing storage sites, stopping production of fissile material for weapons, dismantling all reduced warheads, and turning over their fissile material to monitored storage.

These obligations are the central dynamic, the core of irreversible nuclear disarmament. We can’t have nuclear disarmament until warheads are dismantled and until we get the fissile material for weapons out of the hands of individual nuclear weapons states, beyond their power to dispose over it, and also cut off production of new material. This is not some technical fix, but the only way to get to disarmament.

Neutralizing Nuclear Weapons

But even if we have developed a verifiable system of irreversible reduction of nuclear weapons, dangers from the Russian nuclear arsenal will remain even if Russia still has only 1,000 deployed warheads.

The same goes for China, now in the grip of a succession crisis. There is real risk in China of regional secession, of factional struggles over control of nuclear weapons, and also of a highly nationalistic government that threatens with nuclear arms. These problems in Russia and China mean decades of worry in Western countries, especially if we try to cope with them by the hedging-deterrence approach of maintaining large arsenals on both sides.

To cope with risks like these, we need a global program for neutralization of nuclear weapons. Neutralization is a process of practical steps by all states with nuclear weapons that irreversibly cuts arsenals
to a low residual level and then applies immobilizing measures that would make it impossible for the owner states to use these weapons for surprise attack, but would not preclude their use to respond to outside attack. For this latter reason, I think nuclear weapon states would ultimately go along with it, whereas they would not move directly to eliminating all their weapons.

Moral exhortation on abolishing nuclear weapons is useful and not without effect, but governments have to be shown specific moves they can take without risking their security.

To move toward neutralization, the U.S. and Russia would, step-by-step, reduce to the level of 500-600 warheads, cutting the risks to the rest of the world from the Russian arsenal. This would also bring them closer to the size of the forces of Britain, France and China. Then all five countries would join in a series of further reduction steps.

As they reduce their nuclear weapons, the remaining three governments would use measures like those of the U.S.-Russian program: They would agree to end production of fissile material in an international convention, to establish effective multilateral monitoring of stored warheads and fissile material, to dismantle all reduced warheads and missiles, and to transfer all fissile material from these warheads as well as their stockpiles of unweaponized materials to internationally supervised custody.

A final stage of reductions would be achieved through agreement among the five nuclear powers to cut their total arsenals to an agreed equal level of 200 warheads each, to separate these remaining warheads from their ground-based delivery systems, and to place both the warheads and the delivery systems under multilateral control on the territory of the owner states.

The 200 warhead level would be below the current level of the smallest nuclear arsenal, that of the United Kingdom, and about the estimated size of Israel’s arsenal, which must not be omitted from this process. Equal levels are probably needed to get Chinese agreement.

At this stage, the threshold nuclear states – Israel, India and Pakistan – would be given the choice between relinquishing their nuclear weapon materials or placing them in multilaterally monitored storage on the territory of the owner states like the nuclear weapons states.

Among the preconditions for this final stage would be successful implementation of an international treaty on ending the production of fissile material for weapons in which the three threshold states also participate.

A further requirement is far-reaching strengthening of the IAEA and its verification capabilities and a decision by the Security Council to act jointly against states which reject international safeguards over their nuclear capacity or which initiate or threaten the use of nuclear weapons.

Under the neutralization approach, the owner countries would still have the right to withdraw their nuclear warheads from monitored storage in the event of acute national emergency or at the request of the UN Security Council. Monitors can be overpowered, but their removal under any circumstances would give warning to all participants.

There is a potential problem of concealed weapons in this approach, and this problem will have to be dealt with, or the nuclear weapon states will not agree to accept the approach. (Deep dispersed storage, perhaps with on-site defense against aircraft and missiles, is part of the answer. At the outset, each declared nuclear weapons state could also be permitted a handful of warheads on a few missile-equipped submarines – too few for decisive attack, but enough to retaliate against actual attack. Later, if the scheme worked well, missile-equipped submarines would be prohibited completely.)

Implementing this plan would mean elimination of the risk of large-scale nuclear attack without warning, elimination in practice of the possibility to threaten use of nuclear weapons, and relegation of nuclear weapons to a secondary reserve status.

Once nuclear weapons are neutralized in this way, they will cease to be a major factor in international security or international politics. If this regime works satisfactorily for some decades without incident and an effective global security system grows up to lower the level of armed conflict worldwide, the complete elimination of these weapons could be discussed.

In any event, attention can then be directed to a problem even more serious than nuclear weapons – lowering the level of organized violence through conventional weapons, which has cost 100 million lives in this century.

Please watch this issue in future. You now know the criteria to determine whether the product is genuine disarmament.

(Foreign Service Institute, October 24, 1995)

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**Subcritical Tests**

**Martin Kalinowski**

The U.S. Department of Energy plans to conduct 6 subcritical tests in 1996 and 1997. The explosions will be carried out 300 meters underground in the LYNER tunnel at the Nevada Test Site and the series is named ‘REBOUND’. The first subcritical test is scheduled for June 18. The second is expected on September 12 and further four tests will follow in 1997. The U.S. DOE announced the award of 1.5 billion US $ for a five year performance-based contract starting in January 1996 to the Bechtel Nevada Corporation for the management and operation of the Nevada Test Site. This information goes back to a press release of the Department of Energy dated October 25, 1995.

A short note on these tests and a personal assessment of their implication for nuclear disarmament and non-proliferation was sent out by me to the INESAP discussion list on Internet. This started a lively discussion on the list and I received further personal messages. I learned a lot through this discussion and would like to present the most important points here. Inputs to the following information was provided by Marvin Peterson, J. R. Russell, Annette Schaper and Peter Zimmerman. They deserve acknowledgement for the information and assessment they provided but are of course not responsible for the following presentation which may be biased by my perception.

What is a subcritical experiment?

There is still some confusion about what subcritical tests are and what they are not. It is clear that subcritical tests involve fissionable material and do release a very tiny amount of nuclear energy. A nuclear chain reaction stops after two or three "generations" of induced fissions.

Apparently it is not correct that these experiments are always hydronuclear experiments. In hydrodynamic experiments solid matter behaves like a liquid due to a shock wave which may for example be caused by a chemical explosion. If nuclear material is involved this is called hydronuclear experiment. Such tests could be conducted with nearly complete nuclear weapons except that the fissile pit is replaced by a mechanically equivalent part which is made for example out of depleted or natural uranium including a very small amount of fissile material. The fissile material content is kept low enough to ensure that the material does not become critical upon explosion of the surrounding chemical explosive.

In principle subcritical tests could be of that type but not necessarily, especially not in the case of the six subcritical experiments announced by the U.S. Department of Energy. The planned experiments involve assemblies that do not resemble a nuclear weapon. These experiments will use explosively driven flyer plates to study the reaction of plutonium under extremely high pressures. The purpose is to get data to better understand basic physical properties of fissile materials. For example the equation of state for plutonium can be determined under realistic conditions. One particular concern is how the age of fissile material affects its equation of state.

Unfortunately there is one publication that gives implicitly the impression that subcritical experiments are always hydronuclear.

Robert N. Thorn, Donald R. Westervelt write in the abstract of their paper ‘Hydronuclear Experiments’ (Report LA-10902-MS, Los Alamos February 1987): ‘Hydronuclear experiments, a method for assessing some aspects of nuclear weapon safety, were conducted at Los Alamos during the 1958-61 moratorium on nuclear testing. The experiments resulted in subcritical multiplying assemblies or had a very slight degree of supercriticality and, in some cases, involved a slight, but insignificant, fission energy release.’

Why underground?

In my view the main problem of these tests is that they are conducted underground and are a reason for and a demonstration of maintaining the U.S. test site and the readiness to resume testing at any time. In contrary, France has committed to close its test site. Also, verification of the test ban and transpareny at the testing sites will be complicated by conducting underground subcritical tests. Since the LYNER tunnel could be accessed by inspectors it is conceivable that measures could be taken to increase the overall transparency of these experiments, and possibly as well as of other activities on the test site. Cooperative, on-site verification would be necessary without being too intrusive with respect to classified information on bomb design.

The currently favored approach for a CTBT does not ban preparations of underground tests and and does not foresee any “pre-test” verification activities.

Subcritical tests produce radioactive isotopes. Therefore, it is of advantage to conduct them at traditional test sites in shafts in order to protect against radiation releases to the environment. There might be an alternative. Los Alamos National Laboratory purchased large submarine like vessels that can be used to test the characteristics of explosives with up to 10 kg of TNT-like explosives. The vessel is completely sealed. The products of the explosions are trapped inside where they can be analyzed or filtered before being trapped inside where they can be analyzed or filtered before released into the atmosphere. However, it can be anticipated that no licence would be granted to conduct subcritical tests in such a container.

The other type of “hydrodynamic” tests that does not involve fissionable nuclear material pose no significant radiation hazard and can be conducted in a laboratory. For this purpose the Dual Axis Hydrodynamic Radiographic Test Facility is under construction in Los Alamos. But this kind of experiments is less suitable for “stockpile maintenance” activities.

What about proliferation?

A dangerous door for nuclear proliferation would be opened, if the USA would be successful in keeping subcritical tests unbanned under the CTBT. In that case, it would open some ambiguity for countries which are parties to the NPT as non-nuclear weapon states which they might use to legitimize to conduct such tests themselves, whereas under current interpretation of the NPT they are not allowed to do so. Any country could use subcritical tests as a contribution for development and testing of nuclear weapons.

Can subcritical tests be banned by the CTBT?

Though they are subcritical, they release a tiny amount of nuclear energy.
Therefore the Chinese and Indian proposal for treaty language to ban any nuclear weapon tests which release nuclear energy would be able to cover the planned subcritical tests.

India in 1995: 'Each State Party undertakes to prohibit and to prevent, and not to carry out, any nuclear weapon explosion, or any other nuclear test explosion, or any release of nuclear energy caused by the assembly or compression of fissile or fusion material by chemical explosive or other means, at any place under or beyond its jurisdiction or control.'

China in 1996: Ban all 'nuclear weapons tests which release nuclear energy.'

The difficulty with this language is that it would cover many experiments in many countries which are partly clearly civilian and partly have civil-military ambivalence like inertial confinement fusion (ICF). Therefore the proposed Indian and Chinese language is unacceptable without further clarification. It seems that India and China may not be willing to sign a CTBT that freezes in their view the technological gap between themselves and other nuclear weapon states. It may well be that subcritical tests do jeopardize the conclusion of the CTBT. But some people even suspect that these countries want to delay progress or are even not willing to sign a CTBT at all. It may be that in order to avoid to be blamed for the failure of the negotiations India and China put forward far reaching demands that will clearly be refused by other countries.

The big progress in the CTBT negotiation was that President Clinton announced in early August 1995 that the US is committed to a 'true zero yield' which would ban any nuclear weapons explosion without setting a threshold for the yield. Hydronuclear experiments are covered by this proposal as long as they release a significant amount of energy. The exact definition of what would be covered by the 'true zero yield ban' is not clear yet. Perhaps criticality may be the deviding line and supercritical experiments would be banned, but not subcritical ones. They would be included among the so-called treaty consistent activities.

France and Britain soon agreed to the 'true zero' ban. Within the USA this progress marks a compromise which was reached with a great deal of effort by the disarmament proponents. The nuclear weapon establishment feels it gave away as much as possible. Public objections against hydronuclear testing did not really put the negotiations in danger and seems eventually to prove successful. But this may be different for the case of subcritical tests.

From a realistic point of view it should be clear that no more contraints can be put to the recognized nuclear weapon states without seriously putting the conclusion and acceptance of the CTBT at risk. It may as well be that the subcritical tests do jeopardize the conclusion of the CTBT, and there are several other sensitive issues still open. Therefore, a substantial quarrel about subcritical tests might contribute significantly to put the conclusion of the CTBT in 1996 in jeopardy. Saying this, it should be made clear that the reason behind this is the real problem.

The real problem is of course that nuclear weapon states want to continue weapons research and though they argue that this would be required to maintain the confidence in their aging arsenal it is apparent that all the technologies involved are more or less well suited to continue research and development of new nuclear weapons. However, the danger is that with a success to conclude the CTBT this may remain below the limit of public awareness and protest.

We need the CTBT to be concluded this year to bring the world a very important step forward in non-proliferation and nuclear disarmament. We need further steps of nuclear disarmament and means to cut back nuclear weapons research and development following soon.

Information Alert

Earth-Penetrating Nuclear Weapon To Be Developed By The United States

Recent Department of Energy (DOE) and weapons laboratory statements reveal that an earth-penetrating nuclear weapon, to be fashioned from the B61 gravity bomb, is under development in the United States.

- The modified B-61, if developed and deployed, would apparently have characteristics distinct from any other weapon in the arsenal; these characteristics would allow it to threaten otherwise indestructible targets. This makes the new weapon uniquely useful from a military perspective—and hence provocative from an arms control perspective.
- A central purpose of the proposed comprehensive test ban (CTB) has always been to stop the further evolution of the world’s nuclear arsenals. This modified weapon, to be developed and deployed after the U.S. has stopped nuclear testing, undercut a CTB before it is even signed. New or “modified” nuclear weapons are not in the security interests of the United States.

- Earth-penetrating weapons, approved for development by Clinton in the post-Cold War era, were rejected for deployment by Carter, Reagan, and Bush. What are the new targets? What little is known about this weapon suggests that it is more oriented against deep-buried targets in the Third World than was its 9-megaton predecessor, the B53. Why is the United States further developing its weapons of mass destruction? It is in our manifest interest to get rid of such weapons as fast as possible and to quit their further legitimization.

US Suspects India Prepares To Conduct Nuclear Test by Tim Weiner

WASHINGTON, December 14 - American intelligence experts suspect India is preparing for its first nuclear test since 1974, government officials said today. The United States is working to discourage it, fearing a political chain reaction among nuclear nations.

In recent weeks, spy satellites have recorded scientific and technical activity at the Pokaran test site in the Rajasthan desert in India. But intelligence experts said they could not tell whether the activity involved preparations for exploding a nuclear bomb or some other experiment to increase India’s expertise in making nuclear weapons. [...] Shive Mukherjee, Press Minister of the Indian Embassy here, said today that the activities at the nuclear test site were army exercises whose "movements have been absurdly misinterpreted."

Mixed Beginnings: CD Opens For 1996

CTB Update No. 3 (Summary)

The Conference on Disarmament (CD) got off to a successful start when its first plenary of 1996 managed to agree the immediate establishment of the nuclear test ban (NTB) committee on 23 January. Although there was last-minute concern that non-aligned calls for an ad hoc committee on nuclear disarmament, spearheaded by India, might become linked in such a way that the NTB committee would be held up, this did not happen. To avoid the impasse over committees which had bedevilled CD work in 1996, the President, U. Aye of Myanmar, appointed a Special Coordinator on the Agenda, Ambassador Hocine Meghlouli of Algeria, to discuss these matters with all the delegations. The long-awaited expansion of the CD remained unfulfilled, although Ambassador U. Aye reiterated the importance for the 23 members-in-waiting agreed in September 1995 and also pledged that a further 26 states which had applied would be considered.

The NTB Committee, under its new Chair, Ambassador Jaap Ramaker of The Netherlands, convened immediately to consider the results of intersessional work since September and to appoint Chairs and Friends of the Chair on particular issues, such as the international monitoring system (IMS), financing, and the role and functions of a preparatory committee between signature and entry into force. By the end of the week, Ambassador Grigori Berdennikov of Russia and Ambassador Mounir Zahran of Egypt were confirmed as chairs of Working Group 1 on Verification and Working Group 2 on Legal and Institutional Issues respectively, and work had resumed on on-site inspections, IMS and scope.

In a week that included clashes between the US and India over allegations that India could be preparing a nuclear test at Pokhara, the sixth French nuclear test in the South Pacific and the announcement by President Chirac that this would be the last, enabling France shortly to sign the protocols of the Treaty of Raratonga, test ban advocates received mixed signals. Though the danger of snarling the NTB Committee up with other issues was averted, the 1996 start has been dominated by the national interests and regional relations in South Asia, with India, Pakistan and China reiterating hard line positions on some of the central issues.

Although the establishment of the NTB Committee and its resumption of work were not blocked, India made clear its determination to envision the CTBT in the context of nuclear disarmament and negotiations on a time bound programme for the elimination of nuclear weapons. By the end of the first week, India had followed a forceful plenary statement with three working papers on the preamble, review article and entry into force. Four preambular amendments referring to nuclear disarmament and a time-bound framework were proposed, together with a paragraph emphasising that the ‘principal objective of the Treaty is to end the qualitative improvement and development of nuclear weapon systems’ designed to take the scope beyond the nuclear-weapon-states’ present interpretation of the concept of zero yield. India further proposed that the ten year review conference presently envisaged should not only review the operation of the treaty, but also ensure ‘that the objectives, purpose and the provisions of the Preamble to the Treaty are being realized.’ India also proposed that entry into force of the CTBT should be conditional upon a commitment by states parties to the goal of eliminating nuclear weapons within a defined time-table.

Given the events of the past few weeks, and the increasingly strident debate in India’s press, these moves were not expected. The question is whether these proposals are genuine and leave room for compromise. Since the P-5 – or at least the US, UK, France and Russia – are unlikely to agree a time-bound programme for nuclear disarmament in a CTBT when they successfully kept it out of the decisions on extending the NPT in May 1995, there is concern that imposing such terms may be a way for India to wriggle out of accepting to a test ban since 1955. If no India, then no China (and Pakistan); if no China then accession by the other nuclear-weapon states is jeopardised, with the prospect of the treaty falling apart before it can get going. While India in its pre-election months is in turmoil, with every statement on its nuclear programme evaluated to front page status, its Foreign Ministry refused to confirm or deny what it characterised as ‘speculation’ on the basis of a leak from US sources to the press. Meanwhile China and Pakistan also staked their ground, reiterating positions that could wreck a CTBT unless compromises are found.

While no-one expects that the US would agree to a time-bound framework for nuclear disarmament in this treaty, Director of the US Arms Control and Disarmament Agency (ACDA), John Holmen went further than before in emphasising the relationship between a CTBT and the goal of eliminating nuclear weapons, listing US weapons programmes which will be capped by a test ban. The UK and France reportedly complained that Holmen had gone too far, but the statement was well received by others.

The race is on to achieve a CTBT in 1996. Several delegations reiterated the necessity of reaching substantial agreement by the end of March and a clean text by the end of June. The mechanism for accelerating negotiations is not yet clear. Ramaker wants to focus on the thorny issues in turn, starting with on-site inspections. Others have speculated on the catalytic role a cleaned up text could play, extracted from the creative analysis of one or a few states from the heavily bracketed rolling text; some also warn that squeezing states too soon could be counter productive. Finalisation of the treaty looks a long way off, with renewed Russian problems on the monitoring system and scope, US difficulties with verification funding, no apparent movement by China on PNEs, fundamental disagreements over the function and procedures for inspections and the incorporation (if any) of national technical means, and Indian bombshells on the preamble, entry into force and review of the treaty. Although dressed in technical clothes, resolution of these problems requires political will and politically flexible solutions.

1996 Session The first part of the 1996 session runs from 22 January to 29 March; the second part from 13 May to 28 June, and the final part from 29 July to 13 September.
Some quotes from the CTBT negotiations

The Australian proposal (WP.222): “I. Each State Party undertakes not to carry out any nuclear weapon test explosion or any other nuclear explosion, and to prohibit and prevent any such nuclear explosion at any place under its jurisdiction or control.

2. Each State Party undertakes, furthermore, to refrain from causing, encouraging, or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion.”

Ambassador Munir Akram of Pakistan covered nuclear disarmament, the role of a CTBT and suspicions about Indian intentions and a possible Indian test, which he referred to as ‘son of Smiling Budha’ (referring to the codename of India’s nuclear explosion in 1974). Stressing that ‘the only safeguard against the use of nuclear weapons is their complete elimination’, Akram lamented that some of the nuclear weapon states, ‘while reducing their nuclear arsenals qualitatively, are upgrading them qualitatively.’ He underlined Pakistan’s commitment to the Cartagena call for an ad hoc committee on nuclear disarmament at the ‘commencement of negotiations, as a matter of the highest priority, for a phased reduction and eventual elimination of nuclear weapons within a specific time-frame’, which had been ‘endorsed overwhelmingly’ by the UNGA, he said.

John Holum, Director of US ACDA: Acknowledging that a CTBT is ‘at risk’, Holum spelled out three main arguments: that a CTBT is not a sham measure but would severely constrain future nuclear weapon development, particularly by the nuclear weapon states; that a CTBT is an indispensable step ‘if the ultimate elimination of nuclear arms is ever to be achieved’; and that ‘holding one important goal hostage for another is a sure way to fail at both.’ Holum listed the military programs which would have to be abandoned or drastically curtailed if a CTBT bans nuclear explosive testing: directed energy weapons, such as the nuclear-explosion-pumped x-ray laser, nuclear ‘shotgun’, enhanced electro-magnetic pulse (EMP) weapons, microwave weapons and enhanced radiation weapons. Enumerating various treaties which call for a CTBT, he concludes ‘we will never achieve a world free of nuclear weapons unless we first achieve a world free of nuclear explosions.’

Recalling the NPT parties’ commitment to achieving a CTBT in 1996, Ambassador J.S. Selebi of South Africa also considered that ‘if we have not finalised our work on the Treaty by - at the latest - the middle of this year, then it will be highly unlikely that we shall be able to meet the deadline.’ Alluding to the hysteria of rumours from the US and Indian press, Indian Ambassador Arundhati Ghose remarked sardonically that 1996 was ‘a testing time for all of us in the CD’. She urged the start of negotiations on a time bound programme for the elimination of nuclear weapons early this year: “the CTBT must be an integral step in the process of nuclear disarmament. Developing new warheads or refining existing ones after the CTBT is in place, using innovative technologies, would be as contrary to the spirit of the CTBT as the NPT is to the spirit of non-proliferation.”

On 26 January India made a proposal relating entry into force to nuclear disarmament: “this Treaty shall enter into force only after all states parties have committed themselves to the attainment of the goal of total elimination of all nuclear weapons within a well-defined time framework (of ten years).”

Source: CTB Update No.3

UN Resolution on General and Complete Disarmament (excerpt)

The General Assembly, [...] 1. Recognizes that, in view of the end of the cold war and recent political developments, time is now opportune for all nuclear-weapons States to undertake effective nuclear disarmament measures with a view to the total elimination of these weapons within a time-bound framework;

2. Recognizes also that there is a genuine need to de-emphasize the role of nuclear weapons, and to review and revise the nuclear doctrines accordingly;

3. Urges the nuclear-weapons States to stop immediately the qualitative improvement, development, stockpiling and production of nuclear warheads and their delivery systems;

4. Calls upon the nuclear-weapons States to undertake step-by-step reduction of the nuclear threat and a phased programme of progressive and balanced deep reductions of nuclear weapons, and to carry out effective nuclear disarmament measures with a view to the total elimination of these weapons within a time-bound framework;

5. Also calls upon the Conference on Disarmament to establish, on a priority basis, an ad hoc committee on nuclear disarmament to commence negotiations early in 1996 on a phased programme of nuclear disarmament and for the eventual elimination of nuclear weapons within a time-bound framework;

6. Expresses its support for the efforts of the Member States of the Conference on Disarmament to this end;

7. Requests the Secretary-General to submit to the General Assembly at its fifty-first session a report on the implementation of the present resolution;

8. Decides to include in the provisional agenda of its fifty-first session the item entitled “Nuclear disarmament”.

Abolition 2000
A Global Network to Eliminate Nuclear Weapons

Formally established at an international meeting in the Hague/The Netherlands on 5 November last year, this new network currently consists of five elements:
1. Endorsing organisations - who have signed the NGO Abolition Caucus Statement of April 1995. By mid-January 1996, some 280 national and international NGOs have signed on. New signatures are collected by Xanthe Hall, IPPNW Germany.
2. Working Groups through which the organisations cooperate on joint projects (see separate paragraph in this article).
3. A Clearinghouse which will collect and distribute information around the network - through all available channels - and to support and the Working Groups.
4. An Ad-hoc Clearinghouse Committee to ensure the effective functioning of the Clearinghouse, and in particular the fundraising for it. Members of the Ad-hoc Committee are:
   - Janet Bloomfield, CND Britain, 162 Holloway Road, London N7 8DQ, UK; Tel./Fax: (44-171) 700 2349; e-mail: janetbloomfield@gn.apc.org or janet@gn.apc.org
   - Michael Christ, IPPNW Central Office, 126 Rogers Street, Cambridge MA 02142-1096, USA; Tel.: (1-617) 868 5050; Fax: (1-617) 868 2560; e-mail: ippnw@oln.comlink.apc.org
   - Colin Archer, IPB, Rue de Zurich 41, CH-1201 Geneva, Switzerland; Tel.: (41-22) 731 6429, Fax: 738 9419, e-mail: ipb@ipb.gn.apc.org
   - Xanthe Hall, IPPNW Germany, Koertestr. 10, D-10967 Berlin, Germany; Tel.: (49-30) 693 0244; Fax: (49-30) 693 8166, e-mail: ippnw@oln.comlink.de
   - Reiner Braun, INES, Postfach (POB) 101707,D-44017 Dortmund, Germany; Tel.: (49-231) 103 825 [home: (49-231) 817987], Fax: (49-231) 103 869 [home: (49-231) 81944], e-mail: uphc01@ux1.hrz.uni-dortmund.de [home: dfg-vk.nrsw@anarch.ping.de], Internet WWW page: http://cac.psu.edu/~duf/social/ines.html

Jackie Cabasso, Western States Legal Foundation (WSFL), 1440 Broadway, Suite 500, Oakland CA 94612, USA; Tel.: (1-510) 839 5877, Fax: 839 5397, e-mail: wsfl@igc.apc.org
[co-opted: Pamela Meidell, World Campaign to Abolish Nuclear Weapons, p.a. Nuclear Age Peace Foundation (NAPF), 1187 Coast Village Rd., #123, Santa Barbara CA 93108-2737, USA; Tel.: (1-805) 965 3443, Fax: 568 0466, e-mail: napf@igc.apc.org or 3050napf@ucsbusa.uucsb.edu]
5. An e-mail listserver, through which endorsing organisations may obtain and distribute documentation electronically: abolition-caucus@igc.apc.org

Working Groups already established:
- **Euro-bomb**: aims: to work for a nuclear weapon-free zone in Europe; take the ICJ ruling to a conference for MEPs in Brussels; work with the OSCE on rejecting a nuclearized Common Foreign and Security Policy (CFSP)
  - Convenor: Solange Fernex, MEP, and Women for Peace France, F-68480 Biedenthal, France; Tel.: (33) 8940 7183, Fax: (33) 8940 7804 or (32-2) 284 9143 (note that S. Fernex is also the contact for IPB’s Joint NGO Campaign on European Security)
  - **Newsletter**: The first issue of “BAN! Bulletin for the Abolition of Nuclear Weapons” has been published in January 1996 (see the following description).
  
  - **Use and Threat of Use of Nuclear Weapons**: aims: to organise events on “Judgement Day” (when the ICJ delivers its opinion); revise the Declarations of Public Conscience and collect for submission to governments and local courts; work on the end of the Decade of International Law.
  
  - **Chernobyl**: aims: to coordinate efforts around the 10th anniversary in April.
  
  - **Nuclear Weapons Convention (NWC)**: aims: to work for a resolution in the UN General Assembly requesting

the UN Conference on Disarmament to commence negotiations on a NWC; plan for an international NWC conference for 1997; support the Canberra Commission; recommend IALANA, INESAP, Pugwash drafts; promote nuclear weapon-free zones.

Convenor: Jürgen Scheffran, JANUS/INESAP, Institut für Kernphysik, Schlossgartenstr. 9, D-64289 Darmstadt, Germany; Tel.: (49-6151) 16-4468 or 16-4368; Fax: (49-6151) 16-6039, email: scheffran@hrz.pub.th-darmstadt.de, Internet WWW page: http://www.th-darmstadt.de/zl/janus/inesap.html
- **Media**: Convenor: Janet Bloomfield, c/o CND Britain (see under Ad-hoc Clearinghouse Ctte.)
  
  Working Groups suggested (but no convenor appointed yet):
  - **Nuclear Testing**: aims: work for preambular language on no new development of nuclear weapons; public education work on lab testing as vertical proliferation; encourage statements like that of Australia, saying that testing is illegal
  - **Fissile Materials**
  - **Regional Nuclear Issues**

Next Network Meeting, Edinburgh, 1-4 March 1996

The next Network meeting will take place within the Edinburgh Peace Festival (an annual political and cultural programme spread over two weeks in March). On Saturday, March 2 a conference “Managing Nuclear Disarmament” will take place. Speakers include: Prof. Joseph Rotblat, Admiral Eugene Carroll, Robert Green, Prof. Donald Mackenzie, Patricia Lewis, Maj-Britt Theorin MEP, Alyn Ware, Scilla Elworthy, Janet Bloomfield, Bruce Kent. Contact: George Farebrother, 67 Summerheath Road, Hailsham, Sussex BN27 3DR; Tel./Fax: (44-1323) 844 269, email: geowcpuk@gn.apc.org

National activities

USA: two meetings took place in Philadelphia and San Francisco in early 1996; the address of the newly established national “Abolition 2000 Network” is: c/o Economists Allied for Arms Reduction (ECAAR), attn: Alice Slater, 25 West 45th St. #1401, New York NY 10036-4902; Tel.: (1-212) 768 2080, Fax: (1-212) 768 2167, e-mail: alice.slater@environet.org

Germany: the former national NPT Co-alition has changed its name into “Campaign for the Abolition of Nuclear Weapons”. Also, it decided to join the “Abolition 2000 Network” as a German network part-
On 26 November last year, Australian Prime Minister Paul Keating announced his “initiative for a nuclear weapons-free world” with the establishment of a 15-member Commission on the Elimination of Nuclear Weapons. This “Canberra Commission” is tasked with proposing “practical steps towards a nuclear weapons-free world including the related problems of maintaining stability and security during the transitional period and after this goal is accomplished.” The Commission will meet 3 or 4 times. It will report to Keating by 31 August 1996. The Australian Government then intends to submit the report of the Commission to the 1996 United Nations General Assembly and to the Conference on Disarmament.

Members of the Commission are:

- **Ambassador Celso Amorin** from Brazil: former Foreign Minister 1993-94 and current Permanent Representative at the UN.
- **General George Butler** from US: Commander in Chief of US Strategic Air Command 1991/2 - served as deputy to General Powell.
- **Ambassador Richard Butler**: Australian Ambassador to UN and former Disarmament Ambassador.
- **Field Marshal the Lord Carver UK**: Commander in Chief Far East of the British Army (1967-69), Chief of Defence Staff (1973-76).
- **Ambassador Dhanapala**, Sri Lanka: Chaired 1995 NPT Conference, former Director of UNIDIR, Ambassador for Sri Lanka to UN.
- **Ambassador Rolf Ekeus**, Sweden: Executive Chair UN Special Commission - mandate to identify and eliminate Iraq’s weapons of mass destruction. Former Ambassador for Disarmament and Ambassador to CSCE.
- **Ambassador Dr Nabil Elaraby**, Egypt: international lawyer, member of International Law Commission. Ambassador of Egypt to UN, New York.
- **Prof Imaji**, Japan: Counsellor to the Japan Atomic Power Company. Former Ambassador of Japan to CD, to Kuwait and Mexico.
- **Dr Ron McCoy**, Malaysia Chair IPPNW, Malaysia, President Malaysian Medical Association.
- **Robert McNamara**, US: Former Secretary of Defence under Kennedy and Johnson.
- **Prof Robert O’Neill**, Australia: former Director International Institute Strategic Studies London.
- **Prof Rodal Sagdeev**, Russia: Prof Physics Dept University of Maryland and Director of the East-West Space Science Centre. Former Chair Committee of Soviet Scientists for Global Security.
- **Dr Maj-Britt Theorin**, Sweden: Member EU, Former Swedish Ambassador for Disarmament and President IPB, Chair of UN Commission of Experts on Nuclear Weapons 1989/90.

Later, two additional personalities have joined the Commission:

- **Qian Jiandong**, China: a former Ambassador for Disarmament.

According to Prime Minister Keating’s statement, “The Commission will consider and develop recommendations on the following issues:

- Identification of concrete and realistic steps for achieving a nuclear weapons free world, including the development and establishment of necessary verification and control mechanisms and new international legal obligations.

Possible areas of focus include:

- The contribution of a Comprehensive Test Ban Treaty; Nuclear Weapon Free Zones; a “cut-off” convention on the cessation of production of fissile material for nuclear weapons; a possible treaty requiring all states to declare and account for their present stocks of fissile material; and the strengthening of the international safeguards system;

- By staying through of the commitment by the nuclear weapon states to eliminate their nuclear stockpiles through a systematic process, including safe and secure arrangements for weapons dismantlement and destruction; and

- The problem of nuclear threshold states and the related issue of achieving universal participation in the NPT.

- Development of durable security arrangements, both globally and regionally, including

- The maintenance of a system of stable deterrence while the reduction and eventual elimination of nuclear weapons is being achieved;

- The link with other weapons of mass destruction and their control or elimination; and

- Measures to prevent break-out, nuclear theft and nuclear terrorism/criminality.

- Other related issues the Commission may identify during its work.
As was reported in an INESAP Information Bulletin No.6 (July 1995) a group of people concerned with nuclear issues followed the route of the first bombs from Los Alamos to Japan over the three weeks it took in 1945. This journey of reflection, action and reconciliation was one of the most powerful events that took place around the 50th Anniversary Commemorations of Hiroshima and Nagasaki. The Atomic Mirror Pilgrimage was present at the Trinity site of July 16th and visited San Francisco and Honolulu on its way to Hiroshima and Nagasaki. I took part in the last few days of the pilgrimage and was inspired to organise an Atomic Mirror Pilgrimage around Britain in the spring of 1996 to coincide with the 10th Anniversary of the world’s worst nuclear accident at Chernobyl.

The planned itinerary will include Aldermaston and Burghfield (where nuclear weapons are developed and manufactured), Greenham Common (the former Cruise missile base), Llanishen (another bomb plant near Cardiff), Barrow (where Trident submarines are built), Faslane (the actual Trident base) and the Sellafield nuclear reprocessing plant. These are the key nuclear sites. This will link sites where nuclear weapons are manufactured and deployed with nuclear processing and transport. Canterbury, Glastonbury, St Davids, Swarthmore Hall (the home of the early Quakers) and Iona are the key sacred sites planned on the preliminary itinerary. It is envisaged that a core group of approximately twelve people will take part in the full three week event. They will be joined at various places on the route by people for a day or several days. The pilgrims will be hosted by local peace groups and a number of public meetings will take place. As with last years journey the intention is to engage in a dialogue with those operating the nuclear facilities.

The Atomic Mirror 1996 will witness to the effect that nuclear weapons have had on the land and people of Britain since the nuclear age began. It will link several significant nuclear sites with a number of sacred places which bear witness to a radically different set of values than those which are embodied in the British Nuclear State. It will culminate at Sellafield on Chernobyl Day where it will witness to the appalling consequences of the events of April 26 1986 and call for the abolition of both nuclear weapons and nuclear power.

If you would like to have more information about the Atomic Mirror 1996 or would like to send a message of support please contact: Janet Bloomfield, Chair of British Campaign for Nuclear Disarmament, at CND, 162, Holloway Road, London N7 8DQ. Tel: 44 171 700 2357. Fax: 44 171 700 2357. e-mail: jbloomfield@gn.apc.org

On June 15, 1996 CND’s major campaign event will be at the nuclear submarine base, Faslane, Scotland, where the Trident submarine is located.

New book on abolition

Book Review

Does this book from Pakistan admit that this country has the atomic bomb? This book does not reveal any secrets and does not add new information about the nuclear programs of India and Pakistan. It starts off from the official political situation: it interprets the explosion of a nuclear device by India in May 1974 as the date that the bomb arrived in South Asia. As a reaction to the perceived threat, Pakistan claims that, now, it has the capability to make and use nuclear weapons.

Both countries keep a status of nuclear ambiguity and have not actually deployed nuclear weapons. But there are a growing number of voices in both countries for whom this hidden threat is not enough. ‘They want to summon the bombs forth, into the light of day,’ as Zia Mian writes in the introduction. ‘They want their enemy to look into the face of the demon and tremble. The reason for this is simple. It is based on the idea of deterrence.’ This implies that India must believe Pakistan can and will use nuclear weapons.

The purpose of this book is to put forward arguments against such a development and to prevent the danger of a nuclear war between Pakistan and India. All scenarios Pakistan will be at a disadvantage with respect to India. The concept of deterrence would not work and in his opinion both nations must take steps to make South Asia nuclear free.

Though nuclear weapons are a topic of debate in Pakistan, little is revealed about the negative aspects of these weapons. In his 40 pages, Zia Mian outlines the costs of nuclear security. The human costs are particularly from the health dangers due to radioactivity. Though not much is known about accidents in Pakistan’s nuclear facilities, the dangers can be guessed by discussing bad experiences at similar facilities in India. The case of excessive expenditures for nuclear arsenals can be made by examining the history of nuclear weapons budgets in the USA and the Soviet Union. Zia Mian then estimates the real costs of nuclear warheads and delivery systems and compares them with what the government intends to spend for its Social Action Programme. The nuclear option should become totally unacceptable when looking at the ultimate costs of nuclear security caused by a possible nuclear war. The merit of Zia Mian’s paper is that it discusses all these costs and puts them in Pakistan’s context.

Inayatullah describes the lessons that Pakistan could learn from the nuclear arms race and fall of the Soviet Union. Further topics covered in this book are Pakistan’s relations to the NPT, regional solutions to this regional issue, as well as the proposal for a world-wide ban on nuclear weapons.

To conclude I would like to quote from the back cover of this important book: ‘For the many in Pakistan who have been told that only nuclear weapons can prevent another war in the sub-continent, the arguments presented here offer a clear alternative, an alternative that can open the doors to real peace.’

Since the book is difficult to acquire directly from Pakistan, INESAP ordered a number of copies that can be distributed further from IANUS in Darmstadt. They had not arrived at Darmstadt by middle of February 1996.

Martin Kalinowski (IANUS)

INESAP Conferences
Europe and the Future With or Without Nuclear Weapons
INESAP Workshop in Mülheim/Germany

On January 19-21, 1995, INESAP organized, together with the “German Scientists Initiative Responsibility for Peace” and the Protestant Academy Mülheim a workshop on the future of nuclear weapons in Europe. About 30 participants attended the workshop, at which the following topics were presented and discussed: historical dimensions of the atomic bomb (Ulrich Albrecht); nuclear strategy of the nuclear powers after the end of the Cold War (Paul F. Walker, Götz Neuneck); status of nuclear weapons research and development (Martin Kalinowski, Jürgen Schef- fran); Germany and nuclear participation (Diet- ter Deiseroth); the role of European nuclear weapons in NATO and WEU (Erwin Haeckel). The workshop was concluded by a discussion among NGOs from France, Britain, Switzerland, Italy and Germany on a strategy for a Europe without nuclear weapons.

It became clear that the current situation is characterized by contradictory developments. The end of the Cold War has lead to termination of many nuclear weapon programs, which are seen as irrelevant and obso- lete: the shift from East-West to North-South dimensions has provoked weapon developments, aimed at smaller and more precise warheads and delivery systems as part of a counterproliferation strategy. Most concern- ing is the continuation of nuclear programs in France and China, which at the same time have been most active in nuclear testing. Rather irritating is the ambivalent role that German politicians are playing, who at the same time speak out in favour of comprehen- sive nuclear disarmament, but also play with the nuclear option in a European context.

1996 INESAP Conference in Sweden
The 1996 INESAP Conference, entitled “From Non-Proliferation towards a Nuclear-Weapon-Free World”, will take place in Sweden between May 30 and June 2, 1996. The conference is organized by the Swedish Scientists and Engineers Against Nuclear Weapons and IANUS (Darmstadt, Germany). One aim is to continue the work of the INESAP Study Group “Beyond the NPT - A Nuclear-Weapon-Free World” which has lead to the preliminary report presented in New York in April 1995. This will be done by focusing on specific aspects, including a Comprehensive Cut-Off Convention, measures to extend and reverse the nuclear arms race, regional issues, missile defense and the control of delivery systems. As a general framework, an agenda towards a NWFZ, including a Nuclear Weapon Convention, is to be discussed. Priorities for future research, networking and political action of INESAP are on the conference agenda. Regional is- sues of nuclear weapons in the Baltic Sea area will play a major role.
Why Negotiations on a Nuclear Weapons Convention Are Needed

Jürgen Scheffran, Wolfgang Liebert

We have the technical means to create a nuclear-weapon-free world in about a decade... All nuclear weapon states should... declare - in Treaty form that they will never be the first to use nuclear weapons. This would open the way to the gradual, mutual reduction of nuclear arsenals, down to zero. It would also open the way for a Nuclear Weapons Convention. This would be universal it would prohibit all possession of nuclear weapons. Joseph Rotblat, in his 1995 Nobel Peace Prize speech.

1. Nuclear abolition is on the international agenda

The elimination of nuclear weapons is becoming an increasingly important issue in world politics. Numerous statements from both governments and non-governmental organizations (NGOs) have made clear that a world free of nuclear weapons is a shared aspiration of humanity. All 170 states at the Review and Extension Conference of the Non-Proliferation Treaty (NPT) have agreed in May 1995 on "systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating these weapons, and by all States of general and complete disarmament under strict and effective international control." This demand was intensified by a majority resolution in the UN General Assembly in 1995. More than 200 NGOs called in April 1995 for immediate "negotiations on a nuclear weapons abolition convention that requires the phased elimination of all nuclear weapons within a timebound framework, with provisions for effective verification and enforcement." The foundation of the Abolition 2000 Global Network, the initiation of the Canberra Commission on the Elimination of Nuclear Weapons by the Australian government as well as expert studies by Pugwash and INESAP indicate a growing interest in the abolition of nuclear weapons. The hearings at the World Court of Justice on the illegality of nuclear weapons have shown how weak the case of the nuclear weapon states and their supporters is. Independent on the conclusion of the World Court, the existing legal gap could be closed by a Nuclear Weapons Convention (NWC).

2. A NWC would be the logical next step in the process of eliminating weapons of mass destruction, completing the still insufficient existing non-proliferation and disarmament regime.

The international community has agreed that weapons of mass destruction (WMD) need to be banned and eliminated completely. A Biological Weapons Convention (BWC) and a Chemical Weapons Convention (CWC) have been already agreed. The still open window for nuclear weapons, the most devastating of all WMD, needs to be closed by a NWC which could learn from the experience in the other two fields. The deficiencies of the NPT - above all its discriminatory character and the neglect of the dual-use potential of nuclear technology and materials - are well known. The NWC negotiations could serve as a universal, non-discriminatory framework for an open and transparent debate, in which problems of each single step to a nuclear weapon free world could be balanced by other steps. Competent NGOs should be invited to take officially part in this process.

3. NWC negotiations could provide a framework for a variety of disarmament and non-proliferation measures

A NWC process would combine the long-term goal of a nuclear-weapons-free world with short and medium steps towards that goal. Implementation on a global level could be combined with regional approaches to nuclear-weapons-free zones. The convention should mandate irreversible disarmament measures, including the following: withdraw and disable all deployed nuclear weapons systems; disable and dismantle warheads; place warheads and weapons usable radioactive materials under international safeguards; destroy ballistic missiles and other delivery systems for nuclear weapons. In negotiations a variety of questions need to be dealt with, including the scope and general obligations, entry into force and time-frame, single steps towards the general goal, destruction and conversion of the nuclear weapons complex (including research, development, testing, production, deployment, storage facilities for nuclear weapons and related delivery systems), dual-use of nuclear technologies, integrated verification of both elimination and non-proliferation (horizontal and vertical), break-out options and resolution of compliance and enforcement problems, process of review and amendment, financial mechanisms for implementation. All this could be based as much as possible on existing treaties and negotiations in various fields, including the NPT, CTBT, fissile cut-off, START and ABM Treaty. A UN organization for implementation and verification could be created.

4. Negotiations on a NWC would not only be desirable, but would also help in building capabilities to improve feasibility and effective verification.

The main driving force behind the acquisition of nuclear weapons is the possession of nuclear weapons by other states. The resulting self-induced nuclear arms race and the threat of nuclear war cannot be in the security interest for any country, including the nuclear weapon states. These dangers cannot be avoided in the turbulent and uncertain future of the coming millennium by policies simply based on national interest. The interest of mankind would best be represented by a forum on nuclear abolition, in which all states have the opportunity to communicate about their security concerns and possible solutions and problems related to the feasibility and verifiability of nuclear abolition. Negotiations on a NWC could provide such a forum. This would be a fundamental precondition that states can mobilize their best resources to resolve problems associated with NWC negotiation, ratification, implementation and verification.

5. Governments and NGOs should cooperate on a NWC

Negotiations on abolition among the five nuclear weapon states would serve as a backbone for a NWC, but should be integrated into an international framework to increase transparency and confidence building. The most natural negotiating body would be the Conference on Disarmament. As an alternative or as a starting point, a separate negotiating conference on a NWC could be established in the UN. There are various opportunities for governments and NGOs to influence the process towards a NWC. First of all, the review process for the NPT, including the meetings of the Preps-Coms beginning in 1997 and the Review Conference in the year 2000, would provide a framework for such activities. Other possibilities would be the UN General Assembly (UNGA), the UN Special Session on Disarmament, the Canberra Commission or the G7 meetings. NGOs could discuss with diplomats and inform the public, plan for an international conference on the NWC and work on a draft for a NWC. Most important is to build support in those countries which are still critical on nuclear abolition, especially the NATO countries. A near-term goal would be a resolution in the UNGA for a NWC this year.

Selected literature on the NWC:
W. Liebert, Outline substance of a proposal for a Nuclear Weapon Convention to replace the NPT, INESAP Info Bulletin, No. 4, Jan 1995, pp. 5-7
Beyond the NPT - A Nuclear-Weapon-Free World, preliminary findings of INESAP Study Group, New York/Darmstadt: April 1995 (Executive Summary in INESAP Bulletin No. 6)
A Nuclear Weapons Convention, BASIC Paper No.9, 16 March 1995

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Atomic Scientists Call on Colleagues to Desist
The Award of the Nobel Prize to Pugwash