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PROGRAMME FOR PROMOTING NUCLEAR NON-PROLIFERATION

Number 36 **NEWSBRIEF** **4th Quarter 1996**

Editorial Note

The **Newsbrief** is a quarterly publication of the Programme for Promoting Nuclear Non-Proliferation (PPNN) which gives information about the actual or potential spread of nuclear weapons and about moves to prevent that spread; it also contains selected references to developments relating to the peaceful uses of nuclear energy. The contents of the **Newsbrief** are based on open source material, chosen and presented so as to give an accurate and balanced depiction of pertinent developments.

This issue of the **Newsbrief** covers the period September–December 1996. Unless otherwise indicated, sources used and publications listed date from 1996.

The limited size of the **Newsbrief** makes it necessary to choose among items of information and present them in condensed form. The special attention the media tend to pay to particular issues and events, and the fact that many press organs take their information from the same sources, means that often different news items cover the same ground. This adds to the need for careful selection of references to be used for the **Newsbrief** from among the available material.

Subheadings used in the **Newsbrief** are meant to facilitate presentation and are not intended as judgements on the nature of the events covered. On occasion, in the interest of readability, related developments that might logically be dealt with under separate subheadings are combined under a single subheading. Thus, in the present issue, various aspects of China's exports of nuclear items, the issue of its cooperation with the United States and some Chinese domestic nuclear developments are covered together under the subheading **Nuclear Trade and International Cooperation**. Similarly, the subheading **Nuclear Disarmament and Arms Limitation** here covers both the issue of the disposition of excess weapons-grade plutonium and the question of using mixed-oxide (MOX) fuel in the civilian fuel cycle, in the United States and elsewhere.

PPNN's Executive Chairman, Ben Sanders, is editor of the **Newsbrief**. He produces it and takes sole responsibility for its contents. The inclusion of an item does not necessarily imply the concurrence by the members of PPNN's Core Group, collectively or individually, either with its substance or with its relevance to PPNN's activities.

Readers who wish to comment on the substance of the **Newsbrief** or on the way any item is presented, or who wish to draw attention to information they think should be included, are invited to send their remarks to the editor for possible publication.

I. Topical Developments

a. The NPT

- On 14 October, **Angola** deposited an instrument of accession to the Non-Proliferation Treaty. On 16 October, **Djibouti** did so as well. The two accessions have brought the total number of parties to the Treaty to 185. At year's end, the deposition of the instrument of accession of **Oman** was expected momentarily. The accession of Djibouti and Oman will mean the adherence to the NPT of all Arab states and also means that all states in the area of the Middle East will have joined the Treaty, with the exception of **Israel**. With the accession of Angola and Djibouti, all states within the area of the African Nuclear-Weapon-Free Zone are now parties to the NPT. (**Trust & Verify**, November; **Direct Information**)

Contents

- On 18 October, delegations of states parties to the NPT attending the Fifty-first Regular Session of the UN General Assembly held a caucus at United Nations headquarters on procedural matters relating to the first session of the Preparatory Committee for the NPT Review Conference of the year 2000. On 10 December the General Assembly adopted resolution A/RES/51/45 A (Treaty on the Non-Proliferation of Nuclear Weapons: 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons and its Preparatory Committee) which, among other things, notes that the first meeting of the Preparatory Committee will be held in New York from 7 to 18 April, and requests the Secretary-General to render the necessary assistance and provide such services as may be required. The full text is reproduced in section IV. **Documentation**. (**UN Document** A/51/566/Add 11, pp. 29/30, 29/11; **Direct Information**)

- The refusal by the United States to supply highly-enriched uranium (HEU) to **Germany** for use in the FRM-2 high-flux reactor under construction at Garching, near Munich, is criticised by German industry and the state of Bavaria as not only a violation of the spirit of the NPT, as previously claimed, but also as a contravention of the letter of the Treaty. (**NuclearFuel**, 21/10)

b. Further Non-Proliferation Developments

- In **Japan**, the Power Reactor & Nuclear Fuel Development Corp. (PNC) is said to have succeeded in reducing the holdup inventory of plutonium at its plutonium-oxide fuel processing equipment. A discrepancy of about 70 kg in book values and physical inventory at the plutonium fuel fabrication plant was found several years ago, presumably resulting from an unexpected accumulation of plutonium in processing equipment. Currently, the inventory is said to have been reduced to just below 10 kg. The aim is said to be to reduce the amount of holdup plutonium to one standard significant quantity of plutonium, i.e. approximately 8 kg. (**NuclearFuel**, 4/11)

- On 6–8 November a meeting was held at the headquarters of the International Atomic Energy Agency to review plans to help newly independent states of the former USSR to meet non-proliferation commitments. Representatives of 14 newly independent states and 9 donor states attended; the latter were Australia, Finland, France, Hungary, Japan, Norway, Sweden, UK and US. (**IAEA Press Release** PR 96/24, 11/11)

c. Nuclear Disarmament and Arms Limitation

- The President of Belarus, Aleksandr Lukashenko, announced on 24 November that the last of the SS-25 strategic ballistic missiles deployed on its territory would be removed to the Russian Federation on 26 November. The event gave rise to a spate of partly contradictory press reports. In early November, Lukashenko, who was then aiming for re-election, had threatened to retain the last dozen SS-25 missiles to ensure that NATO would not deploy nuclear weapons on the territory of new eastern European members. At that time, it seems there were still 18 (some reports said 14) strategic missiles in Belarus. A few days later there were reports that only the nuclear warheads would be removed but the missiles themselves would remain. On 26 November it was officially announced in Moscow that all nuclear warheads had been withdrawn from Belarus, and that the missiles would be removed before the end of the year. (**Times** [London], 14/11; **Independent**, 14/11; **Le Monde**, 24/11; **Financial Times**, 23/11; 28/11; **Standard** [London], 24/11; **Frankfurter Allgemeine Zeitung**, 25/11; **Süddeutsche Zeitung**, 25/11; **New York Times**, 25/11; **International Herald Tribune**, 25/11, 28/11; **Standard** [Vienna], 28/11; **Neue Zürcher Zeitung**, 29/11)

- According to British unofficial sources, the United States has withdrawn the 90 B-61 nuclear bombs which it maintained at a site near Lakenheath, in the **United Kingdom**. They are said to have been the last US nuclear weapons on British soil. (**Sunday Telegraph**, 27/10; **Independent**, 28/10)

- In the United States, the Secretary of Energy announced on 9 December the decision that a two-track approach would be followed in the disposition of excess plutonium: by conversion and fabrication into mixed-oxide (MOX) fuel elements for use in existing reactors and by immobilisation, i.e., mixing it into large, stable glass or ceramic waste forms, followed by burial. The two options are to be studied for a further two years, leading up to a decision whether they should both be pursued or one should be chosen over the other. Plutonium disposition would take place at Hanford, where both immobilisation and MOX fabrication would take place; at the Savannah River facility, where conversion, immobilisation and MOX fabrication would take place; at the Pantex site and at Idaho, where MOX fabrication would be undertaken. The next steps in the decision process will have to be the formal adoption of a Record of Decision, expected in January 1997, a Presidential decision (President Clinton is understood to be in accord with the approach of the Department of Energy — DoE), and Congressional action to provide the necessary funds. After the two-year research and development period, disassembly and conversion facilities, immobilisation facilities, and MOX fuel fabrication plants would have to be constructed.

  On 1 October, DoE had released a *Draft Nonproliferation and Arms Control Assessment of Weapons-Usable Fissile Material Storage and Plutonium Disposition Alternatives*. This 147-page report considered three options for plutonium disposition: besides the MOX and immobilisation options, it also included burying it in deep bore holes. In its conclusions DoE found none of the available options convincingly superior to any of the others and stated that vitrification and the MOX option provided essentially the same amount of protection against recovery and re-use. There appears to have been dissension within the Advisory Board the Secretary of Energy set up to consider the various disposition options and the Board was not expected to agree on the

relative non-proliferation merits of any of them. DoE's draft report was submitted for discussion at a series of public meetings in October and November, to elicit comments and questions. At the time it was reported that DoE had adopted the view that about two-thirds of the 50 metric tons (MT) of surplus US weapons plutonium should be burnt as MOX fuel in commercial reactors, and the remainder immobilised.

DoE's apparent preference for the MOX option is said to be based, among other things, on the fact that it is very difficult to reverse and that it has the advantage that the plutonium content can be accurately measured. It is also said to have the advantage that once the necessary decisions are taken and the developmental stage has been completed the MOX option can be implemented relatively quickly. There initially seems to have been resistance from the Administration's arms control specialists, who tend to see the MOX approach as crossing the line between commercial and nuclear weapon applications and as not being consistent with American non-proliferation policy. There is concern that if the US is seen as departing from its previous opposition to the use of plutonium in the civil nuclear fuel cycle, this will encourage other countries to pursue a plutonium economy, including the reprocessing of spent fuel, to which Washington has long been opposed. For the present the opposition seems to have weakened, however, in the consideration that DoE's decision preserves all arguments for and against each disposition method until the final decision is taken in two years' time. An important consideration also appears to be that the adoption by the US of the MOX option might help convince Russia to dispose of its plutonium by the same method.

The announcement of the dual-track approach by DoE has been generally applauded in the American press. At the same time, some of the critics of the approach from anti-nuclear groups characterise the proposal to use MOX fuel in civilian reactors as 'a sop' to a moribund industry, and a coalition of environmental and non-proliferation groups is currently urging DoE to give priority to plutonium disposal by immobilisation, with the use of commercial nuclear reactors to burn the material in MOX fuel as a clearly secondary solution, to be used only if the former proves not unfeasible. American utilities have expressed interest in the use of MOX, but some are said to have raised conditions for their participation in the scheme, including easier licensing procedures and the ready availability of feed stock for the production of the fuel, if necessary, from different sources. It has been noted that incentive fees to utilities might add $500 million to the cost of weapons plutonium disposition through the MOX route; however cost uncertainties associated with immobilisation are tentatively estimated as being at about the same level.

A number of major European nuclear companies: BNFL in the **UK**, Cogema in **France**, Belgonucleaire in **Belgium**, and Siemens in **Germany** are reported to be working on a joint approach to the disposition of Russian and US origin surplus plutonium. Representatives of the three firms have visited American facilities that might be used to manufacture MOX fuel. **Canada** and **Japan** are also said to be interested. The former has already let it be known that it would make available some of its Candu reactors to test the use of MOX fuel — a move widely publicised by Canadian anti-nuclear groups, notably Greenpeace. In that context some US experts have pointed out that using MOX fuel in Candu reactors will necessitate more transport and very stringent safeguards, as the fuel bundles are smaller and harder to account for than light-water reactor fuel bundles, and because of the on-line refuelling methods of Candu reactors.

A group of international experts from the G-7, Belgium, Russia and Switzerland, and from the IAEA and EURATOM, which met in Paris during 28–31 October, pursuant to a decision taken at the Moscow summit meeting in April 1996, is also said to have concluded that there is no single best way to dispose of the estimated 100 MT of excess weapons plutonium in the US and Russia, but that a mix of solutions should be pursued, including burning plutonium as MOX fuel and immobilisation through vitrification. The group rejected the option of depositing the material in deep bore-holes. Reportedly, the experts agreed that whatever options are chosen, disposing of the excess plutonium will take several decades. It may be noted that the US Secretary of Energy in a television interview mentioned 25 years as a likely minimum.

A meeting in Paris on 21 November of Non-Proliferation Experts from the G-7 and Russia discussed the major options for disposition, including a proposal for the financing of the construction of a pilot MOX fuel fabrication plant in Russia. A US–Russian scientific commission, set up pursuant to a decision taken in 1994 by Presidents Clinton and Yeltsin, had earlier released a joint study on plutonium disposition which concludes that fabrication of excess plutonium into MOX fuel and burning it in existing reactors is the most 'technically mature' option for disposing of that material. The next best option, it has found, would be immobilisation using processes used for the disposal of high-level waste. The study says that given the different economic circumstances, nuclear infrastructures and fuel cycle policies of the two countries, approaches are likely to be different and recommends that disposition could proceed in parallel. To facilitate planning, the study finds it advisable that the two sides should declare how much weapons plutonium, in what form, is excess to their military needs. The joint commission has urged the two governments to make more funds available and give higher priority to securing and disposing of their excess weapons plutonium.

Reportedly, Russia is not inclined towards the vitrification option which, supposedly, the US urged it to follow during the discussions in the G-7 — but there is said to be considerable doubt that it can raise adequate finances to use the MOX option. Talks are underway between Russia, France and Germany about the possible construction of a MOX fabrication plant at Chelyabinsk (Mayak) nuclear centre or at Kraznoyarsk, or possibly both, using elements from the Siemens Hanau facility. The US is thought to be ambiguous about this proposal, reportedly because of Russia's insistence that the plant should eventually be used also to make MOX fuel with plutonium extracted

from irradiated civilian reactor fuel. It seems, however, that Washington's objection is lessening. Meanwhile, Belgonucleaire is reported also to have offered to help Russia construct a medium-size MOX fuel fabrication plant along the lines of the facility it had planned, but has not been in a position to build, in Belgium.

In early October, three American non-governmental organisations: the Nuclear Control Institute (NCI), the Natural Resources Defense Council and Greenpeace, who see the MOX option as a serious proliferation risk, petitioned the US Nuclear Regulatory Commission (NRC) not to allow Los Alamos National Laboratory to export MOX fuel pellets made from surplus military plutonium to Canada. Apparently, the NRC had no objection to the move and DoE clearly holds the view that burning plutonium as reactor fuel does not conflict with the Administration's policy of discouraging reprocessing as long as that is not used as a pretext by other states to reprocess their spent fuel. To avoid litigation, the application for an export license was withdrawn, given also that the disposition decision was expected momentarily. Canada's environment minister has said that his country would be happy to accept plutonium from US military stocks for use in civilian reactors, but he has also said that any project would have to undergo an environmental assessment. Now that the dual-track approach has been adopted for further consideration, DoE is expected to take new steps to have plutonium pellets tested in Candu reactors. NCI, which is among a number of American organisations that have announced their opposition to the dual-track decision, has already announced it will again contest the move.

(**SpentFUEL**, 7/10, 14/10, 21/10, 28/10, 4/11, 11/11, 18/11, 25/11, 2/12, 9/12, 16/12; **NuclearFuel**, 7/10, 21/10, 4/11, 2/12, 16/12, 30/12; **Nucleonics Week**, 17/10, 31/10, 7/11, 21/11, 28/11, 12/12, 2/1/97; **Financial Post** [Canada], 7/11; **New York Times**, 22/11, 10/12, 11/12; **Belgonucleaire**, 6/12; **NucNet News**, 6/12, 10/12; **Federal News Service — DoE Press Conference**, 9/12; **Washington Post**, 9/12; **Reuters**, 10/12; **Direct Information**)

- Experts from the **Russian Federation**, the **United States** and the **IAEA** are discussing ways in which the Agency could apply verification measures to plutonium and highly-enriched uranium from dismantled nuclear weapons, to ensure compliance with the undertaking that such material would no longer be used for weapons purposes. One consideration in the ongoing discussions is how verification can take place without exposing IAEA personnel to information on weapons technology and various other classified data. Another question is how the respective legal structures of the two countries might be adapted to allow for IAEA access. It is pointed out that the verification effort under discussion must be distinguished from 'safeguards' as such; the latter is a non-proliferation measure, whereas disarmament in the two countries is a different concept. A joint expert group has been formed to consider the technical, legal and financial issues associated with implementing IAEA verification of the fissile material in question. A progress report is expected by June 1997. (**SpentFUEL**, 18/11; **IAEA Newsbriefs**, November/December)

- The **Russian Federation** and the **United States** have agreed on a new five-year contract to accelerate the transfer of uranium derived from dismantled Soviet SS-20 strategic missiles. The initial contract, concluded in 1994, called for shipments of 10 metric tons (MT) a year for the first five years, and 30 MT a year thereafter, with prices to be negotiated annually. The new agreement reportedly provides that the US Enrichment Corp. (USEC) will buy 18 MT of uranium in 1997, 24 in 1998, and 30 MT each in 1999, 2000 and 2001. The agreement requires that the uranium is taken directly from dismantled warheads and not from stockpiles and it appears that 'transparency' measures are currently being worked out that would enable US inspectors to verify compliance. (**Washington Post**, 24/11)

- During its Fifty-first regular session, the United Nations General Assembly on 10 December adopted a number of resolutions pertaining to nuclear disarmament, nuclear-weapon-free zones, and nuclear non-proliferation. The resolutions most directly connected with the subjects dealt with in the **Newsbrief** are:
  - **A/RES/51/45 A** (Treaty on the Non-Proliferation of Nuclear Weapons: 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons and its Preparatory Committee), introduced by Sri Lanka, was adopted by a recorded vote of 167 to none, with India and Israel abstaining;
  - **A/RES/51/45 B** (The nuclear-weapon-free southern hemisphere and adjacent areas), introduced by Brazil, was adopted by a recorded vote of 129 to 3 (France, UK, US) with 38 abstentions;
  - **A/RES/51/45 G** (Nuclear Disarmament with a view to the ultimate elimination of nuclear weapons), introduced by Japan, was adopted with a recorded vote of 159 to none, with 11 abstentions;
  - **A/RES/51/45 I** (Bilateral nuclear arms negotiations and nuclear disarmament), introduced by Colombia, was adopted by a recorded vote of 107 to 37, with 24 abstentions;
  - **A/RES/51/45 M** (Advisory Opinion of the International Court of Justice on the legality of the threat or use of nuclear weapons), introduced by Malaysia, was adopted by a recorded vote of 115 to 22, with 32 abstentions;
  - **A/RES/51/45 O** (Nuclear Disarmament), introduced by Myanmar, was adopted by a recorded vote of 110 to 39, with 20 abstentions;
  - **A/RES/51/45 R** (Bilateral nuclear arms negotiations and nuclear disarmament), introduced by the United States, was adopted by a recorded vote of 160 to none, with 11 abstentions.

These resolutions are reproduced below in section **IV. Documentation**.

Further resolutions adopted include: **A/RES/51/52**: the Consolidation of the regime established by the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Treaty of Tlatelolco) (adopted without a vote); **A/RES/51/46 D**: Convention on the prohibition of the use of nuclear weapons (adopted by a vote of 114 votes to with 31, with 27 abstentions); **A/RES/51/53**: the African Nuclear Weapon-Free-Zone Treaty (Treaty of Pelindaba) (adopted without a vote); **A/RES/51/48**: Risk of proliferation in the Middle East (adopted by a vote of 129 to 3, with abstentions); **A/RES/51/41**: Establishment of a nuclear-weapon-free zone in the region of the Middle East (adopted without a vote); **A/RES/51/43**: Conclusion of the effective international arrangements to assure non-nuclear-weapon states against the use or threat of use of nuclear weapons (adopted by a vote of 125 to none, with 45 abstentions); **A/RES/51/42**: Establishment of a nuclear-weapon-free zone in South Asia, (adopted by a vote of 156 to 3, with 8 abstentions). As in 1995, a draft resolution circulated by Canada on prohibition of the production of fissile material for nuclear weapons or other nuclear explosive devices was withdrawn before it could be put to the vote.

(**Disarmament Diplomacy**, November; **UN Document A/51/566/Add.11**, 29/11; **Records of votes**, 10/12; General Assembly — 51st Session, **Summary of the 79th Plenary Meeting**, 10/12)

d. Nuclear Testing

- As this issue of the Newsbrief went to press, the **Comprehensive Test Ban Treaty** (CTBT) had been signed by 138 states and been ratified by one (Fiji). Of the 158 states that voted in favour of the resolution adopting the Treaty, 33 have not yet signed. Eleven nations that did not vote on the UN resolution have signed. Of the 44 states whose ratification is required for the Treaty to enter into effect, 41 had signed the Treaty; the three who had not done so were the DPRK, India and Pakistan. Under current conditions India is not expected to adhere to the Treaty, which is generally thought to mean that Pakistan will not do so either. The DPRK is understood to make its adherence contingent upon the fulfillment of the Agreed Framework.

  Several states made declarations on signature. The declaration submitted by **China** included an appeal to the major nuclear-weapon states to abandon their policy of nuclear deterrence and continue to drastically reduce their nuclear stockpiles. China further appealed for the removal of all nuclear weapons from foreign soil, for a non-first-use undertaking and for an unconditional commitment to the non-use or threat of use of nuclear weapons against non-nuclear-weapon states or nuclear weapon-free zones. Among other points raised by China was a call for an international convention on the complete prohibition and thorough destruction of nuclear weapons. With regard to the CTBT itself, the Chinese government endorsed the application of verification measures consistent with the Treaty's provisions and opposed 'the abuse of verification rights by any country, including the use of espionage or human intelligence to infringe upon the sovereignty of China and impair its legitimate security interests. . . ' The Chinese declaration further stated that given the existence of 'huge nuclear arsenals and nuclear deterrence policy based on the first use of nuclear weapons. . . the supreme national interests of China demand that it ensure the safety, reliability and effectiveness of its nuclear weapons before the goal of eliminating all nuclear weapons in achieved'.

  Iran stated that the Treaty did not meet nuclear disarmament criteria as originally intended. It pointed out that the Treaty bans explosions, thus limiting the further development of nuclear weapons only in certain aspects. For the CTBT to be meaningful it would have to be considered as 'a step towards a phased program for nuclear disarmament with specific time frames through negotiations on a consecutive series of subsequent treaties'. With regard to National Technical Means, Iran said it interpreted the CTBT text as according a complementary role to them; they should be phased out with further developments of the International Monitoring System and should not be interpreted to include information received from espionage and human intelligence.

  Germany expressed the understanding that nothing in the CTBT shall ever be interpreted or applied in such a way as to prejudice or prevent research into and development of controlled thermonuclear fusion.

  (**Trust & Verify**, October; **Reuters**, 16/10; **Direct Information**)

- On 20–22 November the first meeting of the Preparatory Commission for the CTBT Organisation (CTBTO) was held in New York. The expected appointment of Ambassador Wolfgang Hoffmann of Germany as Executive Secretary of the Provisional Technical Secretariat of the CTBTO did not take place, owing to disagreements about other issues. The next PrepCom meeting is planned for early March, in Geneva. (**Trust & Verify**, November; **Direct Information**)

- Starting in December 1992 a group of approximately 200 Russian scientists under contract to the United States Defense Special Weapons Agency prepared a 2,000 page history of 715 Soviet nuclear tests carried out over 41 years. The report is said to give important insights into Soviet military and scientific procedures which might help the United States apply its national technical means in monitoring compliance with the Comprehensive Test Ban Treaty. The group, who received a total of $288,501 for their work, were led by theoretical physicist Alexandr Tchernyshev; one purpose of the project is understood to have been the hope that it would keep the scientists from taking their nuclear know-how elsewhere. The information supplied is said not to have dealt with the design or deployment of Soviet nuclear weapons, and it is classified in both countries. Reportedly, the project was approved by Russia's Minister of Atomic Energy, Viktor Mikhailov. (**Reuters**, 27/10; **International**

Herald Tribune, 28/10; **Washington Post National Weekly Edition**, 4-10/11)

- The **United States** Department of Energy has announced that following completion of an analysis of the environmental impacts of current and future activities at the Nevada test site, that site will be used for a range of civilian and defence-related activities, notably 'science-based stockpile stewardship experiments and operations to maintain the safety and reliability of the nuclear stockpile, including subcritical experiments consistent with the recently endorsed Comprehensive Test Ban Treaty.' (**DoE News**, 8/10)

- The environmental organisation Greenpeace has alleged that americium-241 released in the biggest United States underground nuclear explosion which was conducted in Amchitka Island, off Alaska, in 1971, is seeping into the Bering Sea. The test, called Cannikin Project, had a yield of five megatons. (**Energy Daily**, 30/10; **Bernama-Kyodo** [Washington], 31/10)

- According to American medical researchers, radiation from the explosions of two fission bombs set off in and above the waters of Bikini Atoll in the summer of 1946 did not contribute to a higher death rate among the 42,000 military personnel participating in the tests. A recent report on the matter issued by the Institute of Medicine of the National Academy of Sciences says that a study of medical records of 98 per cent of the persons involved showed that, while the death rate among participants was 4.6 per cent higher than that among a control group of naval personnel not involved in the blasts, there was no statistically significant increase in deaths from cancer or leukemia that should be expected as the result of radiation, even among those who boarded contaminated vessels to clean them after the explosions. The environmental organisation Greenpeace claims that underground tests set off on an uninhabited Aleutian Island in 1965 and 1971 have caused radiation that is escaping into the atmosphere. While the amounts of radionuclides released do not by themselves pose a threat of exposure, Greenpeace claims that they are a potential danger as they affect the food chain. US government authorities hold, however, that even if the findings are confirmed, the amount of radiation absorbed by humans would be under one per cent of the annual dose acquired through natural and man-made sources. (**New York Times**, 30/10, 31/10)

e. Nuclear Trade and International Cooperation

- Commercial contracts for the supply of two Candu-6 (740 MW) type reactors by Canada to **China** were signed on 13 October, pursuant to the 'Power Award Agreement' signed in July (see **Newsbrief** 35, page 6). The final agreement was signed on 26 November between the China National Nuclear Corp. and Atomic Energy of Canada, Ltd. in the presence of the Prime Ministers of the two countries. The project, which will also involve firms from Japan, South Korea and the United States, is to cost about US $3-billion. Start of construction is planned for 1997 and the facility should begin operating in 2003. Canadian anti-nuclear groups are denouncing the deal as 'immoral and economically unsound' and have announced that they plan to sue the government for violating environmental law in concluding the deal.

Talks about closer nuclear cooperation between China and the **United States** have continued following the visit to Beijing of US Secretary of State Christopher in November, but without apparent results. An agreement on nuclear cooperation between the two states was concluded in 1985, and ratified by the US Congress on condition that the President could certify, based on assurances from China, that it was not contributing to nuclear proliferation. Reportedly, the present US Administration had hopes to lay the groundwork for the eventual certification by President Clinton of China's non-proliferation credentials; this would enable US industry to supply China with nuclear components and technology, which reports indicate a number of major American firms are extremely keen to do. So far, however, China has not provided the necessary assurance. In particular its nuclear supplies to **Pakistan** have been a stumbling block, although recent reports indicated that these supplies were being reduced, if not stopped altogether. However, it seems that while Chinese officials concerned with non-proliferation matters make an effort in this respect, other branches of the Beijing government, including the defence authorities, do not necessarily follow this policy. There are also said to be weaknesses in China's export control regime. A US official source has denied a report that the sale by China to Pakistan of dual-use high-tech diagnostic equipment and an industrial furnace violated a Chinese pledge not to sell nuclear-weapons-related equipment to Pakistan because the sale occurred before China made that pledge. Pakistan has dismissed the US objections because it maintains that any nuclear items it has received from China are intended for peaceful nuclear applications and come under IAEA safeguards. With regard to the ring magnets which China had been accused earlier of illicitly exporting to Pakistan, officials in Beijing have noted that this item is not expressly mentioned in the 'Trigger List' of items that can only be supplied under safeguards. The issue of China's non-proliferation credentials is reported to have been discussed briefly between China's President Jiang Zemin and US President Clinton when both were in Manilla for a meeting of the Asia-Pacific Economic Cooperation (APEC) forum, in late November; at that time, the view in Washington was that China had complied with at most half of the conditions the US Administration had set before it can put the bilateral cooperation agreement of 1985 into effect. Against earlier expectations that the President might soon be in a position to certify China's non-proliferation credentials, American officials now apparently feel that this is likely to take considerable time, and refuse to set a date for the event. One problem seems to be that Washington sees the possibility of the supply of a Chinese uranium conversion plant to Iran as a bar to certification while reportedly, Beijing would be unwilling to cancel the supply until the certification has been extended.

During his visit to Pakistan, in early December, China's President is reported to have had extensive discussions about nuclear cooperation between the two

countries. The President is said to have reassured Pakistan that China would continue to assist the peaceful development of Pakistan's nuclear industry. It is noted that in his visit to New Delhi, prior to visiting Pakistan, Jiang assured India that China 'does not, did not, and will not' sell nuclear-weapon technology to Pakistan. There was a report from Islamabad that just prior to the arrival there of China's President, the United States had urged Beijing to halt all nuclear cooperation with Pakistan. It has since been announced that China has agreed in principle to supply Pakistan with a second 300-MW pressurised water reactor (PWR), to be built at Chashma, the site of the first PWR being constructed on the model of China's indigenously designed Qinshan-1 plant. Financing for the second reactor has not yet been found.

During his visit to Pakistan, President Jiang Zemin expressed strong support for the establishment of a South Asia nuclear-weapon free zone and an Indian Ocean zone of peace.

In October there were suggestions in Vienna and Washington that China had cancelled the planned export of a nuclear facility to **Iran**. The so-called 'uranium conversion facility' was supposed to produce uranium hexafluoride (UF_6) to be used in the production of fuel rods for civilian use, but US officials are said to be concerned that the transfer of this technology would help Iran to produce uranium for weapons purposes, and are understood to have made it clear to China that cancellation of the deal would be an important consideration in a US decision on future cooperation. While Chinese officials have repeatedly denied that the project has been abandoned and are reported to be holding an advance payment made by Teheran for the project, there were indications at the end of the year that Beijing was still weighing the continuation of nuclear transaction with Iran against the possibility of doing business with the US. Meanwhile, Iran has advised the IAEA that it will proceed with the construction of the UF_6 facility at Isfahan, with the year 2000 as the target date for its completion. Western experts see the news that Iran is building a uranium conversion facility as an indication that it is preparing to enrich uranium.

The American trade journal *Nucleonics Week* reports that if it were possible for the US Administration to certify China's nuclear non-proliferation credentials this would also enable suppliers from **Japan** and the **Republic of Korea** to sell China hardware based on nuclear technology of US origin. This, reportedly, would then enable American companies to be active in China with Asian partners, thereby enhancing their standing.

Beijing sources say there is no basis for reports of talks between officials from **China** (the Chinese Atomic Energy Institute and the China Nuclear Corporation) and the **US** (Argon National Laboratory) about the possible conversion of Chinese research reactors currently operating on weapon-grade high-enriched uranium (HEU) so that they can run on low-enriched uranium. China is considering, however, designing future research reactors to run on less highly-enriched uranium fuel. There are rumours that **Russia** has offered to supply China with HEU.

(**Reuters**, 9/10, 10/10, 20/11, 25/11, 26/11, 29/11, 2/12, 3/12, 5/12; **International Herald Tribune**, 10/10, 9-10/11; **Washington Post**, 10/10, 6/11, 24/11; **Nucleonics Week**, 17/10, 24/10, 31/10, 28/11, 5/12, 12/12, 2/1/97; **NucNet News**, 21/11, 26/11; **NuclearFuel**, 21/10, 16/12, 30/12; **New York Times**, 7/11, 21/11, 6/12; **China Daily Weekly Business Supplement**, 1-7/12; **Asahi Evening News**, 2/12, 3/12, 4/12; **Financial Times**, 3/12; **Le Monde**, 3/12; **Mainichi Daily News**, 4/12; **Direct Information**)

- India and the **Russian Federation** are said to be near agreement on the construction of a nuclear power station at the town of Kudankulam, in the southern state of Tamil Nadu, consisting of two VVER 1000 reactors. (**Reuters**, 28/10)

- An agreement is under negotiation between Ukraine and **Germany** for cooperation in the training of Ukrainian specialists in safety assessment and evaluating the safety of the Chernobyl sarcophagus. (**NucNet News**, 6/11 in **UI Newsbriefing** 96.45)

f. IAEA Developments

I. General

- At the September meeting of the Agency's Board of Governors, Dr. Hans Blix announced that he would not seek another term when his present tenure runs out (see **Newsbrief** 35, page 9). Reportedly, expected difficulties of finding an appropriate successor and the concern that without Dr. Blix's continued presence the 93+2 plan to strengthen safeguards is less likely to be realised, have prompted the US and several other western states to ask him to reverse his decision but he is understood to have refused to do so. There is much speculation about a possible successor who is thought most probably to come from a developing nation. The one candidature so far formally submitted to the Board of Governors is that of Kun Mo Chung, until recently Minister of Science and Technology of the Republic of Korea. (**Nucleonics Week**, 7/10, 21/11)

- At the time Newsbrief 35 went to press the numbers of the resolutions adopted by the **General Conference**, which were identified in that issue by the numbers of the relevant General Conference documents, were not yet available. For the record, in the order in which they were reproduced in **Newsbrief** 35 (pages 25–28), those numbers are: Document GC(40)/31 (Safeguards) becomes GC(40)/RES/16; Document GC(40)/32 (Illicit Trafficking) becomes GC(40)/RES/17; Document GC(40)/34 (Iraq) becomes GC(40)/RES/21; Document GC(40)/33 (DPRK) becomes GC(40)/RES/4; Document GC(40)/35 (African NWFZ) becomes GC(40)/RES/2; Document GC(40)/.. (Safeguards in the Middle East) becomes GC(40)/RES/22; Document GC(40)/42 (Statute Article VI) becomes GC(40)/RES/20.

II. Safeguards

- Proposals for the second part of the IAEA 93+2 programme for enhanced safeguards are meeting

serious opposition among a range of countries. Several industrial states which object to the intrusive character of the new proposals are said to make their acceptance conditional upon a much wider acceptance by the nuclear-weapon states of IAEA safeguards on their nuclear activities, although they seem to be of the opinion at the same time that a wider application of IAEA safeguards in nuclear-weapon states should not add to the safeguards budget. Some industrial states that have always been counted upon to support strengthened safeguards are said to take exception to aspects of the new system. There is a recent report that the refusal of Canada to allow Agency inspectors to take environmental samples at the Chalk River nuclear research complex, in December 1995, was the result of the Agency's omission to obtain prior approval to the sampling and to consult on the way this would be carried out. Subsequent consultations are said to have led to the elaboration of a joint plan for environmental sampling and to full cooperation. A number of developing states, reportedly, in particular Arab states, object to the strengthened system as long as it does not also apply to Israel.

Iran is said to have permitted IAEA inspectors to inspect the Nuclear Technology Centre in Isfahan. The site is said to contain three research reactors, the Miniature Neutron Source Reactor, and two subcritical assemblies supplied by **China**. It will also eventually house the uranium conversion plant referred to above (see page 7). Discussions are said to be going on about the issue of taking environmental samples. As previously reported, (see **Newsbrief** 35, page 13) Iran had refused the Agency's request to take such samples because it feared that they would be analysed in laboratories of members states hostile to Iran. The Agency is said to have turned down an Iranian proposal that the samples would be analysed in Iran.

(**Nucleonics Week**, 7/10, 21/11; **NuclearFuel**, 7/10, 16/12)

g. Peaceful Nuclear Developments

- The Convention on Nuclear Safety entered into force on 24 October. It has been signed by 65 states, of which 27 have consented to be bound by it. These are Bangladesh, Bulgaria, Canada, China, Croatia, the Czech Republic, Finland, France, Hungary, Ireland, Japan, the Republic of Korea, Lebanon, Lithuania, Mali, Mexico, Netherlands, Norway, Poland, Romania, the Russian Federation, the Slovak Republic, Spain, Sweden, Switzerland, Turkey and the United Kingdom. The Convention, which sets out a framework for review of states' nuclear installations by other states, provides, among other things, that parties report on the safety aspects of their nuclear plants, and, if necessary, carry out improvements. If these cannot be achieved, plans should be implemented to shut down the installation in question as soon as possible. (**IAEA Press Release**, 24/10; **Reuters**, 24/10; **New York Times**, 25/10; **IAEA Newsbriefs**, November/December)

- Contrary to initial findings, recent analyses by Siemens AG and the Kurchatove Institute of samples taken from the central weld of the vessel of the Kozloduy-1 VVER 440 reactor in Bulgaria are said to have concluded that there should be no objection to its restart in early 1997. On the basis of chemical analyses in 1995, the ability of the reactor vessel to resist pressurised thermal shock at low temperature had been drawn into question and European experts had pronounced themselves against a decision to allow the reactor to continue operating. Plans now call for the reactor to be reconnected to the Bulgarian grid on 20 January, after the completion of some safety upgrades. Further maintenance work is said to be needed, however. The European Commission has called upon the Bulgarian government to improve the safety features of its four VVER 440 reactors while it seeks alternative energy resources, permitting these reactors to be shut down altogether. Bulgaria is reportedly talking with Russia about technical and financial assistance for the upgrading of the four VVER 440 units. (**Trud** [Sofia], 13/11 and **Standart News** [Sofia], 15/11, both in **BBC Monitoring Summary of World Broadcasts**, 21/11; **Reuters**, 14/11, 19/11, 6/12; **NucNet News**, 20/11, 6/12; **Nucleonics Week**, 28/11, 12/12)

- China expects to use a fuel fabrication plant of German origin to produce the fuel for its pilot (10 MW) high-temperature gas-cooled reactor which it is constructing near Beijing. It has decided with Russian concurrence to move the site of the two VVER 1000 Russian-built nuclear power station from Liaoling Province to the more southerly Jiangsu Province. Reportedly, contracts for the construction of the plant which eventually may comprise four units, should be approved by the Chinese government before next March. Initial plans foresaw construction to begin in 1998 and to have two reactors on-line by 2004, at an estimated cost of $4 billion, Moscow having offered Beijing a fifteen-year $2-billion low-interest loan. The government of Liaoling Province and Chinese utilities were to have raised the remainder. There has been a rumour that one reason for the move from Liaoling is that the provincial government would not be able to supply the necessary funds. (**NuclearFuel**, 21/10; **ITAR-TASS News Agency World Service**, 17/10 in **BBC Monitoring Summary of World Broadcasts**, 25/10; **Reuters**, 4/11; **Power in Asia**, 25/11 in **UI News Briefing** 96.48, 3/12)

- In the **Czech Republic**, steam turbine tests are reported to be completed on the Temelin-1 power reactor. In early November the US Export-Import Bank approved a credit for the upgrading of Temelin's safety system by the American firm Westinghouse. An Austrian press report claims that the credit, of $400 million, was extended in the understanding that this would be the last time the bank supplies funds for an east-European nuclear plant. The news of the loan has led to furious protests in the Austrian parliament where 'green' politicians have demanded that the Vienna government should initiate a major propaganda campaign in Prague against the completion of the power station. (**Kurier**, 9/11, 6/12; **NucNet Insider**, 2/12; **Die Presse**, 6/12)

- **France**'s Cour des Comptes, the national accounting office, has called the Superphenix fast-breeder reactor 'an expensive white elephant'. The facility is said to have cost US $11.6 billion so far. In late October,

Superphenix was reported to be functioning at 90 per cent of rated power, i.e., at an output of 1060 MW, but in November the plant was shut down again for twelve days for repairs on a sodium circulation pump. It resumed operation on 1 December and was shut down once more on 24 December for six months to prepare for its new task as a 'research tool' to test the burning of various material, notably plutonium. A comment in the daily, *Le Monde*, depicts the outage as marking the failure of the breeder reactor. (**Power in Europe**, 18/10 in **UI News Briefing** 96.47, 27/10; **Enerpresse**, 29/10, 10/12; **NucNet News**, 8/11, 18/11; **Nucleonics Week**, 2/1/97)

- In **India**, a 30 kW research reactor fuelled by uranium-233 produced from thorium went critical on 29 October. It is said to be the first reactor using uranium separated from thorium. India's thorium reserves are said to be large enough to sustain the generation of 300 GW of electricity for 300 years. India's power reactors are also expected to use thorium. (**Reuters**, 29/10; **All India Radio**, 30/10 in **BBC Monitoring Services**, 31/10; **Indian Express** [Mumbai], 31/10; **Nucleonics Week**, 7/11)

- A member of the House of Representatives of **Indonesia** has alleged that the people have not been consulted in plans of the country's National Economic Energy Agency (Batan) build an 1800- MW nuclear power plant in Central Java. The plan has also been criticised by an energy expert who had acted as Batan's consultant, on the grounds that it would be $2 billion more expensive than building a coal-fired power plant of the same yield. The International Environmental Forum is also said to be opposed. (**Jakarta Post**, 23/10)

- In **Rumania**, the 700 MW Candu reactor Cernavoda-1 was connected to the grid on 2 December and is currently generating 10 per cent of the country's electricity. The facility is one of five Candu-6 reactors to be supplied by Canada. Completion of Cernavoda-2, which reportedly is about 25 per cent complete, has been put on hold by the country's new government. Units 3, 4, and 5 are said to be at various early stages of construction. A governmental decision on the eventual fate of these reactors is expected in the near future. (**Nucleonics Week**, 28/11; **NucNet News**, 12/12)

- In the first referendum of its kind held in the **Russian Federation**, 80 per cent of voters in the town of Kostroma have rejected a government proposal to finish a nuclear power plant of which construction was halted after the 1986 nuclear catastrophe at Chernobyl. The referendum was held upon the initiative of the environmental organisation, Greenpeace. (**National Public Radio**, 9/12; **New York Times**, 10/12)

- There have been reports that plans are being made in the **Slovak Republic** for the completion of units 3 and 4 of the Mochovce power plant. Like the two reactor units now in the process of completion, the third and fourth units would be Russian-designed VVER 440s. The Czech firm Skoda Prague has announced that it has tendered for the job, but while several Slovak government ministers have confirmed that the decision to complete the station has already been taken, sources in Austria maintain that this is not yet the case and there is a report that Slovak Prime Minister Mechiar has informed Austria's Prime Minister Vranitzky that so far no definitive decision has been taken. For the first time, according to an Austrian press source, questions are said to have been raised in the Slovak parliament about the wisdom of completing the Mochovce facility. The issue has nevertheless caused much concern in Austria, where opponents of nuclear energy have called for steps to discourage the German firm of Siemens to take part in the construction. (**Kurier**, 7/10, 1/11, 2/11; **Reuters**, 9/10; **Standard** [Vienna], 31/10, 2/11, 4/11; **Die Presse**, 2/11, 5/11; **CTK News Agency** [Prague], 4/11, in **BBC Monitoring Service of World Broadcasts**, 6/11)

- Plans for decommissioning **Sweden**'s power reactors were set back in early November when two of the major opposition parties, the Conservatives and the Liberals, that had been included by the Social Democratic government in the negotiations on the issue refused to agree to the government's requirement for setting a starting date for the phase-out. The Social Democratic Prime Minister, who is allied with the Greens, the Left and the Centre, who favour setting a starting date for decommissioning, has announced he will no longer negotiate with the two opposition parties. According to press reports it is not certain to what extent the Centre and the Green parties will indeed support the Prime Minister's decommissioning plan. The Swedish Minister for Industry has expressed opposition to a 'panic phase-out' and has dismissed demands for the first reactor to be shut down before the elections of 1998. (**Nucleonics Week**, 7/11, 28/11; **Financial Times**, 13/12)

- **Turkey** has asked for tenders for the construction of its first nuclear power plant. (**Reuters**, 9-10/10)

- **Ukraine**: At the summit meeting of the G-7 most highly-developed industrial nations which was held in Paris in late October, progress is said to have been made in the implementation of agreements reached before on the closure of the Chernobyl nuclear power station. Earlier, the Nuclear Safety Account of the European Bank for Reconstruction and Development had approved a grant of $150 million for decommissioning of facilities and short-term safety upgrades. Chernobyl unit 3 reportedly has received a grant of ECU 13.5 million for short-term operational and technical improvements, prior to its closure which is stipulated to occur by 2000.

  As agreed at the G-7 Nuclear Safety Summit held in Moscow in April, Chernobyl-1, the oldest of the four RBMK-1000s at the site, was shut down on 30 November. Ukraine's President Kuchma has said that the unit would not be restarted but according to the Nuclear Energy Committee (Goscomatom), the shut-down was 'until further notice'; the plant manager has said that the unit could remain on-line until the end of its designed lifetime in 2007. Goscomatom has also confirmed that Chernobyl-2 would be restarted between October and December in 1997, not only to generate electricity but also to provide income for the

maintenance of the sarcophagus over unit 4 and to pay for the decommissioning of Chernobyl-1. Official permission to restart Chernobyl-2, which was damaged in a fire in 1991, has reportedly been given by the country's State Committee for Nuclear Radiation Safety, and full governmental approval has been applied for. Ukraine's minister for the Environment and Nuclear Safety, Yuri Kostenko, had said earlier that Chernobyl-3 would be shut down before Chernobyl-1 and according to the plant's management, Chernobyl-2 would have to be on-line in order to permit the shut-down of Chernobyl-1. After the Paris meeting, Ukrainian officials were quoted as saying that the shut-down schedule may have to be adjusted if western funds continue to be delayed, and that Ukraine might have to reconsider the closure of the Chernobyl station in 2000, if no replacement capacity is available. Even with Chernobyl-1 off-line, the country's nuclear facilities are expected to generate about 50 per cent of Ukraine's power needs during this winter.

The recent increase in the neutron level at reactor block 4 has given new impetus to discussions about the future of the 'sarcophagus' around that unit. Views on the urgency of the problem differ. Some experts hold that, given the possibility of criticality, especially within the fuel assemblies that were unexpectedly discovered intact, the highest priority is the extraction of at least part of that fuel. The chief engineer of the Swedish Nuclear Power Inspectorate is quoted as saying that rather than strengthening the sarcophagus at prohibitive expense (in a recent estimate the sum of $1.5 billion was mentioned) or even constructing a second sarcophagus around the first one, attention should be given to redoing the ventilation system so as to lower the interior temperature and mitigate structural problems caused by heat. Environment Minister Kostenko also said that higher priority would be given to improving the sarcophagus and guaranteeing the safety of the nuclear fuel inside. A group of prominent Russian nuclear scientists have sent Ukraine's President a proposal to pump hundreds of thousands of cubic metres of concrete so as gradually to fill in the entire cavity within the containment structure, thus turning it into a giant concrete monolith.

(**NucNet News**, 3/10, 7/10, 9/10, 13/11, 29/11, 2/12, 15/12, 16/12; **Nucleonics Week**, 17/10, 31/10, 21/11, 5/12, 2/1/97; **United Press International**, 28/10, in **UI News Briefing** 96.43; **Reuters**, 12/11, in **UI News Briefing** 96.46; **Reuters**, 28/10, 30/11; **Interfax News Agency** [Moscow], 29/10, 31/10 in **BBC Monitoring Summary of World Broadcasts**, 1/11, and 8/11, respectively; **NucNet News**, 29/11; **Asahi Evening News**, 2/12; **UNIAN News Agency**, 2/12 and 13/12 in **BBC Monitoring Summary of World Broadcasts**, 3/12 and 16/12, respectively; **Die Presse**, **Frankfurter Allgemeine Zeitung**, **Standard** [Vienna], **Die Welt**, all 2/12)

h. Weapons-related Developments in Nuclear-Weapon States

- For most of the time that President Boris Yeltsin of the **Russian Federation** was in hospital prior to his heart bypass operation he retained charge of the case with the command and communications links that control the launching of strategic nuclear missiles. During the time that the President underwent surgery, Prime Minister Viktor Chernomyrdin, who constitutionally is interim president in the event of the President's incapacity or death, had custody. Various American press reports indicate that the Russian minister of defence and the chief of its general staff hold similar devices, which they could use if the President or his stand-in have been killed or disabled. The American Central Intelligence Agency claims, however, that it is doubtful if the devices could either block or activate the use of nuclear weapons; allegedly, the country's general staff could circumvent such orders. Reportedly, individual command posts of the Russian strategic nuclear forces have the technical ability to launch their weapons without authorisation from a central command and there is growing concern that the political unrest and the low morale among Russian military personnel might prompt renegade commanders to use the threat of an unauthorised launch to obtain political concessions or that in the case of an international crisis fear of western aggression and the diminished early-warning capabilities might induce the military to launch a preemptive nuclear strike. (**Financial Times**, 11/9; **ITAR-TASS**, 11/9; **Washington Post**, 29/9; **Washington Post National Weekly Edition**, 7-13/10; **Washington Times**, 22/10)

- In **Russia**, findings obtained at the former secret Siberian weapons site at Kraznoyarsk confirm that people who reside in areas contaminated by radioactive waste from plutonium production are in general in poorer health and suffer more cancer and other diseases than those farther away. In the absence of information about the level of radioactive contamination in the area, it appears not to have been possible to draw conclusions about a dose-effect relationship. (**Nucleonics Week**, 21/11)

- Russia has put off signing an agreement with the **United States** on lower-velocity (non-strategic) missile defence systems that would be allowed under the 1972 Anti-Ballistic Missile (ABM) Treaty. Following three years of negotiations on this issue, last April Presidents Clinton and Yeltsin decided in Moscow to conclude an agreement on the issue and in September, Russian Foreign Minister Primakov and US Secretary of State Christopher confirmed the agreement. It had also been decided that negotiations would begin on the higher-velocity ABM systems the US is developing. Moscow is now reported to make its consent to the first accord dependent on agreement on the latter issue. In early November the expectation was that the negotiations would be resume soon. (**New York Times**, 31/10, 3/11)

- In the **United Kingdom**, the Labour Party conference rejected by 56.35 per cent to 43.65 per cent a motion calling for the Trident nuclear submarine to be scrapped. At the same time, the Labour Party came out strongly in favour of multilateral nuclear disarmament. (**Guardian**, 4/10; **Financial Times**, 4/10)

- The government of **New Zealand** has decided to fund a class action lawsuit against the government of the **United Kingdom** for compensation on behalf of

ex-servicemen who were present at up to nine tests of thermonuclear weapons that were carried out by the UK at Christmas and Malden Islands in the Pacific Ocean, in 1957 and 1958. Many of the 600 New Zealand naval personnel involved are said to have suffered radiation burns, to have contracted leukemia or other forms of cancer and to have fathered children with birth defects. The move is seen as likely to have an impact on similar initiatives on the part of British veterans and their descendants, which so far appear to have had little effect. Australian servicemen are also said to have been affected. (**Daily Telegraph**, 14/12; **Guardian**, 14/12)

- It has been reported from the **United Kingdom** that there, too, radiation experiments have been conducted on humans. According to these reports, over a period of forty years, up to 200 people made themselves available for tests with a variety of radioactive substances that were eaten, injected or inhaled. Critics doubt that they were fully aware of the risks involved. (**Observer**, **Standard** [London] and **Daily Telegraph**, all 24/11; **Standard** [Vienna], 26/11)

- As previously reported (see **Newsbrief** 29, page 6), the **United States** Atomic Energy Commission permitted radiation experiments to be carried out on a large number of persons, in many cases without their consent. Following 18 months of investigations by the President's Advisory Committee on Human Radiation Experiments, it was announced in November that in the period 1944 to 1974 government-sponsored experiments were carried out on up to 20,000 persons, most of whom received small doses of radiation that were not expected to do harm, but some of whom were given high doses. The Federal Government has agreed to pay a total of $4.8 million in compensation to the families of 12 persons who were subjected to such experiments at the University of Rochester in 1945-1947. A number of further claims are under negotiation. (**Washington Post**, 25/10; **Reuters**, 25/10; **New York Times**, 20/11; **Nucleonics Week**, 21/11)

- **United States** officials have discussed in Beijing the possibility of concluding an agreement with **China** on the detargeting of intercontinental ballistic missiles (ICBMs). Reportedly, 450 Chinese missiles may be targeted at the US, while the latter is capable of deploying many more against China. Another issue between the two countries is said to be China's interest in acquiring from Russia technology and components of the SS-18 ICBM. (**Defense News**, 7/10)

- In a speech to the Atlantic Council of the **United States**, General Lee Butler, former Commander-in-Chief, Strategic Air Command, called for the urgent elimination of nuclear weapons. A number of other senior officers in the US Armed Forces, including General Charles H. Horner, former Commander of the US Space Command, have made similar statements. General Butler is a member of the Canberra Commission on the Elimination of Nuclear Weapons. (**Washington Post**, 4/12; **New York Times**, 5/12)

- The **United States** Department of Energy still does not seem to have taken a decision as to whether to use the Fast Flux Test Facility (FFTF) for the production of tritium. The FFTF would presumably run on MOX fuel and one of the objections raised to its restart is that it would create more waste for the Hanford nuclear reservation in Washington State, where it is expected the restart would run into political opposition. Departing Secretary of Energy Hazel O'Leary is expected shortly to call for a further evaluation of the FFTF option. While some American utilities are said to be losing interest in making their facilities available for the production of tritium, DoE is still pursuing a project to determine the viability of using commercial reactors for the purpose. (**Nucleonics Week**, 5/12; **NuclearFuel**, 16/12, 30/12)

- Also in the **United States**, a road accident in November, in which a tractor-trailer carrying two nuclear weapons skidded off an icy road and overturned, has drawn renewed attention to the hazards involved in what the *New York Times* calls 'daily secret shipments of nuclear weapons along the nation's roads'. Although many of these transports are said to take place for the purpose of moving weapons to dismantlement sites, the incident referred to is reported to have involved weapons on their way to routine maintenance at the Pantex facility. (**New York Times**, 19/12)

i. Proliferation-Related Developments

- At the beginning of the three-month period covered by this issue of the **Newsbrief**, the **Democratic People's Republic of Korea** (DPRK) was said to have reached agreement with the Korean Peninsula Economic Development Organization (KEDO) on important aspects of the implementation of the Agreed Framework the DPRK has concluded with the US, including the issue of the purchase of the construction site. Reportedly, no agreement had yet been reached on the question of payments for the North Korean workers involved in the construction. At the end of October it was reported that further activities planned by KEDO, including the dispatch of a seventh team to survey the site at Sinpo, where the two reactors were to be built, were suspended as the result of tension following the stranding of a submarine from the DPRK on the coast of South Korea. Plans to start construction of the reactors by the end of the current year had to be put off, against Pyongyang's insistence that KEDO should begin construction as planned. Accusing Washington of jeopardising the Agreed Framework in that it was deliberately delaying its implementation by shelving the dates for delivery of the light-water reactors and merely supplying fuel oil, of which the delivery could be halted at any time, the DPRK stated that it could not indefinitely observe the moratorium on its nuclear activities pursuant to that instrument, announced that it was suspending the sealing of the nuclear fuel rods removed from the 35-MW reactor, and threatened to resume its former nuclear activities. A source in the US Department of State confirmed on 22 November that since the 4th of that month the DPRK had ceased its work on sealing the fuel rods and that it had

previously advised the US that workers would have to leave the site temporarily to prepare for winter.

At the time, there were reports of growing resistance in Seoul against the continuation of cooperation with the North, at least until a solution was found to the current political problems with the North. President Kim Young Sam of South Korea called on Japan and the US to delay the KEDO project, while current tensions persisted. Government spokesmen in Seoul eventually said that their country agreed in principle to continue implementing the understandings reached with the North but insisted that for work on the project to be resumed, Pyongyang would have to apologise for the submarine incident and the subsequent events. There followed a period of mutual recrimination between the two Koreas, in the course of which, among other things, the DPRK demanded the return of the submarine and the bodies of its crewmen, insisted on an apology from Seoul for the 'coldblooded killing' of the crew, and announced the temporary closing of the North–South Dialogue Office at Panmunjom, in the Demilitarised Zone, prompting many observers to see a growing risk of armed conflict and at least an end to hopes for the implementation of the Agreed Framework. KEDO's assistant executive director was quoted as saying that the continued existence of that organisation was doubtful unless the two Koreas resolve their tensions. US officials still expressed the view, however, that the stranding incident and the events that followed would not spell an end to the implementation of the Agreed Framework. Intensive negotiations were held in New York between DPRK and US diplomats, on a possible statement by the former which would permit a resumption of the DPRK reactor project.

Reportedly as a result of these talks, on 29 December the DPRK press service formally announced that the spokesman of that country's Ministry of Foreign Affairs was 'authorised to express deep regret for the submarine incident in the coastal waters of Kangrung, South Korea, in September, 1996 that caused the tragic loss of human life. The DPRK will make efforts to ensure that such an incident will not reoccur, and will work with others for durable peace and stability on the Korean peninsula'. Although it was not directly addressed to South Korea, the government in Seoul accepted the statement, which notably did not ask for the return of the submarine and which was generally considered as being more conciliatory than any previous statement from Pyongyang. In immediate response, Seoul handed over the cremated remains of the 24 soldiers killed in the submarine incident. Pyongyang announced that it would store the spent nuclear fuel rods and would resume cooperation in efforts to locate the remains of American troops missing after the Korean war. It was expected that South Korea and the US would resume food aid and other assistance to the North, as well as resuming work on the reactor project. It was also expected that negotiation on an exchange of liaison offices between the DPRK and the US would resume, pending which Washington is said to plan sending diplomats on rotating temporary duty in Pyongyang.

Although the DPRK has repeatedly said that it would not participate in the four-way peace talks proposed by Seoul and Washington, a Japanese source had earlier predicted that it would eventually agree to the proposal. Following the most recent moves, it was announced in Washington that the DPRK had agreed to meet with US and South Korean representatives to discuss the possibility of negotiating a formal end to the Korean war. It was hoped that briefings to be given to officials from Pyongyang would persuade them to join broader talks in which China — which has repeatedly affirmed its interest in such talks — would also participate.

At the height of the tension between the two Koreas, sources in the IAEA in Vienna were quoted as saying that the DPRK had in actual fact not moved to end the freeze on its nuclear programme and was cooperating as hitherto with the Agency's inspectors on the spot. It was also reported that the IAEA was planning to have further talks with Pyongyang in January 1997 on aspects of the Agency's monitoring of the freeze on the DPRK's nuclear programme, after a previous round of talks in September failed to reach agreement.

Some analysts are of the opinion that the completion of the light-water reactors will still not meet the DPRK's energy needs given the inability of that country's electric grid to handle the power the new station will generate. Upgrading the necessary infrastructure, which is understood to fall outside KEDO's mandate, is expected to call for large investments in addition to the cost of the power station which is now estimated at $5 billion.

It has also been reported from Seoul that some officials there feel that KEDO has little chance to succeed on its present inter-governmental basis and should as soon as possible be put on a firm commercial footing. This might be seen as contradicting the view held by well-placed US observers that KEDO has gained credibility in South Korea as a mechanism that can successfully manage the reactor project without harming Seoul's interests. KEDO is reportedly also seen by the North as a legitimate negotiating party.

The European Union has agreed to contribute $18.9 million annually over the next five years to KEDO to supply the DPRK with heavy fuel oil. The contribution comes in addition to one of $6 million promised earlier.

Shortly after the submarine incident, South Korea was reported to have stepped up measures to protect its coastal power reactor sites from sabotage. At the time, Seoul was understood to plan a major increase in military spending intended mostly to upgrade its early warning systems and intelligence gathering. The South Korean government was also said to have raised the possibility of resuming the annual 'Team Spirit' military exercises, jointly with the US; these were suspended in 1994. Concern was raised in the US by reports that Seoul was developing cruise missiles with a range that exceeds the 180 miles (300 km) which is the limit allowed under the Missile Technology Control Regime, which South Korea had promised the US to observe. Bilateral discussions now seem to have allayed US concerns.

On the other hand, American and Japanese officials have also expressed concern about news that the DPRK was preparing to test-launch a domestically produced ballistic missile, Rodong 1, which, with a range of 625 miles, would be able to reach Japan. American reconnaissance aircraft are keeping the missile site under increased surveillance. However, it has since been reported from Washington that Pyongyang had let it be known that it did not plan to test the missile at present.

(**Yonhap News Agency** [Seoul], 25/9 and 16/11, in **BBC Monitoring Summary of World Broadcasts**, 29/9 and 18/11, respectively; **Pyongyang Broadcasting Service**, in **BBC Monitoring Summary of World Broadcasts**, 26/9; **New York Times**, 30/9, 22/10, 16/11, 19/11, 3/12, 11/12, 29/12, 30/12, 31/12; **Munhwa Ilbo** [Seoul], 1/10, in **BBC Monitoring Summary of World Broadcasts**, 2/10; **Financial Times**, 4/10; **Reuters**, 11/10, 25/10, 12/11, 15/11, 18/11, 19/11; **International Herald Tribune**, 12/10; **Times** [London], 17/10; **Daily Telegraph**, 17/10; **Asahi Shimbun**, 22/10; **Nucleonics Week**, 24/10, 7/11, 21/11; **Special Report of the US Institute of Peace — working group to examine policy options for dealing with the North Korea nuclear challenge** — October; **Washington Post**, 9/11, 16/11, 20/11; **ITAR-TASS**, 15/11, in **BBC Monitoring Summary of World Broadcasts**, 18/11; **Mainichi Shimbun**, 16/11; **Süddeutsche Zeitung**, 16/11; **Wall Street Journal**, 18/11; **South China Morning Post**, 20/11; **Choson Ilbo** [Seoul], 20/11, in **BBC Monitoring Summary of World Broadcasts**, 21/11; Asahi Evening News, 2/12; **Mainichi Daily News**, 4/12, 5/12; **Japan Times**, 5/12, 8/12; **Hangyore Sinmun** [Seoul] and **KCNA News Agency** [Pyongyang], 9/12, in **BBC Monitoring Summary of World Broadcasts**, 10/12; **Tong-a Ilbo** [Seoul], 12/12, in **BBC Monitoring Summary of World Broadcasts**, 13/12)

- **Iraq**: The Director-General of the IAEA has sent the Security Council his second semi-annual progress report about the Agency's activities in Iraq pursuant to the relevant Security Council resolutions. Among other things, the report indicates that the IAEA continues implementing its plan for the monitoring and verification of Iraq's compliance with the Security Council's resolutions through resident inspectors and in cooperation with the UN Special Commission (UNSCOM). While Iraq is said to have continued to operate with the IAEA 'in a productive way', the implementation of the plan for the ongoing monitoring and verification of Iraq's compliance does not foreclose the exercise by the IAEA of its right to investigate further any aspects of Iraq's former nuclear weapons programme. According to the report, the IAEA is undertaking an in-depth appraisal of Iraq's 'Full, Final, and Complete Declaration' called for in Security Council resolution 707 (1991) aiming at assessing its correctness and completeness and focussing in particular on those areas where, in the opinion of the IAEA, 'Iraq's achievements may have been understated'. In a presentation to the Security Council on 7 November, the IAEA's Director General is reported to have said that while the Agency saw no evidence of any remaining nuclear weapons production capacity, it could not be certain that Iraq had not withheld significant documents about its clandestine nuclear-weapons programme and might still be hiding material and equipment. Dr. Blix is also quoted as saying that the operations in Iraq of the IAEA and the UNSCOM were in serious financial straits.

On 10 December a former consultant to the Urenco enrichment consortium, the German centrifuge expert Karl-Heinz Schaab, who was suspected of having given Iraq important information on uranium enrichment, including blueprints he is said to have stolen from Urenco, and who was sought by German authorities on charges of high treason (see **Newsbrief** 35, page 14), was arrested in Brazil. Schaab, who was living in Rio de Janeiro where it seems he was hoping to open a business, is said to have been seen in the company of other Germans suspected of being involved in clandestine centrifuge and other military-related activities both in Brazil and in Iraq. His extradition to Germany is currently being sought.

In late November Iraq and the United Nations reached agreement on a plan allowing the former to sell $2-billion worth of oil over a renewable six month period, mainly to buy emergency supplies for the civilian population. The proceeds will be deposited in a UN-administered escrow account; $260 million are earmarked for the Kurdish population in northern Iraq and about $100 million is expected to become available each month to settle war claims against Iraq. The use of the proceeds will be strictly monitored and future arrangements of this kind will depend on full compliance by Iraq with the conditions set by the UN. On 10 December the pipeline to Turkey was opened for the first time in six years and 650,000 barrels of oil flowed to the Turkish port of Ceyhan.

In mid-December, there were reports that UNSCOM inspectors believe that instead of the 16 Iraqi ballistic missiles unaccounted for, Baghdad may have 18 to 25 operational missiles left. This seems to be based in part on the discovery that a number of missiles that were destroyed shortly after the end of the Gulf War had first been relieved of key components, such as turbo pumps, which consequently are now thought to be available for use in other Iraqi missiles. Also, it turns out that some of the missiles ostensibly destroyed were training devices which were used to make inspectors believe that operational vehicles had been put out of action. These developments have moved several members of the Security Council, in particular the UK and the US, to underline their determination to maintain the economic embargo against Iraq as long as that country has not fully met its obligations under the pertinent resolutions adopted by the Council. These states stress that the limited oil-sale arrangement must not be seen as a move to start lifting sanctions.

(**Reuters**, 7/11, 12/12; **New York Times**, 26/11, 10/12, 11/12, 19/12; **Washington Post**, 11/12; **Die Welt**, 13/12; **Nucleonics Week**, 19/12)

j. Illicit Nuclear Trafficking

- The American daily *The Washington Times* alleges that some of the enriched uranium that was air-lifted by the US from a former Soviet fuel fabrication plant in **Kazakstan** is missing and may have been stolen or sold. According to the paper, there is a difference of approximately 50–60 kg between the amount stated as having been shipped and as measured during processing. Speculation is that the material might have gone to Iran (see **Newsbrief** 28, pages 7–8). Both the US State Department and the Kazak Atomic Energy Agency have denied that there was any material missing; a State Department press release calls the report 'completely groundless'. The Iranian Atomic Energy Agency also issued a statement rejecting the accusation and claiming that Iran reserves the right to file a complaint against the US. The Israeli daily newspaper *Ha'aretz* of 1 December reported that analysts now feel that Iran would need significantly less time to build a nuclear weapon than the ten years originally estimated. It quotes a senior Israeli army commander as saying that 'Iran is doing all it can to attain nuclear capability. They are investing national efforts and can make 'shortcuts' through east European countries'. (**Washington Times**, 24/10; **Voice of the Islamic Republic of Iran**, 28/10, and **Karavan-Blitz** [Almaty], 31/10, in **BBC Monitoring Summary of World Broadcasts**, on 29/10 and 6/11, respectively)

- In **Bulgaria**, police have seized seven 'illegally stored' containers with caesium, uranium, plutonium and radium; three people were arrested. No details have been given about the quantities and the exact composition of the material. (**BBC Monitoring Summary of World Broadcasts**, 17/12, in **UI News Briefing**, 96/50)

- According to a report from **Romania**, on 12 December police seized a cache of nuclear material in an apartment in Bucharest, and arrested ten suspects on the charge of illegal possession of nuclear material. Initial Rumanian press reports had it that the material seized was weapons-grade uranium from nuclear weapons dismantled in Ukraine, but later reports indicate that it concerns 60 grammes of low-grade uranium fuel. There also does not appear to be hard evidence that the material is of Ukrainian origin; rather, it may have come from material stored in Romania for use in that country's Candu-reactor programme. (**NuclearFuel**, 30/12)

- A report of the US Central Intelligence Agency has concluded that the **Russian Federation**'s control over its nuclear weapons is weakening. The highly classified report titled 'Prospects for Unsanctioned Use of Russian Nuclear Weapons' was completed in September. It is said to rate the chance of an unauthorised launch or threat of launch by demoralised nuclear field commanders or naval forces as low under normal circumstances, but not entirely excluded, particularly in times of political crisis. The allegations have been rejected by several Russian experts as well as by several western observers who are quoted as saying that the real danger arises from a possibility of accidents, especially with tactical weapons, rather than deliberate action. An Administration spokesman has stated that the matter has been studied carefully by the departments of Defense and State and by the White House, all of whom agreed that the Russian government has control of its nuclear weapons and material.

  The Russian government is reported to have approved proposals to set up a government register of nuclear materials, including plutonium, uranium, thorium, neptunium-237, americium-241 and -243, californium-252, deuterium, tritium and lithium-6. Measures are being introduced to ensure the physical security as well as the strict book-keeping of these materials.

  The British weekly *Sunday Times* alleges that a large cache of radioactive material, including plutonium-239 and uranium-235 has disappeared from a site in Chechnya. The paper also speaks of the disappearance of large amounts of highly radioactive nuclear material, presumably waste, that had been stored near the village of Tolstoy-Yurt, north of the capital Grozny and may have been sold by soldiers on the black market for use in terrorists' 'dirty weapons'. Several other sites are also mentioned in the report as having contained highly radioactive material that was inadequately guarded and may have disappeared.

  (**Arms Control Today**, October; **Washington Times**, 22/10; **Interfax News Agency**, 23/10, in **BBC Monitoring Summary of World Broadcasts**, 29/10; **Reuters**, 23/10; **Washington Post**, 23/10; **Die Presse** [Vienna], 24/10; **Frankfurter Allgemeine Zeitung**, 24/10; **Sunday Times**, 10/11)

k. Environmental Issues

- French military personnel are engaged in dismantling the nuclear testing facilities at the Mururoa Atoll in **French Polynesia**, and in a clean-up of the land area around them. It is suggested that the site might become safe to be used, among other things, for touristic purposes, but it is too far from supply and communication centres for this to be practical. The environmental organisation Greenpeace has urged the governments of Australia, New Zealand, and various South Pacific countries to explain plans for the disposal of waste from the Mururoa clean-up operation. According to Greenpeace, there is a risk that much of the material used, as well as affected soil, will be dumped in the sea. (**Reuters**, 17/10, 18/10)

- **Norway**, the **Russian Federation** and the **United States** have signed an agreement on Arctic Military Environmental Cooperation (AMEC). Under the agreement, Norway and the US are to provide technical and financial assistance in the disposal of nuclear submarine reactors and other radioactive waste in the area of the Barents and Kara seas in Russia's arctic region. Reportedly the work will include the removal of spent uranium fuel from initially 80 and eventually 100 decommissioned submarines and shore waste sites. The amount of work to be done by AMEC will, to a large extent, depend on the availability of funds which, so far, have been very limited. A point of concern among environmental organisations is the involvement of the military, who tend to discourage international

cooperation and oppose the presence of foreign personnel on-site. According to reports from the Kola peninsula and the port of Murmansk, due to the presence of growing numbers of decommissioned nuclear submarines and laid-up ice breakers, most of which still contain nuclear reactors, chances of a nuclear accident are growing and environmental radiation is increasing. The influence of the military is seen in the arrest, in February 1996, of the retired Russian naval captain, Alexandr Nikitin, who provided the Norwegian environmental organisation Bellona with information on the situation. Nikitin has been charged with revealing state secrets and spying, although presumably most of the information he produced was publicly available. Several western European governments, the European Commission,. and non-governmental organisations have let it be known that they viewed Nikitin's arrest as a violation of human rights. Russia's Foreign Minister was quoted as saying he could not interfere with the case because it was now in the courts. On 14 December, following a meeting with Russia's deputy prosecutor-general, Mikhail Katyshev, Nikitin was released. Katyshev was understood to have agreed that Nikitin was innocent of treason and reportedly promised to look into the case, but it seems that so far the charges have not been formally withdrawn. Earlier, Russian customs officials had raided Bellona's premises and impounded copies of the Bellona's report with the argument that no permission had been granted for the import of the information contained in it. (**Reuters**, 26/9, 3/10; **Defense News**, 30/9-5/10; **Sydney Morning Herald**, 3/10; **Standard** [London], 6/10; **New York Times**, 8/10, 28/11; **International Herald Tribune**, 12/10; **Interfax News Agency** [Moscow], 21/10, in **BBC Monitoring Summary of World Broadcasts**, 21/10; **Nucleonics Week**, 28/11, 19/12)

- In the **United States**, new data show that the rate of movement of water flowing through parts of Yucca Mountain, the Nevada site that is considered as the burial ground for commercial spent fuel and high level nuclear waste from defence activities, may be higher than calculated earlier. This might have an impact on whether the site will eventually be found suitable for the intended purpose. A viability assessment is due in 1998. According to DoE, this will not constitute a formal site recommendation but is seen as a step on the way to that recommendation, which is due in the year 2001. (**NuclearFuel**, 21/10; **SpentFUEL**, 21/10)

I. Miscellaneous

- On 5 December in London, 61 retired admirals and generals from seventeen countries made a *Statement on Nuclear Weapons* in which they called for the creation of a nuclear-weapons-free world. Among the American signatories of the statement are Gen. John R. Galvin, former Supreme Allied Commander, Europe; Gen. Charles A. Horner, Commander Coalition Air Forces, Desert Storm and former Commander US Space Command; Gen. Andrew O'Meara, former Commander, US Army, Europe; and Gen. Bernard W. Rogers, former Chief of Staff, US Army and NATO Supreme Allied Commander. The UK signatories include Field Marshall Lord Michael Carver, former Chief of UK Defence Staff. The Russian members of the group include Gen. Boris Gromov, former Soviet Army Commander in Afghanistan; Gen. Alexandr Lebed, former Secretary of the Russian Security Council; Gen. Nikolai Tehervov and Gen. Ivan Sleport, former Chiefs General Staff USSR Armed Forces, and six former Deputy Chiefs of the General Staff of the USSR Armed Forces. (The text of the statement is reproduced below under **IV. Documentation**.) On 4 December retired Gen. Lee Butler, former Commander in Chief, US Strategic Command and Andrew Goodpaster, former NATO Supreme Allied Commander, had released a statement in Washington, similarly calling for phased reductions in nuclear arsenals, leading to 'the complete elimination of nuclear weapons from all nations'. (**Disarmament Diplomacy**, November; **inesap Information Bulletin**, December)

- Djali Ahimsa has retired from his post of Director General of the National Atomic Energy Agency (Batan) of **Indonesia**. He is a member of the Core Group of PPNN. (**Jakarta Post**, 20/11; **Straits Times**, 21/11)

- A proposal by **Japan** to put the Atomic Bomb Dome of Hiroshima (formerly known as the Hiroshima Industrial Promotion Hall) on the World Heritage List maintained by UNESCO pursuant to the 1972 Convention for the Protection of the World Cultural and Natural Heritage was rejected by the US Government on the grounds that facilities related to war should be considered as outside the scope of the Convention and their inclusion could cause controversy. (While no longer a member of UNESCO, the US is a party to the 1972 Convention.) The World Heritage Committee, meeting in Mexico in December, nevertheless decided to include the building in the List. (**Mainichi Daily News**, 5/12; **Japan Times**, 5/12; **New York Times**, 6/12; **Times** [London], 7/12)

- In **Russia**, the suicide of the head of the Chelyabinsk-70 nuclear complex is widely interpreted as a reflection of the lowered esteem in which Russian science is held and as the result of depression over the financial problems facing the centre, including the fact that for the last five months he was unable to pay the staff more than a token amount. In recent months, strikes were held in at least nine Russian nuclear power stations over unpaid wages. Russia's Atomic Energy Minister has expressed sympathy with the workers and has described the lack of funds to non-payment by electricity consumers. In early December, workers took over the control room of a nuclear power plant at St. Petersburg and threatened to shut it down unless they received their back pay; they were joined by several hundred colleagues, who started a hunger strike. In response, the government flew in over one billion rubles, paying each worker the equivalent of $200, thereby averting a power stoppage. (**ITAR-TASS**, 21/10 and **Interfax News Agency** [Moscow], 22/10, both in **BBC Monitoring Summary of World Broadcasts**, 25/10; **Standard** [Vienna], 23/10; **New York Times**, 1/11, 7/12; **Nucleonics Week**, 7/11; **International Herald Tribune**, 1/11; **Independent**, 1/11; **Izvestia** [Moscow], 1/11)

- Following the re-election of **United States** President Clinton, US Secretary of Energy Hazel O'Leary has submitted her resignation. As her successor, the former Secretary of Transportation, Frederico Pena, has been nominated. Initial reactions indicate that the appointment may run into opposition in the Senate, where the Republican majority have been calling for the abolition of the Department of Energy. (**SpentFUEL**, 18/11; **NuclearFuel**, 30/12)

- On 31 October the 65th instrument of ratification of the Chemical Weapons Convention was deposited with the UN Secretary-General, thus triggering the 180-day countdown to entry into force of the Convention on 29 April 1997. (**OPCW Synthesis**, November)

- The Final Declaration of the Fourth Review Conference of the Biological Weapons Convention, which was held in Geneva from 25 November to 6 December, included in its preamble the reaffirmation by States Parties:

  > [of] their determination to act with a view to achieving effective progress towards general and complete disarmament, including the prohibition of all types of weapons of mass destruction ...

  (**Trust & Verify**, December)

II. PPNN Activities

- The PPNN Core Group held its twentieth semi-annual meeting at the Chauncey Conference Center, Princeton, New Jersey, United States from 24-27 October 1996. All members of the Core Group were present.

- The Core Group meeting itself took place on Friday 25 October. Among the issues discussed were the evolution of the nuclear non-proliferation system over the previous six months; functional issues; regional issues; and PPNN's future activities.

- Substantive presentations made to the Core Group included one by Oleg Bukharin of the Center for Energy and Environmental Studies, Princeton University, on *The Dismantling of the Soviet Nuclear Legacy in Russia*, and one by Jan Prawitz, Senior Research Fellow at the Swedish Defence Research Establishment, Division of Nuclear Weapon Physics, on *A Nuclear-Weapon-Free Zone from the Black Sea to the Baltic* (PPNN/CGIII/4)[A revised version of this presentation will shortly be published by PPNN as an Issue Review].

- The Core Group discussed at some length the role of PPNN in the international disarmament debate and agreed that nuclear disarmament should play a more prominent part at PPNN's briefing conferences, in the deliberative work of its Core Group, and in its publications. PPNN's individual and unique identity as a non-advocacy body, which discusses issues frankly and does not attempt to achieve consensus positions, will be preserved. PPNN's approach to the international disarmament debate will be to focus on non-proliferation in its widest sense as an essential factor in, and a precondition for, nuclear disarmament, as well as in addressing those aspects of nuclear disarmament that have a direct impact on the non-proliferation regime in general and on the viability of the NPT in particular.

- From Friday 25 to Sunday 27 October the Core Group convened an international briefing seminar for senior government officials assigned to national missions to the CD in Geneva and the UN in New York on **THE 1997 PREPARATORY COMMITTEE FOR THE 2000 NPT REVIEW CONFERENCE: ISSUES AND OPTIONS**. The seminar was attended by 50 participants from 40 countries and from the Secretariats of the United Nations and the International Atomic Energy Agency.

  The seminar was chaired by Ben Sanders, Executive Chairman of PPNN. Ambassador Richard Butler, Permanent Representative of Australia to the United Nations, New York, and Convenor of the Canberra Commission on the Elimination of Nuclear Weapons gave a Keynote Address on *The Canberra Commission and the 1997 PrepCom* on the evening of Friday, 25 October. On the evening of Saturday, 26 October, Ambassador Jaap Ramaker of the Netherlands, Chairman of the Ad Hoc Working Group of the Conference on Disarmament on a Nuclear Test Ban, gave an after-dinner speech on *The CTBT Negotiations: A View from the Chair.*

  The Seminar comprised an initial Plenary Session; a series of four working group sessions; and a final Plenary Session. Jayantha Dhanapala, Ambassador of Sri Lanka to the United States and President of the 1995 NPT Review and Extension Conference opened the initial plenary session with a presentation on *The 1995 NPT Conference: What it Means for the NPT Review Process that Begins in 1997* (PPNN/CGIII/5).

  Each working group examined four clusters of issues. During these four working group sessions, short initial presentations on aspects within an issue cluster were made by members of the PPNN briefing teams, followed by discussion among members of the group. The issues were clustered as follows:

  Issue Cluster A: ***The Review Process*** chaired by Davidson Hepburn, with presentations made by Ben Sanders and George Bunn on *The Functioning of the PrepCom* (PPNN Issue Review No.6), and Lewis Dunn on *Issues of Compliance and Implementation* (PPNN/CGIII/6).

  Issue Cluster B: ***Disarmament*** chaired by Fan Guoxiang with presentations by Peter Goosen on *The CTBT Negotiation and its Implications* (PPNN/CGIII/7), Sverre Lodgaard on *A Fissile Material Cut-Off* (PPNN/CGIII/8), Yoshio Okawa on *The ICJ Decision on the Legality of the Use of Nuclear Weapons in Armed Conflict* (PPNN/CGIII/9) and John Simpson on *Options for Further Bilateral and Multilateral Disarmament Measures.*

  Issue Cluster C: ***Peaceful Uses and Nuclear Energy*** chaired by Djali Ahimsa with presentations by Martine Letts on *IAEA Safeguards — Program 93 + 2* (PPNN/CGIII/10), Jiri Beranek on *Article IV and Peaceful Uses* (PPNN/CGIII/11) and Harald Müller on *Export Controls* (PPNN Issue Review No.8).

Issue Cluster D: ***Security and Universality*** chaired initially by Oleg Grinevsky and (after the latter's departure) Davidson Hepburn with presentations by Olu Adeniji on *Security Assurances* (PPNN/CGIII/12), Enrique Roman-Morey on *Nuclear-Weapon-Free Zones* (PPNN/CGIII/13) and Mohamed Shaker on *Universality* (PPNN/CGIII/14).

The Seminar concluded with a Plenary Session, chaired by Ben Sanders. John Simpson, the Seminar Rapporteur, summarised some of the main points emerging from the discussions followed by comments from a panel comprising three of the working group chairmen, Djali Ahimsa, Fan Guoxiang and Davidson Hepburn.

- In the next quarter PPNN plans to publish and distribute several further issue reviews, including *Issues of NPT Compliance and Implementation* by Lewis Dunn [PPNN Issue Review No.9] and *A Nuclear-Weapon-Free Zone from the Black Sea to the Baltic* Jan Prawitz [PPNN Issue Review No.10]. Revised versions of the two volume PPNN Briefing Book are also being readied for distribution, as is a volume containing papers presented at the PPNN Briefing Seminars on the 1997 Preparatory Committee for the NPT review conference in 2000. Copies of all PPNN publications and papers can be obtained from the Southampton office.

- The next PPNN Core Group meeting will be held at the Arden House Conference Centre, Harriman, New York from 7-9 March 1997. This will be combined with a further international seminar on *The 1997 Preparatory Committee for the 2000 NPT Review Conference: Issues and Options.*

III. Recent Publications

Books

Graham T. Allison, Owen R. Coté, Jr., Richard A. Falkenrath and Steven E. Miller, *Avoiding Nuclear Anarchy: Containing the Threat of Loose Russian Nuclear Weapons and Fissile Material*, CSIA Studies in International Security No. 12, MIT Press, 295 pp.

Martine de Becker, Harald Müller and Annette Schaper, *Essais Nucléaires: Fin De Partie*, Les publications du GRIP, Institut Européen de recherche et d'information sur la paix et la securité, 100 pp.

P. R. Chari, Pervaiz Iqbal Cheema and Iftekharuzzaman, (eds.), *Nuclear Non-Proliferation in India and Pakistan: Southern Perspectives,* Regional Centre for Strategic Studies, Colombo, 236 pp.

André Dumoulin, *La dissuasion nucléaire européenne: Quel avenir?*, Les publications du GRIP, Institut Européen de recherche et d'information sur la paix et la securité, 129 pp.

Huub Jaspers, *Beyond the Bomb: The Extension of the Non-Proliferation Treaty and the Future of Nuclear Weapons*, Based on a series of five international seminars held at the Transnational Institute (TNI), Amsterdam, Netherlands, Spring 1995, 226 pp.

Brad Roberts, *Weapons Proliferation and World Order: After the Cold War*, Kluwer Law International, Cambridge, MA, 398 pp.

Articles

'ACA Candidates' Forum: The Question in 1996', The Responses of President Bill Clinton, *Arms Control Today*, Vol. 26, No. 7, September, pp. 3-7.

Alexei Arbatov, 'Eurasia Letter: A Russian–U.S. Security Agenda', *Foreign Policy*, No. 104, Fall, pp. 102-117.

Alain Baer, Jean-Françoi Daguzan, Charles George Fricaud-Chagnaud, François Géré, Beatrice Heuser, Paul-Ivan De Saint Germain, and Bruno Warrington, *Demain, L'Ombre Portée de L'Arme Nucléaire,* Centre de Recherches et d'Études sur Les Stratégies et les Technologies (CREST), Palaiseau Cedex, 1995, 124 pp.

G. Balachandran, 'CTBT and India', *Strategic Analysis,* Vol. 19, No. 3, June, pp. 493-506.

G. Balachandran, 'US Nuclear Proliferation Laws: Ramifications for India', *AGNI,* Vol. 2, No. 1, May, pp. 31-42.

Carl E. Behrens and Warren H. Donnelly, 'International Agreement to Cut Off Production of Nuclear Weapons Material', *CRS Report for Congress*, July 8, 4 pp.

Ruchita Beri, 'African Nuclear Weapon-Free Zone Treaty', *Strategic Analysis,* Vol. 19, No. 4, July, pp. 615-624.

Gary Bertsch and Steven Elliott-Gower (eds.), 'Security Challenges in the Post-Cold War World', University of Georgia *Russell Symposium* 1995 Proceedings, October 16, 1995, 26 pp.

C. Uday Bhaskar, 'Fissile Material Theft and Post-Cold War Security', *Strategic Analysis,* Vol. 19, No. 4, July, pp. 600-613.

'Bibliography on Arms Control Verification: Fifth Update', Prepared by René Unger through the Verification Research Program of the Department of Foreign Affairs and International Trade, Canada, October, 49 pp.

Alexander Bolsunovsky,. 'How to Utilize Fissile Materials After Dismantling Russian Warheads', *The Monitor: Nonproliferation, Demilitarization and Arms Control*, Vol. 2, No. 4, Fall, pp. 1, 4-6.

Michael E. Brown, 'Phased Nuclear Disarmament and US Defense Policy', Henry L. Stimson Center, Occasional Paper No. 30, October, 32 pp.

Oleg Bukharin, 'Security of Fissile Materials in Russia', *Annual Review of the Energy Environment*, pp. 468-496.

George Bunn, 'Inspection for Clandestine Nuclear Activities: Does the Nuclear Non-Proliferation Treaty Provide Legal Authority for the International Atomic Energy Agency's Proposals for Reform?', OECD/Nuclear Energy Agency's *Nuclear Law Bulletin*, No. 57, June, pp. 9-22.

Jacqueline Cabasso and Patrice Sutton, 'Nuclear Weapons: Now & Forever? The Role of Laboratory-Based Testing in Maintaining Nuclear Weapons', *AGNI,* Vol. 2, No. 1, May, pp. 48-60.

Morton John Canty and Rudolf Avenhaus, 'Verifying the Absence of Undeclared Activities', *Journal of Nuclear Materials Management*, Vol. 25, No. 1, November, pp. 36-43.

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Burrus M. Carnahan and Katherine Starr, 'Significance of the Nuclear Non-Proliferation Treaty Review

Conference Process', Prepared by Science Applications International Corporation for Arms Control and Disarmament Agency, NPT Extension Division, November 1994, 37 pp.

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Daiana Cipollone, 'The Fissile Material Cut-off Debate: A Bibliographic Survey', UNIDIR Research Paper 96/42, 76 pp.

Alan Cranston, 'Abolish and Survive: The Case and Prospects for a Nuclear-Weapons-Free World', *Disarmament Diplomacy*, No. 7, July/August, pp. 2-4.

Stuart Croft, 'European Integration, Nuclear Deterrence and Franco-British Nuclear Cooperation', *International Affairs*, Vol. 72, No. 4, October, pp. 771-787.

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'GAO Report on National Intelligence Estimate of Missile Threats', *Inside Missile Defense*, Vol. 2, No. 19, September 18, pp. 7-12.

Bates Gill and Matthew Stephenson, 'Search for Common Ground: Breaking the Sino-US Non-Proliferation Stalemate, *Arms Control Today*, Vol. 26, No. 7, September, pp. 15-20.

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Selig S. Harrison, *Japan's Nuclear Future*, Carnegie Endowment for International Peace, Washington, D.C.

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IV. Documentation

a. Resolutions of the United Nations General Assembly

A/RES/51/45 A — Treaty on the Non-Proliferation of Nuclear Weapons: 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons and its Preparatory Committee

The General Assembly,

Recalling its resolution 2373 (XXII) of 12 June 1968, the annex to which contains the Treaty on the Non-Proliferation of Nuclear Weapons,

Noting the provisions of article VIII, paragraph 3, of the Treaty regarding the convening of Review Conferences at five-year intervals,

Recalling the decision on strengthening the review process for the Treaty, of the 1995 Review and Extension Conference of Parties to the Treaty in which it was agreed that Treaty Review Conferences should continue to be held every five years and that, accordingly, the next Review Conference should be held in the year 2000,

Recalling also the decision of the 1995 Review and Extension Conference that the first Preparatory Committee meeting for the 2000 Review Conference should be held in 1997,

Recalling further its resolution 50/70 Q of 12 December 1995, in which it took note of the various decisions of the 1995 Review and Extension Conference,

1. *Takes note* of the decision of the parties to the Treaty on the Non-Proliferation of Nuclear Weapons, following appropriate consultations, to hold the first meeting of the Preparatory Committee in New York from 7 to 18 April 1997;
2. *Requests* the Secretary-General to render the necessary assistance and to provide such services, including summary records, as may be required for the 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons and its Preparatory Committee.

A/RES/51/45 B — The nuclear-weapon-free southern hemisphere and adjacent area

The General Assembly,

Determined to continue to contribute to the prevention of the proliferation of nuclear weapons in all its aspects and to the process of general and complete disarmament under strict and effective international control, in particular in the field of nuclear weapons and other weapons of mass destruction, with a view to strengthening international peace and security, in accordance with the purposes and principles of the Charter of the United Nations,

Stressing the importance of the treaties of Tlatelolco, Rarotonga, Bangkok and Pelindaba, establishing nuclear-weapon-free zones, as well as the Antarctic Treaty,

Recalling that, at its first special session devoted to disarmament, the General Assembly declared, *inter alia*, that the establishment of nuclear-weapon-free zones on the basis of agreements or arrangements freely arrived at among the States of the zone concerned constitutes an important disarmament measure; that the States participating in such

zones should undertake to comply fully with all the objectives, purposes and principles of the agreements or arrangements establishing the zones, thus ensuring that they are genuinely free from nuclear weapons; and that the nuclear-weapon States are called upon to give undertakings, negotiated with the competent authority of each zone, in particular, to respect strictly the status of the nuclear-weapon-free zone and to refrain from the use or threat of use of nuclear weapons against the States of the zone,

Recalling also that the 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons reaffirmed the conviction that the establishment of internationally recognized nuclear-weapon-free zones, on the basis of arrangements freely arrived at among the States of the region concerned, enhances global and regional peace and security, and encouraged the development of nuclear-weapon-free zones, especially in regions of tension, such as in the Middle East,

Recalling the applicable principles and rules of international law relating to rights of passage through maritime space,

1. *Recognizes with satisfaction* that the Antarctic Treaty and the treaties of Tlatelolco, Rarotonga, Bangkok and Pelindaba are gradually freeing the entire southern hemisphere and adjacent areas covered by those treaties from nuclear weapons;
2. *Calls* for the ratification of the treaties of Tlatelolco, Rarotonga, Bangkok and Pelindaba by all regional States, and calls upon all concerned States to continue to work together in order to facilitate adherence to the protocols to nuclear-weapon-free zone treaties by all relevant States that have not yet done so;
3. *Calls upon* all States to consider proposals to establish further nuclear-weapon-free zones, especially in areas such as the Middle East and South Asia, on the basis of arrangements freely arrived at among the States of the region concerned, to strengthen the nuclear non-proliferation regime and, with particular reference to the responsibilities of the nuclear-weapon States, to advance the process of nuclear disarmament with the ultimate goal of eliminating all nuclear weapons;
4. *Calls upon* the States parties and signatories to the treaties of Tlatelolco, Rarotonga, Bangkok and Pelindaba, in order to promote the common goals envisaged in those treaties, to explore and implement further ways and means of cooperation, including the consolidation of the status of the nuclear-weapon-free southern hemisphere and adjacent areas;
5. *Encourages* the competent authorities of nuclear-weapon-free zone treaties to provide assistance to the States parties and signatories to such treaties so as to facilitate the accomplishment of these goals;
6. *Decides* to include in the provisional agenda of its fifty-second session an item entitled 'The nuclear-weapon-free southern hemisphere and adjacent areas'.

A/RES/51/45 G — Nuclear disarmament with a view to the ultimate elimination of nuclear weapons

The General Assembly,

Recalling its resolution 50/70 C of 12 December 1995,

Recognizing that the end of the cold war has increased the possibility of freeing the world from the fear of nuclear war,

Appreciating the entry into force of the Treaty on the Reduction and Limitation of Strategic Offensive Arms, to which Belarus, Kazakstan, the Russian Federation, Ukraine and the United States of America are party, and looking forward to the early entry into force of the Treaty on the Further Reduction and Limitation of Strategic Offensive Arms, which was ratified by the United States of America,

Welcoming the reductions in the nuclear arsenals of other nuclear-weapon States,

Welcoming also the decision of the 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons to extend the Treaty indefinitely, taken without a vote, as well as the decisions on strengthening the review process for the Treaty and on the principles and objectives for nuclear non-proliferation and disarmament,

Noting the reference in the decision on the principles and objectives for nuclear non-proliferation and disarmament to the importance of the following measures for the full realization and effective implementation of article VI of the Treaty on the Non-Proliferation of Nuclear Weapons, including the programme of action as reflected below:

(a) The completion by the Conference on Disarmament of the negotiations on a universal and internationally and effectively verifiable comprehensive nuclear-test-ban treaty no later than 1996, and utmost restraint that should be exercised by the nuclear-weapon States pending the entry into force of that treaty;

(b) The immediate commencement and early conclusion of negotiations on a non-discriminatory and universally applicable convention banning the production of fissile material for nuclear weapons or other nuclear explosive devices in accordance with the statement of the Special Coordinator of the Conference on Disarmament and the mandate contained therein;

(c) The determined pursuit by the nuclear-weapon States of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons, and by all States of general and complete disarmament under strict and effective international control,

Welcoming the adoption of the Comprehensive Nuclear-Test-Ban Treaty at the fiftieth session of the General Assembly and its opening for signature at the beginning of the current session,

Recalling that nuclear non-proliferation and the promotion of nuclear disarmament are key elements in the maintenance of international peace and security, which is one of the most important purposes of the United Nations,

1. *Urges* States not parties to the Treaty on the Non-Proliferation of Nuclear Weapons to accede to it at the earliest possible date, recognizing the importance of universal adherence to the Treaty;
2. *Calls* for the determined pursuit by the nuclear-weapon States of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons, and by all States of general and complete disarmament under strict and effective international control, and invites them to keep States Members of the United Nations duly informed of the progress and efforts made;
3. *Calls upon* all States parties to the Treaty on the Non-Proliferation of Nuclear Weapons to make their best efforts for a smooth start of the strengthened review process of the Treaty as they convene their first Preparatory Committee, in 1997, with a view to the success of the next Review Conference which should be held in the year 2000;
4. *Also calls upon* all States to implement fully their commitments in the field of disarmament and non-proliferation of weapons of mass destruction.

A/RES/51/45 I — Bilateral nuclear arms negotiations and nuclear disarmament

The General Assembly,

Recalling its previous relevant resolutions,

Recognizing the fundamental changes that have taken place with respect to international security, which have permitted agreements on deep reductions in the nuclear armaments of the States possessing the largest inventories of such weapons,

Stressing that it is the responsibility and the obligation of all States to contribute to the process of the relaxation of international tension and to the strengthening of international peace and security through disarmament, in particular, nuclear disarmament, which remains the highest priority of our times,

Stressing also that, as stipulated in many agreements and recently reiterated by the unanimous decision by the International Court of Justice, there exists the obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control,

Welcoming the number of positive developments that have created opportunities for nuclear disarmament, in particular, the completion of the implementation of the 1987 Treaty between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles, removing such weapons from deployed status, the conclusion of bilateral agreements on de-targeting strategic missiles, the cooperative efforts to ensure the safety, security and environmentally sound destruction of nuclear weapons as well as the efforts to deactivate all nuclear delivery systems or other steps to remove them from alert status,

Noting that there are still significant nuclear arsenals and that the primary responsibility for nuclear disarmament, with the objective of the elimination of nuclear weapons, rests with all nuclear-weapon States, in particular, those possessing the largest stockpiles,

Recalling the expressed commitment by the nuclear weapon states to pursue systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of the elimination of those weapons, which should be carried out within a time-bound framework,

Recalling also the agreement between the Russian Federation and the United States of America to intensify their dialogue to compare conceptual approaches and to develop concrete steps to adapt the nuclear forces and practices on both sides to the changed international security situation, including the possibility, after ratification of the Treaty on the Further Reduction and Limitation of Strategic Offensive Arms, of further reductions of and limitations on remaining nuclear forces,

Taking note of the joint statement of 10 May 1995 by the Russian Federation and the United States of America on the Treaty on the Limitation of Anti-Ballistic Missile Systems,

Welcoming the reductions made by other nuclear-weapon States in some of their nuclear-weapons programmes, and encouraging all nuclear-weapon States to consider appropriate measures relating to nuclear disarmament,

Affirming that bilateral and multilateral negotiations on nuclear disarmament should facilitate and complement each other,

1. *Welcomes* the entry into force and implementation of the Treaty on the Reduction and Limitation of Strategic Offensive Arms, signed in Moscow on 31 July 1991 by the former Union of Soviet Socialist Republics and the United States of America, including the Protocol to that Treaty, signed at Lisbon on 23 May 1992 by the parties thereto, and the exchange of documents of ratification between the United States of America, Belarus, Kazakstan, the Russian Federation and Ukraine on 5 December 1994 at Budapest, as well as the ratification by the United States of America of the 1993 Treaty on the Further Reduction and Limitation of Strategic Offensive Arms, and urges the parties concerned to make further efforts to bring that Treaty into force at the earliest possible date;
2. *Encourages* the United States of America and the Russian Federation to continue their efforts aimed at eliminating nuclear weapons and strategic offensive arms on the basis of existing agreements, and welcomes the contributions that other States are making to such cooperation as well;
3. *Welcomes* the removal of all nuclear weapons from the territory of Kazakstan, as from June 1995, and from the territory of Ukraine, as from June 1996;
4. *Encourages and supports* the Russian Federation and the United States of American in intensifying their work for deep reductions in their nuclear armaments, and calls upon those States to accord the highest priority to this work, in order to contribute to the elimination of nuclear weapons within a time-bound framework;
5. *Invites* the Russian Federation and the United States of America to keep the States Members of the United Nations and the Conference on Disarmament duly informed of progress in their discussions and in the implementation of their strategic offensive arms agreements and unilateral decisions;
6. *Calls upon* the Conference on Disarmament to take such information into account in the negotiations to be held on nuclear disarmament leading to the elimination of nuclear weapons within a time-bound framework.

A/RES/51/45 M — Advisory opinion of the International Court of Justice on the legality of the threat or use of nuclear weapons

The General Assembly,

Recalling its resolution 49/75 K of 15 December 1994, in which it requested the International Court of Justice to render an advisory opinion on whether the threat or use of nuclear weapons is permitted in any circumstances under international law,

Mindful of the solemn obligations of States parties, undertaken in article VI of the Treaty on the Non-Proliferation of Nuclear Weapons, particularly to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament,

Recalling its resolution 50/70 P of 12 December 1995, in which it called upon the Conference on Disarmament to establish an ad hoc committee on nuclear disarmament to commence negotiations on a phased programme of nuclear disarmament and for the eventual elimination of nuclear weapons within a time-bound framework,

Recalling also the Principles and Objectives for Nuclear Non-Proliferation and Disarmament adopted at the 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, and in particular the objective of determined pursuit by the nuclear-weapon States of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons,

Recognizing that the only defence against a nuclear catastrophe is the total elimination of nuclear weapons and the certainty that they will never be produced again,

Desiring to achieve the objective of a legally binding prohibition of the development, production, testing, deployment, stockpiling, threat or use of nuclear weapons and their destruction under effective international control,

Reaffirming the commitment of the international community to the goal of the total elimination of nuclear weapons, and welcoming every effort towards this end,

Reaffirming the central role of the Conference on Disarmament as the single multilateral disarmament negotiating forum,

Noting the adoption of the Comprehensive Nuclear-Test-Ban Treaty by the General Assembly in its resolution 50/245 of 10 September 1996,

Regretting the absence of multilaterally negotiated and legally binding security assurances against the threat or use of nuclear weapons against non-nuclear-weapon States,

Convinced that the continuing existence of nuclear weapons poses a threat to all humanity and that their use would have catastrophic consequences for all life of Earth,

1. *Expresses its appreciation* to the International Court of Justice for responding to the request made by the General Assembly at its forty-ninth session;
2. *Takes note* of the advisory opinion of the International Court of Justice on the *Legality of the Threat or Use of Nuclear Weapons*, issued on 8 July 1996;
3. *Underlines* the unanimous conclusion of the Court that there exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control;

4. *Calls upon* all States to fulfill that obligation immediately by commencing multilateral negotiations in 1997 leading to an early conclusion of a nuclear-weapons convention prohibiting the development, production, testing, deployment, stockpiling, transfer, threat or use of nuclear weapons and providing for their elimination;
5. *Requests* the Secretary-General to provide the necessary assistance to support the implementation of the present resolution;
6. *Decides* to include in the provisional agenda of its fifty-second session an item entitled 'Follow-up to the Advisory Opinion of the International Court of Justice on the *Legality of the Threat or Use of Nuclear Weapons*'.

A/RES/51/45 O — Nuclear Disarmament

The General Assembly,

Recalling its resolution 49/75 E of 15 December 1994 on a step-by-step reduction of the nuclear threat, and its resolution 50/70 P of 12 December 1995 on nuclear disarmament,

Reaffirming the commitment of the international community to the goal of the total elimination of nuclear weapons and the creation of a nuclear-weapon-free world,

Determined to achieve the objective of prohibiting the development, production, stockpiling and use of nuclear weapons and their destruction, and to conclude such an international convention or conventions at an early date,

Bearing in mind paragraph 50 of the Final Document of the Tenth Special Session of the General Assembly, the first special session devoted to disarmament, calling for the urgent negotiation of agreements for the cessation of the qualitative improvement and development of nuclear-weapon systems, and for a comprehensive and phased programme with agreed time-frames, wherever feasible, for progressive and balanced reduction of nuclear weapons and their means of delivery, leading to their ultimate and complete elimination at the earliest possible time,

Bearing in mind also the adoption of the Comprehensive Nuclear-Test-Ban Treaty by the General Assembly in its resolution 50/245 on 10 September 1996,

Recognizing that the Comprehensive Nuclear-Test-Ban Treaty and any proposed treaty on fissile material for nuclear weapons or other nuclear explosive devices must constitute disarmament measures, and not only non-proliferation measures, and that these measures, together with an international legal instrument on adequate security assurances for non-nuclear-weapon States and an international convention prohibiting the use of nuclear weapons, must be integral steps leading to the total elimination of nuclear weapons within a time-bound framework,

Recognizing also that the end of the cold war has brought about favourable conditions for creating a world free of nuclear weapons,

Welcoming the entry into force of the Treaty on the Reduction and Limitation of Strategic Offensive Arms, to which Belarus, Kazakstan, the Russian Federation, Ukraine and the United States of America are States parties,

Welcoming also the conclusion of the Treaty on the Further Reduction and Limitation of Strategic Offensive Arms by the Russian Federation and the United States of America and the ratification of that Treaty by the United States of America, and looking forward to the full implementation of the START I and START II Treaties by the States parties, and to further concrete steps for nuclear disarmament by all nuclear-weapon States,

Noting with appreciation the unilateral measures by the nuclear-weapon States for nuclear arms limitation, and encouraging them to undertake further such measures,

Recognizing the complementarity of bilateral and multilateral negotiations on nuclear disarmament, and that bilateral negotiations can never replace multilateral negotiations in this respect,

Noting the support expressed in the Conference on Disarmament and in the General Assembly for the elaboration of an international convention to assure non-nuclear-weapon States against the use or threat of use of nuclear weapons, and the multilateral efforts in the Conference on Disarmament to reach agreement on such an international convention at an early date,

Taking note of the advisory opinion of the International Court of Justice dated July 8 1996 on the *Legality of the Threat or Use of Nuclear Weapons*, and welcoming the unanimous reaffirmation by all Judges of the Court that there exists an obligation for all States to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control,

Taking note also of paragraph 84 and other relevant recommendations in the Final Document of the Eleventh Conference of Heads of State or Government of the Non-Aligned Countries, held at Cartagena de Indias, Colombia, from 18 to 20 October 1995, calling upon the Conference on Disarmament to establish, on a priority basis, an ad hoc committee 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, and paragraph 26 of the Communiqué of the Meeting of Ministers for Foreign Affairs and Heads of Delegations of the Non-Aligned Countries, held in New York on 25 September 1996,

Expressing its regret that the Conference on Disarmament has not been able as yet to establish an ad hoc committee on nuclear disarmament, as called for in Assembly resolution 50/70 P,

Taking note of the proposal of twenty-eight delegations to the Conference on Disarmament that are members of the Group of 21 for a programme of action for the elimination of nuclear weapons, and expressing its conviction that this proposal will be an important input and will contribute to negotiations on this question in the Conference,

1. *Recognizes* that, in view of the end of the cold war and recent political developments, the time is now opportune for all nuclear-weapon States to undertake effective 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 nuclear doctrines accordingly;
3. *Urges* the nuclear-weapon States to stop immediately the qualitative improvement, development, production and stockpiling of nuclear warheads and their delivery systems;
4. *Calls upon* the nuclear-weapon States to undertake the 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. *Calls upon* the Conference on Disarmament to establish, on a priority basis, an ad hoc committee on nuclear disarmament to commence negotiations early in 1997 on a phased programme of nuclear disarmament and for the eventual elimination of nuclear weapons within a time-bound framework through a nuclear-weapons convention;
6. *Urges* the Conference on Disarmament to take into account in this regard the proposal of the twenty-eight delegations for a programme of action for the elimination of nuclear weapons;
7. *Requests* the Secretary-General to submit to the General Assembly at its fifty-second session a report on the implementation of the present resolution;
8. *Decides* to include in the provisional agenda of its fifty-second session the item entitled 'Nuclear disarmament'.

A/RES/51/45 R — Bilateral nuclear arms negotiations and nuclear disarmament

The General Assembly,

Recalling its previous relevant resolutions,

Recognizing the fundamental changes that have taken place with respect to international security, which have permitted agreements on deep reductions in the nuclear armaments of the States possessing the largest inventories of such weapons,

Mindful that it is the responsibility and obligation of all States to contribute to the process of the relaxation of international tension and to the strengthening of international peace and security and, in this connection, to adopt and implement measures towards the attainment of general and complete disarmament under strict and effective international control,

Appreciating a number of positive developments in the field of nuclear disarmament, in particular the Treaty between the former Union of Soviet Socialist Republics and the United States of America on the Elimination of Their Intermediate-Range and Shorter-Range Missiles, and the treaties on the reduction and limitation of strategic offensive arms,

Appreciating also the indefinite extension of the Treaty on the Non-Proliferation of Nuclear Weapons, and acknowledging the importance of the determined pursuit by the nuclear-weapon States of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons, and by all States of general and complete disarmament under strict and effective international control,

Welcoming the steps that have already been taken by the Russian Federation and the United States of America to begin the process of reducing the number of nuclear weapons and removing such weapons from a deployed status, and bilateral agreements on the issue of de-targeting strategic nuclear missiles,

Noting the new climate of relations between the States of the former Soviet Union and the United States of America, which permits them to intensify their cooperative efforts to ensure the safety, security and environmentally sound destruction of nuclear weapons,

Noting also that the Russian Federation and the United States of America concurred that, once the Treaty between them on the Further Reduction and Limitation of Strategic Offensive Arms was ratified, they would proceed to deactivate all nuclear delivery systems to be reduced under the Treaty by removing their nuclear warheads or taking other steps to remove them from alert status,

Noting further the commitment between the Russian Federation and the United States of America to intensify their dialogue to compare conceptual approaches and to develop concrete steps to adapt the nuclear forces and practices on both sides to the changed international security situation, including the possibility, after ratification of the Treaty on the Further Reduction and Limitation of Strategic Offensive Arms, of further reductions of and limitations on remaining nuclear forces,

Taking note of the joint statement of 10 May 1995 by the Russian Federation and the United States of America on the Treaty on the Limitation of Anti-Ballistic Missile Systems,

Recalling the Moscow Summit Declaration on Nuclear Safety and Security of April 1996,

Urging early action to complete the ratification of the Treaty on the Further Reduction and Limitation of Strategic Offensive Arms and further intensification of efforts to accelerate the implementation of agreements and unilateral decisions relating to nuclear arms reduction,

Welcoming the significant reductions made by other nuclear-weapon States, and encouraging all nuclear-weapon States to consider appropriate measures relating to nuclear disarmament,

1. *Welcomes* the entry into force of the Treaty on the Reduction and Limitation of Strategic Offensive Arms, signed in Moscow on 31 July 1991 by the former Union of Soviet Socialist Republics and the United States of America, including the Protocol to that Treaty, signed at Lisbon on 23 May 1992 by the parties thereto, and the exchange of documents of ratification between the United States of America, Belarus, Kazakstan, the Russian Federation and Ukraine on 5 December 1994 at Budapest;
2. *Also welcomes* the signing of the Treaty between the Russian Federation and the United States of America on the Further Reduction and Limitation of Strategic Offensive Arms in Moscow on 3 January 1993, and urges the parties to take the steps necessary to bring that Treaty into force at the earliest possible date;
3. *Expresses its satisfaction* at the entry into force and ongoing implementation of the 1991 Treaty as well as the ratification by the United States of America of the 1993 Treaty, and expresses its hope that it will soon be possible for the Russian Federation to ratify that Treaty also;
4. *Expresses further satisfaction* at the entry into force and ongoing implementation of the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles, in particular at the completion by the parties of the destruction of all their declared missiles subject to elimination under the Treaty;
5. *Welcomes* the removal of all nuclear weapons from the territory of Kazakstan as of 1 June 1995, and from the territory of Ukraine as of 1 June 1996;
6. *Encourages* the Russian Federation, the United States of America, Belarus, Kazakstan and Ukraine to continue their cooperative efforts aimed at eliminating nuclear weapons and strategic offensive arms on the basis of existing agreements, and welcomes the contributions that other Sates are making to such cooperation as well;
7. *Welcomes* the accession to the Treaty on the Non-Proliferation of Nuclear Weapons of Belarus, Kazakstan and Ukraine as non-nuclear-weapon States, which thereby provided notable enhancement to the non-proliferation regime;
8. *Encourages and supports* the Russian Federation and the United States of America in their efforts to reduce their nuclear weapons and to continue to give those efforts the highest priority in order to contribute to the ultimate goal of eliminating those weapons;
9. *Invites* the Russian Federation and the United States of America to keep other States Members of the United Nations duly informed of progress in their discussions and in the implementation of their strategic offensive arms agreements and unilateral decisions.

b. Statement on Nuclear Weapons by International Generals and Admirals

We, military professionals, who have devoted our lives to the national security of our countries and our peoples, are convinced that the continuing existence of nuclear weapons in the armories of nuclear powers, and the ever present threat of acquisition of these weapons by others, constitute a peril to global peace and security and to the safety and survival of the people we are dedicated to protect.

Through our variety of responsibilities and experiences with weapons and wars in the armed forces of many nations, we have acquired an intimate and perhaps unique knowledge of the present security and insecurity of our countries and peoples.

We know that nuclear weapons, though never used since Hiroshima and Nagasaki, represent a clear and present danger to the very existence of humanity. There was an immense risk of a superpower holocaust during the Cold War. At least once, civilization was on the very brink of catastrophic tragedy. That threat has now receded, but not forever — unless nuclear weapons are eliminated.

The end of the Cold War created conditions favorable to nuclear disarmament. Termination of military confrontation between the Soviet Union and the United States made it possible to reduce strategic and tactical nuclear weapons, and to eliminate intermediate range missiles. It was a significant milestone on the path to nuclear disarmament when Belarus, Kazakstan and Ukraine relinquished their nuclear weapons.

Indefinite extension of the Nuclear Non-Proliferation Treaty in 1995 and approval of the Comprehensive Test Ban Treaty by the UN General Assembly in 1996 are also important steps towards a nuclear-free world. We commend the work that has been done to achieve these results.

Unfortunately, in spite of these positive steps, true nuclear disarmament has not been achieved. Treaties provide that only delivery systems, not nuclear warheads, will be destroyed. This permits the United States and Russia to keep their warheads in reserve storage, thus creating a 'reversible nuclear potential'. However, in the post-Cold War security environment, the most commonly postulated nuclear threats are not susceptible to deterrence or are simply not credible. We believe, therefore, that business as usual is not an acceptable way for the world to proceed in nuclear matters.

It is our deep conviction that the following is urgently needed and must be undertaken now:

- First, present and planned stockpiles of nuclear weapons are exceedingly large and should now be greatly cut back;
- Second, remaining nuclear weapons should be gradually and transparently taken off alert, and their readiness substantially reduced both in nuclear-weapon states and in *de facto* nuclear-weapon states;
- Third, long-term international nuclear policy must be based on the declared principle of continuous, complete and irrevocable elimination of nuclear weapons.

The United States and Russia should — without any reduction in their military security — carry forward the reduction process already launched by START — they should cut down to 1000 to 1500 warheads each and possibly lower. The other three nuclear states and the three threshold states should be drawn into the reduction process as still deeper reductions are negotiated down to the level of hundreds. There is nothing incompatible between defense by individual countries of their territorial integrity and progress toward nuclear abolition.

The exact circumstances and conditions that will make it possible to proceed, finally, to abolition cannot now be foreseen or prescribed. One obvious prerequisite would be a worldwide program of surveillance and inspection, including measures to account for and control inventories of nuclear weapons material. This will ensure that no rogues or terrorists could undertake a surreptitious effort to acquire nuclear capacities without detection at an early stage. An agreed procedure for forcible international intervention and interruption of covert efforts in a certain and timely fashion is essential.

The creation of nuclear-free zones in different parts of the world, confidence-building and transparency measures in the general field of defense, strict implementation of all treaties in the area of disarmament and arms control, and mutual assistance in the process of disarmament are also important in helping to bring about a nuclear-free world. The development of regional systems of collective security, including practical measures for cooperation, partnership, interaction and communication are essential for local stability and security.

The extent to which the existence of nuclear weapons and fear of their use may have deterred war — in a world that in this year alone has seen 30 military conflicts raging — cannot be determined. It is clear, however, that nations now possessing nuclear weapons will not relinquish them until they are convinced that more reliable and less dangerous means of providing for their security are in place. It is also clear, as a consequence, that the nuclear powers will not now agree to a fixed timetable for the achievement of abolition.

It is similarly clear that, among the nations not now possessing nuclear weapons, there are some that will not forever forswear their acquisition and deployment unless they, too, are provided means of security. Nor will they forego acquisition if the present nuclear powers seek to retain everlastingly their nuclear monopoly.

Movement toward abolition must be a responsibility shared primarily by the declared nuclear-weapon states — China, France, Russia, the United Kingdom and the United States; by the *de facto* nuclear states, India, Israel and Pakistan; and by major non-nuclear powers such as Germany and Japan. All nations should move in concert toward the same goal.

We have been presented with a challenge of the highest possible historic importance: the creation of a nuclear-weapons-free world. The end of the Cold War makes it possible.

The dangers of proliferation, terrorism, and a new nuclear arms race render it necessary. We must not fail to seize our opportunity. There is no alternative.

The Programme for Promoting Nuclear Non-Proliferation and the Newsbrief

The **Newsbrief** is part of the outreach effort which constitutes a major element of the Programme for Promoting Nuclear Non-Proliferation (PPNN). It is addressed to an audience interested in the subject of nuclear (non-)proliferation, to inform and help them alert their respective environments to the issue of nuclear non-proliferation.

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