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PROGRAMME FOR PROMOTING NUCLEAR NON-PROLIFERATION

Number 33 **NEWSBRIEF** **1st Quarter 1996**

Editorial Note

The **Newsbrief** is published every three months by the Programme for Promoting Nuclear Non-Proliferation (PPNN). It gives information about the actual or potential spread of nuclear weapons and about moves to prevent it. It also contains selected references to developments relating to the peaceful uses of nuclear energy. Its contents are based on publicly available material, selected and presented so as to give an accurate and balanced depiction of pertinent developments.

The present issue of the **Newsbrief** covers events that occurred, or that came to the editor's attention, in the period 1 January–26 March 1996.

The limited size of the **Newsbrief** makes it necessary to choose among items of information and to present them in condensed form. Since many press organs take their information from the same sources, news items often duplicate each other, which adds to the need for careful selection from among available material.

Subheadings are used in the **Newsbrief** for convenience of presentation; they do not necessarily imply a judgment as to the nature of the items referred to. For example: the **Newsbrief** has long featured the sub-title **'Illicit Nuclear Trafficking'**, to report on cross-border smuggling and the clandestine sale of nuclear and other radioactive material. In the issue for the 4th Quarter of 1995 the use of this subtitle was extended to report also on other clandestine moves to obtain nuclear material, besides commercial transactions. For convenience, the sub-title (see page 15) is here used also to cover the alleged misappropriation of technology by citizens of one state, working in another, presumably on behalf of their own country. Obviously, actions by individuals to clandestinely obtain material or technology with the intention of providing it to states, whether undertaken on behalf of such states or with the aim of selling it to any interested state or individual, are difficult to distinguish from nuclear proliferation in the 'conventional' sense of that term, viz. states' attempts to obtain or manufacture nuclear items for weapons purposes.

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.

Unless otherwise stated, sources referred to in this issue, and publications listed, date from 1996.

I. Topical Developments

a. Non-Proliferation Developments

- Information has now come to hand about the **'Wassenaar Arrangement** on Export Controls for Conventional Arms and Dual-Use Goods and Technologies' which was created in December 1995 to succeed the Coordinating Committee for Multilateral Export Controls (COCOM). The Wassenaar Arrangement comprises all NATO members except Iceland, plus Australia, Austria, the Czech Republic, Finland, Hungary, Ireland, Japan, New Zealand, Poland, Russia, Slovakia, Sweden, and Switzerland, 28 states in all. Its purpose is to prevent destabilising accumulations of conventional weapons and transfers of arms and sensitive technologies for military end-uses in so-called 'rogue states'. In the US view the latter comprise the DPRK, Iran, Iraq, and Libya.

  The regime involves the voluntary exchange of data in four categories: 1. semi-annual exchanges of information on transfers of conventional arms as categorised in the UN Register of Conventional Arms; 2. aggregate and periodic exchanges of data including license denials for the so-called 'basic' items contained on a List of Dual-Use Goods and Technology ('Tier 1 items'); 3. early and timely provision on an individual

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basis of information on license denials regarding 'sensitive' and 'very sensitive' items on the dual-use list ('Tier 2 items'); and 4. the exchange of information on an aggregate and periodic basis of transfers or licenses granted regarding Tier 2 items. In December, a preparatory committee was set up to start implementation of the arrangements. The regime will be formally launched at a meeting on 2 and 3 April in Vienna, where the secretariat is being established.

(**Arms Control Today**, 12/95-1/96; **Address by US Under-Secretary of State Lynne E. Davis at the Carnegie Endowment for International Peace**, 23/1; **Defense News**, 29/1-4/2)

- **India** and **Pakistan** have once again exchanged lists of their respective nuclear facilities, pursuant to the 1988 agreement which prohibits attacks on such facilities. (**Süddeutsche Zeitung**, 3/1)

- On 25 March, **France**, the **United Kingdom** and the **United States** signed the Protocols to the South Pacific Nuclear Free Zone Treaty (**Treaty of Rarotonga**) in Suva, Fiji. Pursuant to the three Protocols, respectively, parties undertake, in respect of the territories within the Zone for which they are internationally responsible, not to manufacture, acquire or station nuclear explosive devices; not to dump radioactive waste; and to accept international safeguards; undertake not to contribute to any act which violates the Treaty and not to use or threaten to use any explosive device against any party to the Treaty; and undertake not to test any nuclear device anywhere within the Zone. **China** and the **Russian Federation** were already parties to the Protocols — see also **Newsbrief 32**, page 2. The full text of the Protocols is reproduced in the **Section IV. Documentation** of this **Newsbrief**. (**International Herald Tribune**, 26/3; **Direct information**)

b. Nuclear Disarmament and Arms Limitation

- **France** has decided to make drastic changes in the composition of its armed forces. As part of the new defence programme, the following reductions are made in the nuclear forces:

  — the short-range, single warhead ballistic missile Hadès, of which thirty had been constructed but not deployed, will be dismantled;

  — the Plateau d'Albion, the missile site in the Department of Alpes-de-Haute-Provence, in central France, will be closed, and the eighteen ballistic medium-range S.3D missiles will be dismantled;

  — the military uranium enrichment facility at Pierrelatte will be closed and no further weapon-grade uranium will be produced.

  As a result French nuclear forces will be limited to five submarines, carrying a total of 64 M45 medium-range missiles carrying 384 TN75 warheads in all. The missiles are due to be replaced in 2015 by a new missile, the M51, which is said to have a greater range and to be more robust than its predecessor. The sixty medium-range air-launched missiles and their delivery vehicles will be maintained, partly land-based and in part on aircraft carriers. (**Figaro**, 23/2; **Le Monde**, 23/2; **La Tribune**, 23/2, 26/2; **Les Echos**, 23/2, 26/2; **Financial Times**, 23/2; **International Herald Tribune**, 23/2; **France-Soir**, 23/2; **Libération**, 23/2, 26/2; **Agence France Presse**, 24/2)

- Following the partial resolution, in December 1995, of a dispute between the White House and the Chairman of the Foreign Relations Committee of the **United States** Senate, Jesse Helms, who has called for the abolition of several government offices, including the Arms Control and Disarmament Agency, hearings on several disarmament measures were resumed in February. On 26 January the Senate approved the second strategic arms reduction treaty, START II, with 87 votes in favour and 4 against. Prospects for the adoption of the treaty by the Russian State Duma are still uncertain; reportedly, a large number of that body's members feel that it makes too many concessions to the United States and that it is promoted by that country as part of a campaign to disarm Russia. NATO's move towards inclusion of some of Russia's former Eastern European allies is said to add to this feeling. In mid-December, the chairman of the Duma's International Affairs Committee, Vladimir Lukin, said that START II should be ratified on condition that the US adheres to the Anti-Ballistic Missile (ABM) Treaty. A call from President Yeltsin to speed up consideration of START II is said to have been rejected by the State Duma. There have been suggestions in Moscow for a renegotiation of some elements of the Treaty, but the US Administration is said to see this as not practical and to doubt that, if the Treaty were changed, it would once again be approved by the Senate.

  In Washington, meanwhile, Sen. Helms has introduced a bill that would mandate the US to withdraw from the ABM Treaty, but the measure is not expected to receive enough support to override an inevitable presidential veto. The US Administration does feel, however, that the Treaty should be 'modified' to permit the deployment of theatre missile defence systems. Apparently, rather than entering into formal negotiations on amending the Treaty, Washington hopes that Moscow will accept an interpretation to this effect. Many Republican members of the House of Representatives are seen to be in favour of formally amending the Treaty, but not of abrogating it.

  In February hearings began in the Senate Foreign Relations Committee on the Chemical Weapons Convention. These are expected to be finished in May, after which the Convention will go to the floor of the Senate, where it is said to have wide support so that it is likely to be adopted by more than the required two-thirds vote. The US Defense Department has announced that the entire American stock of chemical weapons will be destroyed before 2004.

  (**Chemical Weapons Convention Bulletin**, December 1995; **Trust and Verify**, November/December 1995; **ITAR-TASS**, 14/12/95, in **FBIS-TAC**-95-007, 27/12/95; **New York Times**, 27/1, 10/2 [comments from M.S. Gorbachev]; **Washington Post**, 28/1, 8/2; **Economist**, 3/2; **Nautilus Institute** on **Internet**, 7/2)

c. Nuclear Testing

- **China** has announced that it will continue its nuclear tests until a comprehensive test ban treaty enters into force. In January, Japanese media reports had intimated that another Chinese test was imminent but the expectation now is that the next test will not be held until after the visit China's foreign minister will pay to his Japanese counterpart, in early April. The Japanese government is said to consider the possibility of cutting the credits it has promised China for the expansion of its infrastructure, should that country stage another nuclear test. Mongolia has also called on China to cease its nuclear tests. (**Reuter's**, 15/1, 12/3; **Guardian**, 31/1; **Die Presse**, 31/1; **Financial Times**, 13/3)

- On 27 January, **France** staged its sixth test of the recent series -- its 198th overall — at Fangataufa Atoll, in French Polynesia. With a yield of 120 kilotons, the test was reported to have been the biggest of the series. Two days later, France's President Jacques Chirac announced that with this test, France had definitively ended its nuclear test programme. The President declared that thanks to these tests France would henceforth have a viable and modern defence and the security of the country was now assured. He stated that France would now play an active and determined role promoting world disarmament and would in coming weeks take initiatives in that direction. According to military sources quoted in the French press, six tests had turned out to be sufficient for the purpose: to ensure the effectiveness of the M45 warhead on France's nuclear submarines and to obtain the information needed to establish a workable simulation programme. Reportedly, a large laser installation, designed to study the behaviour of weapons materials under simulated explosive conditions will be constructed in the Bordeaux area. The installation, named Mégajoule, is supposed to be similar to the National Ignition Facility at the US Lawrence Livermore National Laboratory.

  France has announced that the nuclear testing sites at the Mururoa and Fangataufa atolls will be permanently closed. As reported from Vienna, pursuant to a suggestion made in 1995 by the French authorities, a radiological study of the test sites began in early March under the IAEA's auspices, to assess the current radiological situation and evaluate the long-term radiological impact of the tests. The study is expected to take about 18 months. Reportedly, more than 100 bore holes have been drilled over the years, and among questions that must be investigated are the geological changes that may have occurred and the possibility that radioactive materials that are currently contained in the subsoil might eventually escape. Paris has acknowledged that minor radioactive leakage has taken place, involving various short-lived radioactive isotopes, but it has stressed that the leakages do not constitute any danger for the environment and it has denied that any traces of iodine-131 were found after the tests. Reportedly, some iodine-131 was released when scientists drilled for rock samples to be tested subsequent to the explosions. It is noted that similar findings of radioactive iodine were made in 1987 by a mission under the French oceanographer, Jacques Cousteau. An expert from New Zealand, member of the IAEA mission, has been quoted in the press as confirming the French view that the tests do not seem to have caused cracks in the atoll.

  France has announced the adoption of an aid programme for French Polynesia, to compensate it for the loss of earnings it derived from the test programme.

  France's announcement that the tests had been definitely ended (France's testing programme started in 1960 with an atmospheric test over the Sahara Desert, in Algeria) has evoked widespread satisfaction, although some of the countries that had been most critical of the tests let it be known that relations are not likely to mend right away. As before, the test of 27 January had provoked strong condemnations from the governments of Australia, Japan, New Zealand and the Philippines, among others; as before also, Paris rejected their protests.

  (**Die Presse**, 5/1, 7/2; **Guardian**, 5/1; **Financial Times**, 5/1, 17/1, 30/1; **Frankfurter Allgemeine Zeitung**, 17/1; **International Herald Tribune**, 24/1, 25/1, 29/1, 30/1, 7/2; **Libération**, 24/1, 30/1; **Le Monde**, 24/1, 30/1, 31/1; **Dominion** [New Zealand], 25/1; **Agence France Presse**, 29/1; **New York Times**, 29/1, 30/1; **Washington Post**, 30/1, 24/2; **CEA Press Service**, 30/1; **Standard** [Vienna], 31/1; **La Tribune**, 30/1; **Les Echos**, 30/1; **Le Figaro**, 30/1, 31/1; **l'Humanité**, 30/1; **France-Soir**, 30/1; **le Parisien**, 30/1; **Wall Street Journal**, 30/1; **Independent**, 6/2; **Reuter's**, 7/2; **IAEA Press Release**, 1/3)

- The **Indian** foreign minister has denied press reports that his country is planning a nuclear-weapon test. Reports about the likelihood of an Indian nuclear test continue, however. While, on the one hand, some Indian commentators see a test as undesirable, since Pakistan's reaction is not predictable and an open move towards the acquisition of a nuclear arsenal may lead to a nuclear-arms race in the region, there is also a suggestion that, given the apparent support by a majority of voters for the development of an Indian nuclear weapon, the present Prime Minister may wish to further his chances in the impending elections by a nuclear test. According to reports from Washington, the US Administration has made India aware of its concern about the possibility of another Indian nuclear test, but although it is generally accepted that such an event could have major repercussions for the relations between Washington and New Delhi, and would put an end to any American financial assistance, no formal warnings to this effect seem to have been made. The concern is fuelled by the recent test-firing of India's Prithvi-2 short-to-medium-range missile, which is capable of carrying nuclear warheads. The influential Pakistani newspaper *The Muslim* has claimed that if India were to stage a nuclear test, Pakistani scientists would start assembling a nuclear explosive device 'within a matter of hours'. Reportedly, Pakistan has already made plans for selecting the site.

  According to the Indian delegate in the Conference on Disarmament in Geneva, India will not support a comprehensive test ban treaty that does not include the obligation of the five acknowledged nuclear-weapon states to eliminate their nuclear arsenals within an agreed time-frame. Some observers hold, however, that no single state, including India, would wish to incur blame for a failure to agree and that India might simply

bstain if the Conference on Disarmament adopts a CTBT text which does not make reference at least to negotiations on a time-bound programme for the elimination of nuclear weapons. (See below.)

(**Independent**, 20/12/95 in **UI News Briefing**, 96.01; **International Herald Tribune**, 9/1; **Associated Press**, 17/1; **Reuter's**, 19/1, 25/1, 15/2; **Washington Post**, 28/1; **Times** [London], 29/1; **Jane's Defence Weekly**, 31/1, 7/2; **Nucleonics Week**, 29/2)

- Asked about reports that **Israel** had carried out nuclear tests in the Red Sea area, Egypt's Foreign Minister Amre Musa is said to have responded that his country carefully follows this matter and has no proof of the occurrence of such tests so far. (**MENA** [Cairo], 5/12/95, in **FBIS-TAC-95-007**, 27/12/95)

- **Russia**'s nuclear lobby is said to call for an opportunity to carry out several more tests before the conclusion of the comprehensive test ban treaty, especially for the purpose of checking the shelf-life of stored warheads. They were quoted in late 1995, as referring to the tests carried out by France and China and to American plans for hydronuclear tests — four of which would reputedly take place after the conclusion of the treaty — plus the fact that no nuclear-weapon state had yet closed its test sites, as a justification to act likewise. A recent rumour that Russia had broken its self-imposed moratorium by carrying out a test has been denied by US Secretary of State Christopher. In a statement supporting the early conclusion of the test ban treaty, the Russian delegate in the Conference on Disarmament called for a complete and general prohibition on nuclear testing, but made no mention of a zero yield test ban. In late March there were reports of far-reaching agreement between American and Russian officials on final language for a test-ban treaty. As reported, Russian objections to a text that would ban any nuclear explosions, including so-called peaceful ones, had been overcome. It was expected that final agreement would be announced in April, when the two presidents would meet for their 'nuclear safety' summit meeting. (**Komsomolskaya Pravda**, 14/12/95, in **FBIS-TAC**-95-007, 27/12/95; **New York Times**, 8/3, 23/3; **International Herald Tribune**, 19/3)

Note: the following is a brief and necessarily incomplete summary of published news about the progress in negotiations on a comprehensive test ban treaty. More authoritative and complete information is found in the documentation issued by the Conference on Disarmament itself and in such periodic publications as **Disarmament Diplomacy**, A monthly review from Dfax, Bradford, West Yorkshire, UK.

- Negotiations on a Comprehensive Test Ban Treaty (CTBT) resumed in the Conference on Disarmament in Geneva in the third week of January. At that time the **United States** began a series of interventions in foreign capitals calling for quick action on the adoption of a CTBT. Washington is said to be particularly concerned about **India**'s wish, referred to above, to combine a test ban with a deadline for the elimination of nuclear weapons. Other non-aligned nations are seen as supporting India but several important members of the Non-Aligned Movement (NAM), including Indonesia and Mexico, are said to favour the adoption of a test ban without undue delay. **China**, which is currently the only state still conducting nuclear tests, insists on its right to continue doing so for the present. In an apparent attempt to gain time for this purpose, China has said it would become party to a nuclear test ban once this enters into force. China is also understood to be against a zero-yield test ban and to seek an exemption for so-called 'peaceful nuclear explosions' — a point with which other nuclear-weapon states are understood to be in strong disagreement. Further, there has been a report that China unofficially backs India's proposal to connect the nuclear test ban treaty with a time-bound framework for the elimination of nuclear weapons. In February, the **Islamic Republic of Iran** submitted a draft treaty text which, *inter alia*, calls for a prohibition of all testing, however low the yield, and including so-called peaceful nuclear explosions; the Iranian draft excludes verification by national technical means, with severe restrictions on on-site inspections. It calls for entry into force upon ratification by 65 states with nuclear activities. Like Iran, Australia submitted a text incorporating a series of compromises. It contains a proposal for preambular language designed to meet India's approach half-way, noting that the treaty is a step towards nuclear disarmament. At the time this issue of the **Newsbrief** went to press, the Conference on Disarmament was expected to be in the very last stages of drafting the final version of the treaty.

(**Disarmament Diplomacy**, January, February; **New York Times**, 22/1, 4/3; **International Herald Tribune**, 1/2, 9/2; **Neue Zürcher Zeitung**, 9/2; **Mainichi Shimbun**, 19/2; **Statement by Minister for Foreign Affairs of the Islamic Republic of Iran**, 22/2)

d. Nuclear Trade and International Cooperation

- **Brazil** has announced that it is concluding an agreement with **India** on the use of thorium for scientific purposes. It has also concluded an agreement on cooperation with the **United States** in the peaceful uses of nuclear energy. American sources hint that this followed an understanding in principle that Brazil would accede to the NPT. (**Agencia Estada** [Sao Paulo], 21/1, 22/1, both in **BBC Monitoring Service**, 24/1; **New York Times**, 3/3)

- **France** has agreed with **South Africa** to contribute US $21.5 million to the development of the South African uranium enrichment process by Molecular Laser Isotope Separation (MLIS). While in the atomic vapour laser isotope separation process (called AVLIS in English, and SILVA in French) the feed material is vapourised uranium metal, MLIS uses gaseous uranium hexafluoride. Both processes are reported to use lasers to excite fissile uranium atoms and then separate them by ionisation. The technologies are said to be entirely different, however, with AVLIS lasers operating in the range of visible light and MLIS lasers being in the infrared range. (**Financial Times**, 1/3; **NuclearFuel**, 11/3)

- The American constitutional requirements for the entry into force of the **EURATOM/US** agreement were met on 10 March with the expiration of the ninety days of continuous Congressional session during which the

agreement lay before the Congress. The requirement was reportedly met somewhat earlier than had been expected, because the Congress, preoccupied with budget discussions, did not adjourn for the usual Christmas/New Year break and several sessions in December ended just after midnight, which officially shortened the Christmas and New Year's weekends. The next step, expected to be taken in the first week of April, is an exchange of diplomatic notes in which the parties advise each other that the respective internal procedures have been completed.

The agreement has not been accepted without some protests, both within and outside Congress. These seem to have been triggered in part by criticism of the agreement being negotiated between Russia and EURATOM, on the supply by the former of highly enriched uranium for use in European research reactors (see next item). Initially, it had been expected that the EURATOM/US agreement would have 'smooth sailing' through both houses. Approval of the agreement does not in fact seem to have been in doubt at any time, because rejection would have been possible only through the adoption in both Houses of a joint resolution of disapproval, and there appeared to have been little interest in doing so. However, if enough members of Congress had been concerned about the allegedly unfavourable consequences of the agreement for nuclear security and non-proliferation, they could have stopped the automatic approval process and have could adopted a resolution of approval with conditions that would make implementation more difficult, if not altogether impossible. In February, the Washington-based *Nuclear Control Institute* (NCI) released a legal analysis pointing to what it saw as serious legal deficiencies in the treaty, and claiming that it could lead to illicit trade in nuclear material once, as anticipated, countries like Bulgaria, the Czech Republic or Romania join the European Union. Together with five other non-governmental organisations critical of the agreement, the NCI wrote to House Speaker Gingrich and Senate Majority Leader Dole, calling on them to take steps to have Congress reject the agreement or adopt a conditional resolution of approval. The conditions sought by the opposing coalition included the requirement that implementation of the agreement should be subject to future changes in US law and regulations; the demand that EURATOM should give binding assurances that it would not acquire highly enriched uranium from Russia for use in research reactors; a prohibition on US transfer to EURATOM of any technology for producing separated plutonium, enriched uranium or heavy water; and the stipulation that nuclear material of US origin could not be mixed with European weapons-grade material.

Hearings were begun on 28 February by the Senate Governmental Affairs Committee, of which both the Republican Chairman, Sen. Ted Stevens, and the ranking minority (i.e., Democrat) member, Sen. John Glenn, had expressed concerns about the capability of the US to track nuclear materials of US origin that had been produced or supplied abroad. At the hearings, all government witnesses said that the agreement fully complied with US law in all essential respects, and the General Accounting Office also submitted findings to that effect. Although several Senators raised strong objections to the agreement, none of them opted for a resolution of approval with conditions.

The International Relations Committee of the House of Representatives rejected a request by several critics of the agreement, to hold hearings. Representative Edward Marky, who had voiced the strongest objections, apparently decided to drop the matter in view of the lack of time and unwillingness to oppose the Democratic Administration which had submitted the draft agreement.

Meanwhile, during the period when no agreement was in force between the United States and EURATOM, licenses for the export of major reactor components were suspended, except in respect of Spain and Sweden, which still had individual valid agreements with the US. The submission by EURATOM in mid-February of a letter containing assurances regarding peaceful use and retransfer has made it possible for the US Nuclear Regulatory Commission to relicense exports of small nuclear components and reactor materials.

(**SpentFUEL**, 8/1, 15/1, 22/1, 12/2, 19/2, 26/2, 4/3, 18/3; **NuclearFuel**, 15/1, 29/1, 12/2, 26/2, 11/3, 25/3; **Nucleonics Week**, 29/2, 21/3)

- An agreement is reported to be under discussion between **EURATOM** and the **Russian Federation** for the supply by the latter of highly-enriched uranium (HEU) for use in research reactors. A report from Moscow says that if a transfer deal is concluded, Russia would have to give specific approval before such material is transferred to another state within the European Union. That approval might be obtained with respect to an advance list of states where the material might go, or through an application at the time a specific transfer is to be made. With respect to the FRM-2 materials test reactor (MTR) that is planned to be constructed at Garching, in Bavaria, for the Technical University of Munich and is designed to operate on HEU, it appears that Russia would supply HEU to France for its MTRs, which would enable the latter to provide its MTR fuel to Germany. In this way, a retransfer would be avoided, and Russian consent would not be needed.

It is noted that — unlike in the case of the agreement between Russia and the US on the supply of enriched uranium — it would be up to the Russian Ministry of Atomic Energy (Minatom) to decide whether material will be supplied from existing stockpiles or from dismantled warheads. Another difference is that the material would be supplied in the form of HEU.

In Washington, five Democratic members of Congress have written to the Secretary of State, expressing alarm about the Russo–European deal which, they believe, would run counter to non-proliferation norms against international commerce in high-enriched uranium. The letter is said to urge the Secretary of State to warn the Russian government against the deal, and make clear that if it goes through, the US purchase of high-enriched uranium from Russia 'is in jeopardy'. The issue was raised during the approval process of the agreement between the United States and EURATOM but did not affect its approval. (See previous item.)

Press reports claim that Washington has tried to persuade Moscow not to go through with this deal.

(**Financial Times**, 25/1; **NuclearFuel**, 12/2, 26/2, 25/3)

- The VVER-440/213 power station at Pax in **Hungary** has received a shipment of 235 slightly irradiated fuel assemblies from the decommissioned Greifswald power station in the former German Democratic Republic. Environmentalists in Germany and Hungary protested against the transaction. In Germany *Greenpeace* activists twice tried to prevent departure of the train by blockading the exit of the power station and chaining themselves to the tracks, but they were removed by police. Uncertainty about the monetary value of the unusual transaction has reportedly raised questions about the duties to be paid to Hungarian customs; the issue is still pending. (**NuclearFuel**, 12/2, 26/2, 25/3; **Reuter's**, 20/2)

- **India** is said to have advised **Russia** that it does not want the two VVER-1000 power reactors that are planned at Kudankulam, in southern India, to be provided on a turn-key basis. Instead, India reportedly wishes to build the reactors itself, on the basis of Russian know-how. Apparently, discussions are still going on about financial and technical aspects of the deal. (**Nucleonics Week**, 11/1)

- It has been announced in **Iran** that a letter of credit has been opened to pay for **Russian** assistance in the construction of two VVER-1000 power reactors at Bushehr. If correct, this would contradict an earlier report from China that Russia had not been paid for work on the project and Russian workers had been taken off the site. See also **Newsbrief 32**, page 7, referring to an Italian report that Iran might be paying for part of the cost in crude oil. Slovak officials have said that they would be willing to help Iran with advice on safety issues and particularly on the legislation that would have to be prepared in this area. They denied that they would assist in the completion of the Bushehr power station. (**Czech News Agency**, 15/1; **Reuter's**, 16/1; **Nucleonics Week**, 25/1)

- **Russia** has been asked by the IAEA to take back spent fuel from eastern European research reactors that were supplied by the USSR with the promise that the spent fuel could be returned. Reportedly, large amounts of spent fuel elements, mostly containing highly-enriched uranium, are stored at a number of eastern European research reactor sites. (**Nuclear Fuel**, 11/3)

- A news broadcast from Bangkok, says that **Thailand** plans to conclude agreements with **India** and with the **United States** on the peaceful uses of nuclear energy. India would help in the development of nuclear power, and the US would assist in the establishment of a laboratory for the study of reactor design, safety and maintenance. (**Associated Press**, 26/1)

- The implementation of the agreement between the **Russian Federation** and the **United States**, on the sale of weapon-grade uranium and the supply of that material in low-enriched form, appears still to experience difficulties. Under the deal, the US was to buy, at a price of $12 billion, 500 MT of highly enriched uranium (HEU) from dismantled Russian nuclear weapons and use it for peaceful purposes. Opponents in the US Congress and among industry accuse the Administration of not verifying carefully enough whether the material provided by Russia is indeed from dismantled nuclear warheads or might come from existing military stockpiles or even be newly produced. In this connection, it may be noted that the US Departments of Energy and State are both said to be confident that production of HEU in Russia has ceased. The material is blended down in Russia to a level (4 per cent or less of U-235) that makes it suitable for manufacture into reactor fuel, but of which it is difficult to ascertain whether it was originally highly-enriched uranium and even more difficult if it actually came from nuclear warheads — something Washington conservatives, always keen to accuse the Russian Federation of cheating, say they doubt. Supporters of the deal, on the other hand, contend that it is not essential to know whether the material actually comes from dismantled weapons, as long as weapons-grade material is withdrawn from Russian military stockpiles. The American Society for Testing & Materials (ASTM) is expected also to ask that low-enriched uranium (LEU) drawn from dismantled nuclear weapons be 'flagged' as such when it is sent to fabricators. ASTM's demands are said to reflect doubts about the purity of LEU derived from former weapons-grade uranium.

For their part, the Russian side wants proof that all the material transferred pursuant to the agreement goes into commercial fuel in the US. It wishes to be in a position to monitor the fuel processing plants involved, and has called for strict accounting for the material by the US side. Some American manufacturers are said to object to any suggestion for Russian on-site inspection and maintain that it is anyway impossible to track Russian-supplied material among uranium originating from a variety of sources. Discussions are held about possible solutions, between US authorities and industry, and between Russian and American authorities.

Meanwhile, between 23 June 1995 and 22 January 1996 nine shipments of LEU totalling 186 MT, reportedly derived from 6.1 MT of HEU and valued at US$145 million, were received in the US. In the current year Russia was expected to blend down 12 MT of HEU to 371 MT of LEU. However, following discussions US Vice-President Al Gore had in Moscow in late January, it is understood that Russia would be interested in supplying the US with the equivalent in LEU of 18 MT HEU, i.e., 50 per cent more than initially expected. A report by the Nuclear Energy Committee of the US–Russian Commission on Economic and Technological Cooperation, issued over the signatures of US Energy Secretary O'Leary and Russia's Atomic Energy Minister Mikhailov also suggests that Russia considers it necessary to create a joint enterprise to implement the contract for the sale of LEU derived from HEU from dismantled nuclear warheads. Given timely payments from the US and an increase in the supply of LEU to 18 MT, the Russian side is reported to have stated that it would be in a position to resolve the problem of totally dismantling Ukraine's nuclear weapons.

(**New York Times**, 29/1; **NuclearFuel**, 29/1, 12/2, 25/3; **Ux Report**, 5/2, in **UI News Briefing** 96.06)

e. IAEA Developments

- Victor Mikhailovich Mourogov has succeeded Boris Sememov as Deputy Director General of the Department of Nuclear Energy and Safety. Dr. Mourogov had previously been Director of the Institute of Physics and Power Engineering in Obninsk, Russia.

  Kenji Murakami of Japan has succeeded Svein Thorstensen of Norway as Director of Division of Operations C, in the Department of Safeguards. Mr. Murakami has worked in the Safeguards Department since 1982.

  (**IAEA Press Release** PR 96/2, 23/1; **Nucleonics Week**, 25/1)

f. Peaceful Nuclear Developments

- **Armenia** will receive assistance from France and Germany to improve the safety of the Medzamor-2 VVER-440 reactor, which is now again operating, after it had been in shut-down for six years, following an earthquake. (**Nucleonics Week**, 11/1)

- The plans to resume work on the construction of the VVER-440 nuclear power plant at Juraguá, in **Cuba**, are causing concern in Washington, both among officials and among environmentalists. Cuba and the Russian Federation have formed a consortium to raise the $750 million said to be needed to complete the first unit. As reported on page 6 of **Newsbrief 32**, Russia will contribute $350 million of this sum, Cuba will pay $208 million, and the remainder is being sought abroad. Conservative US sources express the view that the Soviet-made materials used in the reactor are defective, that many of the welds are flawed, that key pieces of equipment are corroded and that the containment is inadequate. In February, there were reports of informal discussions going on within the US about the possibility of cooperating with Cuba to enhance the plant's safety features, notwithstanding the embargo on trade with Cuba. [Following the recent hardening of the US position vis-a-vis Cuba, as a result of the latter's shooting down two US-flag light airplanes which Cuba claims violated its airspace, there would seem to be little chance that this will happen any time soon — Ed.] The Juraguá plant is not included in the US nuclear safety programme for the upgrading of old type Soviet-designed reactors, of which most are in the former USSR and other eastern European states. (**Financial Times**, 20/2; **New York Times**, 25/2)

- In the **Czech Republic**, construction work on the first unit of the Temelin VVER-1000 power station is reported to be 95 per cent complete and the installation of equipment has proceeded to 80 per cent. The second unit is said to be 18 months behind. Instrumentation and control at the plant comes from Westinghouse, which is also supplying newly designed fuel and the reactor core. According to the latest estimates, fuel loading of the first unit will take place in mid-1997. A pool of German insurance firms is said to be ready to provide third-party liability insurance for the two units. (**Nuclear News**, December 1995; **Nucleonics Week**, 1/2)

- In **France**, it was announced on 29 December that a week earlier, the prototype fast-breeder reactor 'Superphénix' had resumed operations. The reactor was cleared initially to operate at 30 per cent of nominal power but in February was given permission to raise the power to 60 per cent. Once operating results have been obtained at that level, authorisation will be sought to raise the power further. (**Enerpresse**, 3/1, 9/1, 5/2; **Nucleonics Week**, 4/1; **NucNet News**, 5/2)

- In **Germany**, consultants for the Federal Ministry of Economics are said to have come to the conclusion that for a variety of reasons, Germany's economy can expand during the next several decades without an expansion in electricity consumption. Consequently the need for nuclear power would be reduced.

  German government officials and scientists, meeting at Tegernsee in Bavaria with US representatives, are reported to have definitively rejected the American demand that the FRM-2 research reactor of the Munich Technical University planned to be built at Garching, near that city, should run on low-enriched uranium, rather than the 93 per cent enriched (weapon-grade) uranium which it is designed to use. A proposal by the German Ministry of Education and Research, to change the reactor design to the point where it could operate on 70 per cent enriched uranium, which would not have required a new licensing procedure, does not seem to have found acceptance. There is said to be concern in Washington that the decision to proceed with highly-enriched uranium may set a precedent for western European countries buying excess Russian weapon-grade uranium for civil uses. German environmentalists have raised doubts about the safety of the Garching reactor, which will be of a novel design.

  (**Handelsblatt**, 3/1; **Nucleonics Week**, 18/1; **New York Times**, 21/1; **NuclearFuel**, 29/1)

- It appears that **Indonesia** is close to a decision to go forward with its plans for its first nuclear power station. Altogether, Indonesia's nuclear-power programme is said to call for the construction of twelve nuclear power plants, given government estimates that in twenty years the island of Java alone will require 32 GWe, of which only 25 GWe would be available from conventional sources. Reportedly, however, various researchers, as well as the World Bank, believe that demand will be lower, conventional energy sources such as gas and coal may be less expensive, and investment capital will be hard to come by. According to an announcement by the Director-General of the National Atomic Agency, Djali Ahimsa, construction of two 900-MWe or three 600-MWe units should start in 1998 or 1999 at Mount Muria in Central Java. A comprehensive feasibility study of the siting by a Japanese company is expected to be completed in May. A number of foreign companies, including Atomic Energy of Canada, Westinghouse of the US, and Japan's Mitsubishi Group, are said to have expressed an interest in supplying the power station; in a departure from the restrictive uranium-export policy followed by the previous government, the new Australian government

has announced that it hopes to sell uranium to Indonesia. Reportedly, the Indonesian government might wish to obtain the reactors under the Build, Operate and Own (BOO) concept, by which it would avoid a large external debt and discourage privatisation. As reported in the international press, critics of the decision, both within the country and abroad, raise doubt about Indonesia's need for nuclear energy and about the geological safety of the presumptive site, which is said to be earthquake-prone. On the occasion of the Seventh International Conference for Nuclear Cooperation in Asia, held in Tokyo in early March, a member of the Indonesian Parliament expressed concern about the seismicity of the site as well as of the entire island of Java, and protested that she had been refused information about seismological aspects of the feasibility study. (**Reuter's**, 24/1, 31/1; **Associated Press**, 24/1; **Enerpresse**, 26/1; **NucNet News**, 30/1; **Jakarta Post**, 30/1; **International Herald Tribune**, 3/2; **International Herald Tribune**, 16-17/3 in **UI Newsbriefing** 96.11; **Nucleonics Week**, 21/3)

- Investigations of the probable cause of the incident at **Japan's** prototype fast-breeder reactor Monju, which led to a leak in the piping and the consequent escape of liquid sodium, started in early January. The amount of sodium that escaped, initially estimated at two to three metric tons (MT), is now reported to have been 0.6 to 0.7 MT; it has all been collected. There has also been a report that what is termed as a 'harmless amount' of tritium, which was present in the sodium that leaked through a vent to the outside of the reactor building, had escaped into the atmosphere. According to the initial report on the investigation conducted on behalf of Japan's Science & Technology Agency (STA) most of the damage resulted from the breaking-off of part of a sodium temperature gauge — one of 48 temperature gauges or sensors, called thermocouple thimbles — inside the secondary sodium piping, outside the reactor containment vessel, which may have been carried into a steam generator or sodium tank. The temperature gauge was difficult to locate but has now been recovered and is undergoing analysis. The likely cause of the accident is said to be metal fatigue at the weld between the temperature gauge and the pipe, caused by repeated vibration and thermal stress; there have also been suggestions that poor welding and corrosion by sodium hydroxide may have contributed to the incident. During investigations in March, however, at least one more thermocouple in the secondary heat transport system was found to have sustained small cracks. This has prompted investigators to speak of faulty design, and is said to have led to concern that other sensors may also have been damaged.

  Attempts by senior plant officials, in what is called a violation of standard procedures, to play down the magnitude of the event by initially suppressing part of the videotapes made of the damage is said to have caused a public outcry and to have angered local and regional authorities. One of the officials of the Power Reactor and Nuclear Fuel Development Corp. (PNC) — the company that operates Monju — charged with the internal investigation of the supposed cover-up, committed suicide after being questioned by reporters about the evidence he had found. STA has entrusted further analysis of the incident to the Japan Atomic Energy Research Institute (Jaeri) and the National Research Institute for Metals (NRIM), both government-owned institutions controlled by STA. Reports on their initial investigations indicate that these have found what are termed serious shortcomings in the installation itself, in operator procedures, in the response to the incident, and in post-accident management.

  Reportedly, Monju is not expected to resume operating for several years. PNC was earlier quoted as believing that the plant would be out of operation until at least March 1998, but shortly before this issue of the **Newsbrief** was finalised, senior officials of the company were heard to say that the plant might need 'massive redesigning and repair', which may keep it out of operation longer. Some experts believe that the work needed to ensure the prevention of similar events will delay any restart of the plant well into the next decade; several commentators have said that it may never start up again. There is speculation that the way in which the public relations aspects of the Monju incident have been handled may affect money supply to the whole fast-breeder reactor project. There have been reports in the Japanese press that construction of the second fast-breeder reactor was likely to be indefinitely postponed. The Japan Atomic Power Co. (JAPCO) has denied this, however, and stated that the nine domestic power companies that control JAPCO still aim to start construction of the new fast-breeder reactor in 2005.

  More generally, some Japanese observers are quoted as expressing the view that the Monju incident may have put the future of Japan's plutonium economy at risk; this view is also reflected in some American trade publications. However, Japan's Minister for International Trade and Industry is quoted in the press as saying that the Monju accident will not make the government change its nuclear policy. In a similar vein, the Chairman of Japan's Atomic Energy Commission has said that while the plutonium demand and supply forecast will have to be flexibly reviewed, the Monju accident will not have an immediate impact on the substance of the long-term programme, which sets the goal of commercial application of fast-breeder reactors as starting around 2030.

  Japan Nuclear Fuel Ltd., the operator of the reprocessing plant at Rokkasho-Mura, and the utility industry have announced that in view of cost overruns and design changes needed to reduce radioactive waste it has been decided to delay the completion of the plant by three years, to 2003. Construction costs are expected to rise to the equivalent of $1.6 billion; this is almost twice the original estimate. It is denied that, as reported in the press, the delay was urged by the utilities in view of uncertainties about the future use of separated plutonium in fast-breeder reactors, which were expected to reduce demand for plutonium in the near future. There also appears to be no further mention of the doubts that were said to be entertained by the nuclear utilities, about future demands for mixed-oxide (MOX) fuel.

  Japan's 1995 Nuclear White Paper included the figures of plutonium held by that country at the end of the preceding year. At that time, reportedly, Japan possessed a total of 13,072 kg of separated plutonium,

of which 4,352 kg was in Japan (836 kg at reprocessing plants, 3,018 at fuel fabrication facilities, and 498 kg at Monju and other reactors) and 8,720 kg abroad (1,412 kg in UK and 7,0308 in France).

(**Atoms in Japan**, November 1995, January; **Enerpresse**, 26/12/95, 5/1; **Plutonium** [Tokyo], Winter 1996; **Süddeutsche Zeitung**, 3/1; **Nucleonics Week**, 4/1, 11/1, 18/1, 25/1, 29/2, 14/3, 21/3; **International Herald Tribune**, 5/1; **Japan Times**, 8/1; **Mainichi Shimbun**, 8/1, 13/1; **Frankfurter Allgemeine Zeitung**, 9/1; **Asahi Shimbun**, 13/1; **New York Times**, 15/1, 24/2; **NuclearFuel**, 15/1, 29/1; **Reuter's**, 23/1, 26/1; **NucNet News**, 15/2; **SpentFUEL**, 19/2; **Kyodo News Service** [Tokyo], 20/2, in **BBC Monitoring Summary of World Broadcasts**, 22/2)

- It is expected that in **Russia**, work on the first VVER-640 power reactor will start in 1996 or 1997, at the site of the 'Leningrad' power station near St. Petersburg. A consortium of experts from France, Germany, the Russian Federation, the UK and the US will help evaluate the safety of Russia's eight oldest power reactors: the four RBMK-1000s at the 'Leningrad' power station, the two VVER-440/230s at Kola, and the two VVER-440/230s at Novovoronezh. (**Nuclear Engineering International**, January; **Nucleonics Week**, 1/2)

- Following the agreement by two major Czech banks to grant a credit towards the completion of units 1 and 2 of the Mochovce power station in the **Slovak Republic**, and Russia's confirmation that it will give a credit of $150 million, the way now seems clear for the resumption of work on that plant. Agreement has been reached between the relevant Slovak and Russian companies on the provision by the latter of the design information for the VVER-440/213 units. Preliminary talks are said to have begun between the principal contractor and western insurers about the provision of third-party liability insurance. In a meeting with Austria's Prime Minister Franz Vranitzky, the Slovak Prime Minister, Vladimir Meciar, has confirmed that Mochovce will be completed. He has repeatedly stated that the plant will have security and control systems of the highest quality and has also been quoted as saying that, once completed, the four-unit Mochovce station will be his country's last nuclear power plant.

  Meanwhile, plans are being made for the upgrading of the first two units of the Bohunice power station, near Bratislava. The European Bank for Reconstruction and Development (EBRD) had made the near-term shut-down of these early-model Soviet-design VVER-440/230 reactors a condition for its support with the completion of the Mochovce power station. Calling the judgment of the EBRD an unqualified political decision, Slovak officials are reported to believe that a wide-ranging, four-year upgrading programme, to be carried out with the help of British, Czech, French, and German firms, should enable the plant to operate until at least 2010.

  (**Reuter's**, 25/1; **Nucleonics Week**, 1/2, 7/3; **East European Energy Report**, February, in **UI News Briefing** 96.08; **Standard** [Vienna], 16/2)

- In **Slovenia**, a new move to stage a referendum on the shut-down of the 664-MW pressurised water reactor at Krsko within ten years has been rejected by the Parliament. A campaign to collect signatures on a petition for such a referendum had been planned to start on the anniversary of the Chernobyl accident, with the support, among others, of Austrian parliamentarians and environmental groups. The Slovenian Parliament has, however, adopted a call on the Slovenian government for the long-term end of the use of nuclear energy. At the same time, it gave permission for the steam generators of the Krsko station to be replaced; this will increase its power by 40 MW. Currently, the reactor is reported to supply about one-third of the country's electricity output. (**Nucleonics Week**, 4/1; **NucNet News**, 12/1)

- In **Sweden**, the question of decommissioning the country's nuclear reactors remains a subject of intensive debate and much speculation. Against expectations, the Social Democratic Party, which initially supported the implementation of the 1980 referendum that mandated the phase-out of nuclear power by 2010, but was recently understood to have departed from that policy, has adopted by a large majority a decision to start decomissioning of one of Sweden's power reactors by 1998. After that it will call for the remainder to be shut down at an even pace; no date seems to have been set for the completion of the decommissioning programme. Prime Minister Carlsson, who supported early decommissioning, resigned in 1995. Former finance minister Persson, who is seen as being opposed to decommissioning if it increases the national debt, was elected recently as the new leader of the Social Democratic Party and nominated as Carlsson's successor as Prime Minister. There appears to be some likelihood that after the elections that will be held in September 1998 and a probable disagreement in the new Parliament on the matter, a referendum will be called which might then reverse the previous decision on decommissioning. It is noted that along with Sweden's heavy industry, its Trade Union Confederation is against a phase-out of nuclear power. Three decisions taken since the 1980 referendum: not to add to hydro-power; to reduce the use of fossil fuel; and to keep the price of electricity low, combined with the conclusion that most of the existing reactors will be viable for another fifteen years are seen by many as good grounds to put off a definitive decision for at least another ten years. Deregulation of the electricity market at the beginning of the current year has reportedly sparked an advertising campaign in which the utilities stress the environmental advantages of nuclear energy. (**Nucleonics Week**, 25/1, 22/2, 7/3, 21/3; **Die Welt**, 30/1; **Reuter's** 17/3 in **UI Newsbriefing** 96.11)

- In the run-up to the 10th anniversary of the nuclear accident at Chernobyl in **Ukraine**, that country's government has called for international assistance in combatting the consequences of that event. The actions involved would include the treatment of growing numbers of children suffering from thyroid cancer, resettlement of several thousands of families that were evacuated, and the assignment of living quarters to families of invalids. Funds are also needed for the

reconstruction of the sarcophagus over the ruined unit 4 and for the construction of waste storage.

While the government in Kiev has committed itself to close down the entire Chernobyl power station by the year 2000, and the G-7 countries and the European Communities have promised to provide $2.3 billion to this end, Ukraine's parliament is said to have urged President Kuchma to obtain guarantees from the West that the financial aid will be forthcoming, before concrete steps are taken towards the shut-down of the station. Ukraine's minister for environment and nuclear safety, Yuri Kostenko, is reported to have said that the promised foreign aid may not suffice to adequately decommission the station, dispose of the radioactive waste, and find alternative energy sources. He is also quoted as saying that procedures for obtaining financial aid from the West are so complex and time-consuming that Ukraine will not be able to meet its undertaking to close the station down in 2000. It is reported that when Germany's minister for the environment visited Ukraine in February, the manager of the Chernobyl power station told her that the plant 'might' be closed in 2007, and the mayor of the town of Slavutich, where the plant staff are housed, supposedly said it would not be shut until 2009–2011. Following the minister's visit, German officials have expressed skepticism that the station will be shut down any time soon, partly given the fact that plant management seem to be planning to backfit the two operating units so as to keep them in service for another fifteen years. Contrary to its previous position, the German government now reportedly feels that it should encourage and assist the efforts of German industry to upgrade the safety features at the two working units, while continuing to promote an early shut-down of the station. The German reactor safety authority now apparently holds the view that although the RBMK reactors of the type operating at Chernobyl still have safety deficiencies, the worst features arising from their particular design have now been taken care of and a repetition of the 1986 event is virtually impossible.

Meanwhile, in preparation for an IAEA meeting to be held in April on the consequences of the Chernobyl accident, a Russian expert who helped design and build the original shelter (the 'sarcophagus') around the ruined unit 4, has written a report in which he points out that the stability of the structure is uncertain. Given the fact that the shelter is not hermetically closed, according to the report, a collapse might cause the release of radioactive dust into the atmosphere. The expert calls for urgent action to stabilise the structure, rather than waiting for a new shelter to be completed. At the same time, German and Russian nuclear safety experts have concluded that the reactor lid of the wrecked unit, which was blown off its support in the accident and is still hanging at a sharp angle, if dislodged by an event such as an earthquake is not likely to crash violently down, as feared, but would slide to the bottom of the reactor vessel, without unleashing massive amounts of radioactive dust.

(**Nucleonics Week**, 4/1, 11/1, 18/1, 15/2, 22/2, 29/2; **Reuters**, 13/2; **NucNet News**, 29/2)

g. Weapons-related Developments in Nuclear-Weapon States

- **France** has advised its NATO partners that it is willing to discuss the role its independent nuclear forces could play within the alliance. During a state visit to Washington, in early February, President Chirac outlined his country's views on European cooperation in nuclear defence to a joint session of the US Congress. (**New York Times**, 18/1, 15/2)

- **Russia** is reported to plan the removal of most of its separated plutonium to a central storage area at Ozersk — formerly Chelyabinsk-65, in the southern Ural Mountains. (**Nucleonics Week**, 4/1)

- As part of its post-Cold War programme of transparency, and partly in hopes of enticing other nuclear-weapon states to do likewise, the **United States** Department of Energy (DoE) has published information about the amounts of plutonium which, in the period from 1945 until 1994 when production ceased, it has produced or acquired, has in stock, and has exported to other countries. In a report with the title *Plutonium: The First Fifty Years*, DoE has disclosed that in the fifty years in question, the US produced or acquired 111.4 metric tons (MT) of plutonium. A total of 12 MT has been removed from the inventory: 3.4 MT expended during World War II and in nuclear tests; 3.4 MT as waste; 1.2 MT lost through fission or transmutation; 0.4 MT lost through decay; 0.1 MT transferred to civilian industry; 0.7 MT in exports and 2.8 MT or 2.5 percent of the total inventory in what the report calls 'inventory differences'; the latter discrepancy is said to be due to differences in measurement which are in the process of being reconciled. The 749 kg of plutonium exported went to 39 countries, mainly under the Atoms for Peace Program, and principally for the purpose of reactor development. The major recipients received a total of just over 740 kg (Australia 6.4 kg; Belgium 11.8 kg; Canada 3.5 kg; France 41.5 kg; the Federal Republic of Germany 518.1 kg; Italy 2.3 kg; Japan 113.5 kg; Sweden 9.3 kg; and the UK 33.9 kg) and of the remainder, Brazil, Columbia, Denmark, India, Iran, New Zealand, Pakistan, South Vietnam, Taiwan, Thailand, and Uruguay each received 1 kg. Seventeen countries, including Iraq, Israel and South Africa, and the IAEA, reportedly received less than 1 kg. In its turn, the US is said to have received a total of 5.8 MT of plutonium from 14 countries, some of it in spent fuel of American origin irradiated in research reactors. According to the report, most of the imported foreign plutonium — 5.4 MT — came from the UK under the Mutual Defence Agreement of 1958, in exchange for 6.7 kg tritium and 7.5 MT HEU.

  The current total American plutonium inventory, including all nuclear weapons and stockpiles, is reported to be 99.5 MT, constituting 93 per cent of the plutonium produced in or acquired by the US since 1944 — an amount experts say is much less than half the world's total, with the Russian Federation holding most of the remainder. The inventory is reported to include 85 MT of weapons-grade material (mostly Pu-239 and less than 7 per cent Pu-240), 13.2 MT fuel grade (between 7 per cent and 19 per cent Pu-240) and 1.3 MT reactor grade (more than 19 per cent Pu-240).

Of the weapons grade plutonium, 38.2 MT has been declared surplus and is stored at various sites around the country. One element of the new policy of openness is the disclosure of the sites where the excess plutonium and the 174.3 MT of highly enriched uranium which US President Clinton last year declared to be in excess of weapons needs, are currently stored.

(**New York Times**, 6/2; **Washington Post**, 7/2; **SpentFUEL**, 12/2; **NuclearFuel**, 12/2)

- The **US** Department of Energy has also published its plans for a dual-track tritium-production policy. As expected (see **Newsbrief 32**, p. 11) the DoE will study the possibility of buying an existing commercial reactor or obtaining irradiation services there, and will also pursue its studies on the production of tritium in an accelerator. The primary source is to be chosen in three years, with the other option to be developed as back-up. In trying to assess the feasibility of the purchase and lease options, the DoE has begun to sound out industry about its interests. Reportedly, initial soundings reveal a high level of interest; a first meeting organised for the purpose by the Department is said to have been attended by 70 representatives of the nuclear industry, citizens' groups and government agencies. Some utility representatives, however, have expressed concern about negative publicity — the phrase used is 'a public relations nightmare' — that might arise from their involvement in plutonium or tritium production. (**Nucleonics Week**, 4/1, 18/1, 25/1; **NuclearFuel**, 15/1; **SpentFUEL**, 22/1)

- Also in the **United States**, the DoE is said to be faced with so much classified documentation that it is unable to determine what may be declassified and what may not; the Department's budget contains $9 million a year for declassification, but this is said to be insufficient for a thorough review. Reportedly, there is a great deal of information still classified which has long been general knowledge. Some of this is understood to be potentially useful for environmental purposes, and there have been suggestions to have it declassified as soon as possible. On the other hand, there are suggestions that some information may have been declassified that should have remained secret. (**New York Times**, 7/2, 18/2)

- On 28 February the **United States** Secretary of Energy announced plans for managing and maintaining the country's nuclear stockpile in coming decades. Published as part of a 'draft programmatic environmental impact statement' these plans anticipate the reduction of the nuclear-weapons production establishment, cutting 3,600 jobs and lowering annual costs from $1.5 billion to $1 billion. The plans are said to be predicated on the maintenance of a stockpile of 3,500 strategic warheads, as specified in the START II agreement. They are also reported to provide for the maintenance of a non-specified number of other nuclear weapons which could be reduced or expanded, depending on circumstances. Reportedly, establishments that would be reduced drastically in size include the Pantex Plant at Amarillo, Texas, which would be shrunk by two-thirds when most of the dismantling work now underway there is completed, in 2003; the Oak Ridge Reservation in Tennessee, whose principal job it is to manufacture nuclear triggers; and the Kansas City Plant in Missouri, which makes non-radioactive bomb components. It is foreseen that new plutonium 'pits', which used to be made at Rocky Flats, would in future be manufactured at the Los Alamos National Laboratory in New Mexico. (**New York Times**, 29/2)

h. Proliferation-related Developments

- The first shipment of equipment — drilling machines, a mud pump, and geological survey equipment — to be used in the construction of two light-water power reactors at Sinpo, on the northeast coast of the **Democratic People's Republic of Korea**, left South Korea on 14 January, on a Chinese vessel.

  In January, Pyongyang announced that after the signature of the supply contract for the light-water reactors (which has since taken place) the IAEA would be permitted to inspect all declared nuclear facilities. In March it was reported, however, that the DPRK authorities had refused Agency inspectors permission to take and analyse samples of the stored fuel from the 35-MW reactor to determine its plutonium content.

  The fact that the DPRK has suggested to the Korean Economic Development Organization (KEDO) that negotiations on a follow-up agreement be held in Sinpo, the presumptive site of the light-water reactor station, is seen in South Korea as a positive move, attributed to Pyongyang's wish to demonstrate its cooperative attitude.

  Besides Japan, the Republic of Korea and the US, KEDO's founding members, the organisation includes Australia, Canada, Finland and New Zealand. Argentina, France and Indonesia are reported to have expressed interest in joining. During a recent visit to Singapore, President Kim Young Sam of the Republic of Korea suggested that Singapore should join KEDO. Russian Deputy Foreign Minister Aleksandr Panov has announced that his country may participate in the implementation of the agreement between the DPRK and KEDO, if it is given an opportunity to participate in a 'really weighty' manner.

  In the course of 1995, KEDO reportedly exported 150,791 tons of heavy oil to the DPRK, at a cost of $15,580,200. In February 1996, KEDO was said to have problems in finding funds for the next shipment of heavy fuel oil. Part of the difficulty apparently arose from the US impasse on the Federal budget. In January, the US was said to have notified South Korea that it would not be able to pay more than the $19 million already in its budget for the 500,000 tons promised to the DPRK for 1996, which was estimated to cost between $50 and $60 million. It was subsequently announced that Japan would contribute $19 million, the European Union (EU) $6.3 million (equivalent to 5 million ECU; Washington is understood originally to have asked the EU to contribute $20 million) while the $22 million earmarked for the purpose in the US, which had been tied up during the budget impasse, has now been released to KEDO, which expects that it now has enough to fund oil supplies through the current year.

  At one time during the three-month period covered by this issue of the **Newsbrief** there was said to be a difference of views among the US, South Korea and

Japan regarding the eventual repayment of expenses by the DPRK. Japan is understood to have asked South Korea to guarantee the repayments. A reported disagreement between South Korea and the US, about the amount of oversight the American firm that will act as 'program coordinator' is to have over the reactor project, seems to have been settled. Meanwhile, technical survey work at the Sinpo site is proceeding; a fourth site survey is about to be made and the designation of the site is expected to be formalised soon. KEDO apparently hopes that the first reactor will be completed in 2001/2002 and the second one year later.

In Hawaii, discussions between the DPRK and the US resumed early in the year about the establishment of a joint mission to recover remains of American servicemen killed in the Korean War. The talks adjourned in mid-January, without apparent results, and the Foreign Ministry in Pyongyang announced that the Northern recovery team would be disbanded because Washington had not paid compensation for the remains found so far. Talks among Japanese, South Korean and US officials about regional security issues and the possibility, referred to below, of extending aid to the North also took place in Hawaii.

The South Korean Ministry of Foreign Affairs has denied a report in a Japanese newspaper that the DPRK and the US had held secret talks in which they had agreed on conditions for improving bilateral relations. The US Administration has given Seoul the assurance that it will not seek to improve relations with the DPRK at the expense of South Korea's interests. There is a report that the US has 'quietly' dropped the DPRK from the 'pariah' list of nations with which US firms should not do business. In early March, Pyongyang reportedly suggested to the US the conclusion of a provisional agreement to replace the 1953 armistice agreement. The California-based Nautilus Institute for Security and Sustainable Development confirms that there is sufficient evidence to conclude that there are currently no US nuclear weapons in Korea. The same source adds, however, that, although this is highly unlikely, nuclear weapons could be reintroduced in the future; US Forces in Korea (USFK) continue to maintain the organisational infrastructure needed to conduct nuclear operations in the area. Nautilus adds, however, that the residual infrastructure is 'minimalist' and that since the key support and delivery units have been removed reintroducing US nuclear weapons would be extremely difficult. It also claims that the residual activities may send an undesirable message as to the utility of nuclear weapons and notes that there is no strategic reason for their continuation.

The US are said to be concerned about the possibility that the famine in the northern part of the Korean Peninsula may lead to a destabilising incursion of refugees into neighbouring states, and perhaps even to military action of the DPRK against the RoK. According to recent UN reports, 500,000 people in the North are left homeless as a result of the flood, which is held responsible also for an additional 700,000 tons of the grain shortfall of 1.7 million tons in 1995. In late 1995, the UN had issued an appeal for $15 million for assistance, of which so far only one third is said to have been met. In early February, Washington decided to give the DPRK — which is still subject to a trade embargo imposed in 1950 — food assistance worth US $2 million to be channelled through the World Food Programme, in addition to the $225,000 already granted for this purpose. During the trilateral discussions in Hawaii, Japan and South Korea did not consent to give special assistance because they claim that food shortage in the North has not yet reached a level that would warrant it. Meanwhile, the discussion may well be moot, because Pyongyang has let relief organisations know that it no longer seeks international assistance and that they should cease their appeals for funds. Reportedly, the DPRK's Foreign Ministry wishes the assistance to continue but the military do not agree to a public acknowledgement of the existence of economic problems and are opposed to the presence of foreigners in the country. On the other hand, according to a news agency report from Pyongyang, the government of the DPRK has publicly thanked the US for its assistance.

The matter is seen as adding to the tension between the two Koreas which was already said to be on the increase. In late January, there was a report that the DPRK had moved 110 combat aircraft and artillery to the border area. Military analysts see the likelihood that in the case of an armed conflict the North will use chemical weapons. American observers have noted that recent exercises of the DPRK army have been at a much lower level than before, which is interpreted as being due to a lack of fuel.

(**Yonhap** [Seoul], 15/12/95, in **FBIS-TAC**-95-007, 27/12/95; **ITAR-TASS**, 29/12/95, in **BBC Monitoring Service**, 3/1; **Yonhap News Agency**, [Seoul], 6/1, in **BBC Monitoring Service**, 8/1; **Standard** [London], 7/1; **Hanguk Ilbo** [Seoul], 10/1, in **BBC Monitoring Service**, 11/1; **Financial Times**, 15/1; **International Herald Tribune**, 15/1, 6/2, 9/2; **New York Times**, 15/1, 21/1, 28/1, 3/2, 8/2, 14/2, 18/2; **Munhwa Ilbo** [Seoul], 20/1; in **BBC Monitoring Service**, 23/1; **Kyonghyang Sinmun** [Seoul], 22/1, in **BBC Monitoring Service**, 23/1; **Nucleonics Week**, 25/1, 7/3; **Reuter's**, 30/1, 9/2, 26/2; **Nautilus Bulletin**, February; **Journal of Commerce**, 2/2; **Washington Post**, 3/2; **Nautilus Institute on Internet**, 4/2; **Korea Central News Agency** [Pyongyang], 4/3; **Christian Science Monitor**, 8/3; **KBS Radio Seoul**, 13/3, in **BBC Monitoring Service**, 15/3)

- In connection with the procedure for congressional approval of the US/EURATOM agreement, three members of the US Congress have asked the President to provide a list of countries that have 'aided **Iran**'s efforts to develop weapons of mass destruction, including firms supplying the assistance...'. In his response President Clinton points out that in his letter transmitting the new agreement to Congress he has determined that the agreement 'will promote the common defense and security of the United States'.

  At Hanau, in Germany, where the Siemens company has begun decommissioning the fuel fabrication complex that became redundant when German utilities abandoned the use of Mixed-Oxide (MOX) fuel, 450 MT tons of uranium hexafluoride belonging to Iran are still held. The material was intended as feedstock for the first cores of the two 1,300 power reactors Siemens

was to have built at Bushehr. The German government has forbidden the export of the material, which will be stored by Siemens until a decision is taken on its final disposition.

The US Congress has authorised the Central Intelligence Agency (CIA) to mount an $18-million covert action 'designed to force the replacement of the current regime in Iran'. Initiated by House Speaker Newt Gingrich, this is part of a supposedly secret bill authorising intelligence spending. News about the plan — which is said to be resisted by the US Administration as well as by the CIA itself — had leaked out in the Autumn of 1995 and has triggered strong reactions in Iran, where the Parliament is reported to have authorised a fund of $20 million to uncover and neutralise US conspiracies and interference in Iranian affairs.

During a visit to Israel, last year, Alfred Nzo, South Africa's Foreign Minister, assured Israeli authorities that his country had not entered into any agreement concerning nuclear cooperation with Iran.

It has been reported in Bonn, that Karl Schaab, the German technical expert who is supposed to have supplied Iraq with secret centrifuge technology purloined from the Urenco programme (see next item, on **Iraq**), may be in Iran and has requested asylum there.

The IAEA is said to be planning to take up with Teheran the allegations that Iran is working on a clandestine pilot enrichment programme. It is noted that if Iran is indeed conducting a laboratory-scale enrichment effort, this may not yet have reached the level at which the safeguards agreement requires the Agency to be notified.

(**Jerusalem Post**, 14/9/95; **SpentFUEL**, 8/1, 29/1; **NuclearFuel**, 5/1; **New York Times**, 26/1; **Nucleonics Week**, 8/2, 22/2)

- There is convincing evidence that **Iraq**'s nuclear-weapon programme has been assisted by a number of foreign nuclear scientists, who made important contributions. One report says that among them was a German scientist who was working for the German firm of MAN, a subcontractor of Urenco, where he stole a set of top-secret blueprints and key components for the TC-11 super-critical gas centrifuge for uranium enrichment, which he sold to Baghdad for what is said to have been less than $350,000. Part of the information he apparently supplied was in the form of personally acquired know-how. Thus, it now turns out that already before 1991 Iraq possessed a viable uranium-enrichment programme, using the most up-to-date European technology. The information has emerged from the documentation that surfaced in 1995 after the defection of Lieutenant General Hussein Kamel, former Minister of Industry and Military Industrialisation of Iraq, and has been confirmed by the IAEA. The disclosure is said to have added to doubt that Iraq has yet informed the IAEA about the full extent of its nuclear activities. The IAEA has revealed that about a dozen western firms had sold equipment that was used in Iraq's nuclear programme.

  The person suspected of having supplied Iraq with the TC-11 technology is said to be a German national, Karl Schaab, who worked in the Urenco programme as a 'technical expert' and later set himself up as a consultant. Together with his wife, Schaab was arrested in Austria and convicted three years ago for having exported carbon fibre centrifuge rotors to Iraq. The pair were reportedly fined and given a suspended prison sentence. In January, rumour still had it that after their conviction, the two had gone to Brazil. According to more recent reports, however Schaab himself has now revealed that he had obtained asylum in Iran. (See previous item)

  It has further been disclosed recently that another German technical expert, Bruno Stemmler, who also worked for Urenco, had in 1988–89 sold Iraq blueprints of that company's less advanced G-1 and G-2 centrifuge machines. Stemmler, who is said to have been last spotted on Tenerife, in the Spanish Canary Islands, is supposed to have since died.

  The IAEA has confirmed the involvement of both men.

  The disclosures about the sales of secret enrichment technology to Iraq have triggered internal investigations of the security at the Urenco enrichment consortium, in Germany, the Netherlands and the UK. The investigation, said to have been assisted by the governments of the countries concerned, is understood not to have found breaches of security; the company's management was quoted as saying that it could not have prevented the diversion of know-how by personnel. Reportedly, however, American experts are critical of what they see as clear indications of major security problems.

  There are also said to have been leaks of important information on gas centrifuge technology from a subsidiary of the German engineering firm Siemens. Reportedly, the IAEA has come to the conclusion that Iraq obtained more know-how from that company than initially thought, including knowledge on the design of cascades for uranium enrichment. Siemens has denied that it knowingly helped Iraq with its nuclear weapon programme. There is suspicion that the information has come from a staff member of the Siemens subsidiary, Interatom GmbH. It also seems that Iraqi trainees who worked at Interatom as 'welders' were really expert centrifuge design engineers. The IAEA is said to have clear indications that Interatom built at least part of a centrifuge manufacturing plant in Iraq — a contention also denied by Siemens.

  Late in 1995 there was a report about disagreement between the Russian Federation on the one hand, and the UN Special Commission and the IAEA on the other hand. Russia has undertaken to process nuclear material from Iraq's research reactors but apparently has now made demands, particularly of a financial nature, which the two organisations are apparently unable to meet.

  On 20 February Lt. General Hussein Kamel and his brother Col. Saddam Kamel returned to Iraq from Jordan, in the assumption that they had been forgiven by their father-in-law, Saddam Hussein, for their defection. Shortly after their arrival in Baghdad they were killed as 'traitors', together with their brother and father, reportedly by members of their family. The Iraqi news agency has reported that just before they were put to death they had been divorced by their wives.

Added to the recent disclosures about the extent of Iraq's programmes for the production of weapons of mass destruction, these developments are expected to reduce the likelihood that over-all sanctions will be relaxed within the near future, notwithstanding persistent efforts of France and Russia, among others, to bring this about. Discussions are being held between Iraq and the UN on the implementation of the provision in UN Security Council resolution 986, which allows it to sell $2-billion worth of oil every six months, in exchange for food and medicines to be dispensed under UN observation. Until recently, Iraq had refused these terms but in February it indicated that it might accept them. 'Considerable progress' is reported to have been made in talks held in March at UN headquarters on the actual arrangements, but there are still said to be some unresolved issues, notably the way in which any profits on the sales would be shared with Iraqi Kurds.

According to the UN Special Commission, Iraq is still not fully cooperating in the investigation of its weapons programmes. In March, inspectors looking for new documentation on that country's clandestine efforts to produce various types of weapons of mass destruction were prevented from entering a government building where they had reason to believe that relevant information was to be found. After an eighteen-hour stand-off, they were given access but the results of the search have not been published; there was a report that the delay had given the Iraqi's time to remove incriminating material. A few days later, inspectors were again delayed in their attempts to investigate a military installation where they suspected relevant information was to be found. There is concern in UN circles that the incidents form part of a pattern of Iraqi attempts to conceal its continuing efforts to develop weapons of mass destruction. Ambassador Rolf Ekéus, head of the Special Commission, is quoted in the press as saying that Iraq's weapons-efforts may have to be monitored for the next twenty years.

On 15 February in the UK, a judicial investigation into reports that, contrary to British law, equipment for the manufacture of sophisticated weapon systems had been sold to Iraq with the knowledge of the government, has been completed. The investigation, started in 1992 by Lord Justice Scott (later Sir Richard Scott following a judicial promotion), has concluded with criticisms of several senior Ministers and officials, many of whom have by now retired from government. Press and Parliamentary attention focused on two current Cabinet Ministers — one said to have deliberately misled Parliament about the government's policy on sales of defence-related machinery to Iraq and the other to have misled colleagues about the Matrix Churchill court case and not to have fully informed the prosecution. While the report did not find that the individuals in question had acted duplicitously, it does hold that, in fact, the approval given for these exports amounted to a change in policy of which Parliament had not been made aware, notwithstanding many questions on the subject. Following a seven-hour debate in Parliament, on 26 February, on the way it had handled the matter, the current Conservative Government, which has lost much support recently, just survived a vote formally held on a motion to adjourn, but in fact representing a judgment on the way it had handled the issues described in the 'Scott Report'.

The Scott investigation followed a court case against executives of the firm Matrix Churchill, who were accused of violating government policy against the export of arms-producing equipment to Iraq, but were able to show that they had been actually encouraged by the government to do so, in hopes that they would gain insights into Iraq's plans for arms production, including in particular, the production of weapons of mass destruction. Sir Richard Scott cites contemporary official documents which indicate that the government in the late 1980s were aware of elements of Iraq's nuclear-weapon programme. More recently, in a case that has some similarities to the Matrix Churchill affair, Paul Grecian, an arms dealer initially sentenced in the UK for having sold artillery fuses to Iraq, but acquitted on appeal on the ground that he had been spying in Iraq for the British government and the deal was part of his cover, has been arrested in South Africa pending possible extradition to the US. The American authorities charge him with breaking US law and reject the argument of 'double jeopardy' because the fact that he was a British intelligence agent does not exonerate him in the US.

(**Standard** [Vienna], 26/12/95, 7/2; **Independent**, 19/1, 6/2, 8/2; Extra issue of **NuclearFuel** and **Nucleonics Week,** 22/1; **Reuter's**, 25/1; **New York Times**, 26/1, 14/2, 15/2, 16/2, 21/2, 24/2, 25/2, 28/2, 10/3, 11/3, 19/3; **Süddeutsche Zeitung**, 27/1; **Spiegel**, 29/1; **Daily Telegraph**, 5/2; **Times** [London], 5/2, 6/2, 8/2, 14/3; **Financial Times**, 6/2, 7/2; **International Herald Tribune**, 7/2; **Washington Post**, 7/2; **Guardian**, 8/2; **Nucleonics Week**, 8/2; **NuclearFuel**, 29/1, 12/2, 26/2; **Economist**, 10/2; **Reuter's**, 12/2, 12/3; **Report of the Inquiry into the Export of Defence Equipment and Dual-Use Goods to Iraq and Related Prosecutions**, House of Commons Paper 115, 1995–96)

- The official press agency of **Libya** is quoted by western news agencies as calling for Arab states to acquire nuclear weapons. (**Agence France Presse** and **Reuter's**, 27/1, in **Disarmament Diplomacy**, February)

- According to American intelligence, in 1995 **China** sold **Pakistan** 5,000 (one report speaks of 6,000) magnet assemblies for the top suspension bearings of centrifuge rotors, allegedly to be used at the Kahuta uranium enrichment plant, which, according to western officials quoted in the American trade press, Pakistan continues to upgrade with improved centrifuge technology. The evidence is seen as convincing enough to warrant the imposition of trade sanctions against China, pursuant to US legislation which instructs the President to suspend financing by the US Export-Import Bank to nations that sell nuclear-weapon technology. The law also makes it possible, however, for the Administration to decide that the imposition of sanctions would be against the national interest, and to waive the penalties. This is seen as particularly important in light of the fact that credits from that bank for Chinese projects, amounting to about $10 billion, are still pending. Given what is said to be compelling evidence of Chinese breaches of US law and of its obligations under the NPT, and against the background of domestic pressure and

demands in Congress for a tougher policy regarding China, the US Administration is reported to have given serious consideration to a pragmatic approach in the matter, under which it would formally impose the broad sanctions provided by law but would then immediately waive them in the national interest, and would impose narrower penalties in the form of tariffs on some Chinese imports and restrictions on the export of American high-technology items sought by China. While these suggestions were criticised by many as showing a lack of resolve on the US side, others supported them as a wise course towards resolution of open issues with China, at a time when the US seeks to avoid that the latter's confrontation with Taiwan leads to an open conflict.

Meanwhile, discussions are said to have been held between Washington and Beijing to establish the exact facts in the case and to seek ways to avoid similar events occurring in future. China's Vice Foreign Minister, who visited Washington in mid-February, has not denied the existence of Sino-Pakistani contacts in the area of nuclear energy, but has stressed that China's sales to Pakistan were part of legitimate peaceful cooperation between the two states. A Foreign Ministry spokesman in Beijing has said that the CIA reports are unsubstantiated rumours and reiterated that China conducted normal international cooperation in the peaceful utilisation of nuclear energy not only with Pakistan, but with a number of other countries, entirely in conformity with the NPT and with standards set by the IAEA. Any nuclear supplies to Pakistan, according to the Foreign Ministry spokesman, are similarly under IAEA safeguards.

Pakistan officials, evidently concerned that this new development will once again trouble relations with the US, have denied that any supply of weapons-related equipment has taken place and alleged that the reports were fabricated to cover India's development of the *Prithvi* ballistic missile. Prime Minister Bhutto herself has vehemently denied the reports. The situation was further complicated by media reports from Sweden and the UK, and supposedly officially confirmed in both countries, that a Pakistani national, working as an accountant at his country's High Commission in London, had bought sensitive laser measuring equipment, which was impounded by customs agents in London when it was being shipped to Pakistan. The equipment was said to have been intended for use in Islamabad's nuclear programme. While flatly denying the allegation, the Pakistani High Commission reportedly dismissed the person concerned — who appears to have been locally recruited and did not have diplomatic status — and has not raised objections against the expulsion order issued against him. After reportedly considering retaliating against Pakistan for its supposed purchase of nuclear components from China, the US Administration decided in March against any further delay in the shipment of $368 million of military supplies under the so-called Brown amendment, which provides for a one-time exemption from US legislation prohibiting military exports to Pakistan, on condition that the latter takes no further steps to develop nuclear weapons. The decision to approve the exports in apparent disregard of Pakistan's nuclear activities has been criticised in the US Congress as a serious departure from established American non-proliferation policy.

There are reports that Pakistan is in fact stepping up its nuclear weapons programme. It appears that after concentrating on the production of highly-enriched uranium, Islamabad is now also interested in the use of plutonium. It has been reported in Washington that China is still helping Pakistan with the construction of a plutonium-production reactor and an ancillary facility which American intelligence sources think might be a fuel fabrication facility or a reprocessing plant.

From India comes a report that Pakistan is building a second enrichment plant, at Golra, west of Islamabad, but US sources are cited as believing that this may be a small pilot installation. India itself is reported to be engaged in the construction of an enrichment facility. Neither country seems to have informed the other of the existence of these facilities, as provided in the 1988 agreement which prohibits attacks on such facilities.

(**Washington Times**, 5/2; **New York Times**, 8/2, 16/2, 21/2, 21/3; **Nucleonics Week**, 8/2, 15/2, 22/1, 29/2; **Reuter's**, 8/2, 15/2; **International Herald Tribune**, 9/2, 19/2; **Washington Post**, 9/2, 10/2, 12/2, 15/2; **Wall Street Journal**, 12/2; **Independent**, 13/2; **Times** [London], 13/2; **Financial Times**, 13/2; **Standard** [London], 18/2; **China Daily** [Islamabad], 27/2)

i. Illicit Nuclear Trafficking

- An official intelligence source in **Germany** has alleged that **Iran** and **Iraq** have used undercover agents to buy nuclear material on the black market; Berlin is mentioned as a possible centre. Earlier reports, mentioned in PPNN **Newsbrief 29**, that Iran used a small private airport at Hartenholm, near Hamburg, to trans-ship nuclear items to the Middle East have been denied by German federal investigators. German sources do indicate, however, that the facility is used by Iranian agents for the shipment of conventional arms to Iran, via Turkey. The author of the original report, which appeared in the German magazine *Focus*, has since retracted his allegation. Apparently, there is no agreement among German intelligence authorities as to whether Iran has or has not attempted to buy weapons-grade nuclear material in Germany. A claim to this effect made by the German foreign intelligence agency has been rejected by Iran. (**Reuter's**, 18/1; **Nucleonics Week**, 1/2)

- In an apparent 'sting' operation, police in **Lithuania** are said to have arrested seven persons who were trying to sell 100 kg of non-specified 'highly radioactive material' believed to be uranium. The material is thought to have been brought into the country from one of the former Soviet Republics. In March, Lithuanian police and security forces found a partly empty RBMK fuel rod which is thought to be from the assembly that had been missing from the Ignalina power station for at least three years. It is believed that the rest of the assembly may still be buried near the plant. A search is expected to begin once the ground thaws out. In 1994, several people were arrested trying to sell uranium believed to be from the same assembly; one of them, a former guard at the Ignalina plant, escaped. At the time, it was said to be unlikely that the assembly — which

weighs 280 kg and contains about 200 kg of uranium — had been removed from the facility; some observers reportedly believed that it was still hidden somewhere inside the plant to hide the fact that it had been damaged. (**Reuter's**, 12/2; **ITAR-TASS**, 15/2, in **BBC Monitoring Summary of World Broadcasts**, 17/2; **Nucleonics Week,** 14/3, 21/3)

- In **Russia**, the Ministry of Atomic Energy (Minatom) has restricted access by foreigners to engineering test laboratories, defence-related design institutes and fissile material production centres. Reportedly, this was done in response to attempted thefts of know-how by experts from **China**. US officials are said to fear that these measures will not prevent China from getting classified information about Russia's centrifuge programme, and that the training programmes associated with the re-construction of the power station at Bushehr will enable **Iran** to get nuclear-weapon-related information. Minatom has denied the likelihood of either eventuality.

  In mid-February, the new Foreign Minister of Russia, Evgeny Primakov, was reported to have advised the German government that the plutonium oxide that was smuggled from Russia to Germany in 1994 and impounded at Munich airport, had been of Russian origin, as claimed by the German intelligence service but consistently denied by Minatom. The material was said to have been stolen at the Obninsk research centre and sold by four Russian citizens. Since then, however, the Russian Federal Security Service has denied saying (in a letter addressed to the Justice Ministry in Bonn, in which it reported that there was plutonium missing from a research reactor at Obninsk) that the plutonium was of Russian origin; the Security Service claimed that the letter merely contained a request for a sample of the smuggled material to analyse. Bonn has since said it was ready to accede to the request.

  A report prepared by the US General Accounting Office for the subcommittee on investigations of the Senate Government Affairs Committee claims that large amounts of weapons-grade uranium and plutonium in former Soviet republics cannot be accounted for and pose a 'primary national security concern' for America. According to the report, which was released on 13 March, the lax security procedures at many civilian and military nuclear installations throughout the former USSR make these an easy target for smugglers and terrorists.

  (**Nucleonics Week**, 4/1, 8/2; **Der Spiegel**, 15/1; **Reuter's**, 10/2, 14/2; **Independent On Sunday**, 11/2, in **UI News Briefing** 96.06; **Neue Zürcher Zeitung**, 12/2; **Süddeutsche Zeitung**, 12/2; **New York Times**, 13/2; **ITAR-TASS**, 14/2, in **BBC Monitoring Summary of World Broadcasts**, 16/2; **Washington Post**, 14/3)

- There is a report from **Switzerland** that a man was detained there with a sample of slightly enriched uranium of which he offered to supply a greater quantity from **Turkey**. Subsequently, Turkish police arrested eight more people and reportedly impounded 1.2 kg of what is described as 'radioactive material'; the enrichment level of the material is not specified. (**Reuter's**, 1/2; **Neue Zürcher Zeitung**, 2/2)

- The **United States** is said to be working on an agreement among the G-7 (Canada, France, Germany, Italy, Japan, UK and US) and Russia on cooperation in combatting the illicit trafficking in nuclear material.

  The US Senate has adopted a bill that will increase from 20 to 30 years of imprisonment the penalty for sabotage of a train or motor vehicle carrying high-level nuclear waste. The measure would be particularly relevant once the number of shipments will increase as a result of the establishment of a centralised waste repository. The American press carries reports about the work of the Nuclear Energy Search Team that has been established to unearth and neutralise attempts by terrorist groups to obtain material to make nuclear explosives.

  (**Reuter's**, 29/11/95; **Energy Daily**, 5/12/95; **Time**, 8/1)

- On 13 March, a '**Conference of Peacemakers**' was held at the Egyptian resort town of Sharm al-Shaykh, with the stated purpose of bolstering the Middle Eastern peace process, promote security and fight terrorism. Participants included Presidents Mubarak of Egypt, Clinton of the US, Yeltsin of Russia, Demirel of Turkey and Chirac of France; Kings Hassan II of Morocco and Hussein of Jordan; Chancellor Kohl of Germany and the Prime Ministers of Canada, Ireland, Israel, Italy, Norway and the UK; President Arafat of the Palestinian National Authority; representatives of several Gulf states; the Foreign Minister of Japan; and UN Secretary-General, Boutros Ghali. The Conference was chaired jointly by Presidents Mubarak and Clinton. Their joint statement at the end of the Conference '... emphasize[d] their strong condemnation of all terrorist actions, in all their infamous forms ...' The statement reasserts the determination to resist these actions with the utmost firmness, and with specific regard to terrorism says that the conferees have decided:

  — To encourage coordinated efforts to halt terrorist acts on the bilateral, regional and international levels in order to guarantee that the perpetrators of such acts are brought to justice and also to back the efforts made by all parties to prevent the exploitation of their territories for the purpose of conducting terrorist acts.

  — To prevent terrorist organizations from recruiting new members or obtaining weapons and financing.

  — To make the utmost effort to determine the financing sources of these groups and to cooperate in halting the flow of such funds.

  — To provide training, equipment and other forms of support to the parties that adopt measures against the groups that use violence and terrorism to threaten peace, security and stability.

  — To form an open working team representing all the participants in the summit to prepare recommendations on the best methods of implementing the clauses of this statement through existing efforts and to submit a report to the conferees within a period of 30 days.

(**Egyptian Space Channel** [Cairo], 13/3 in **BBC Summary of World Broadcasts**, 14/3)

j. Environmental Issues

- Medical experts from **France** and **Russia** will study the health of the population along the Techa River in the Urals, which received large amounts of radioactive wastes from the Mayak plutonium production complex that were dumped in reservoirs draining into that river. The Mayak complex is located near Kyshtym in Chelyabinsk province, where in 1957 a storage tank containing reprocessing waste exploded. The French Institute of Nuclear Protection and Safety claims that at least 350,000 people have been affected by chronic pollution or pollution from accidents. (**Nucleonics Week**, 4/1)

- In **Norway**, the government and a private company that was working on a plan for the clean-up of nuclear waste on the Kola peninsula are said to be under pressure to cease their association with the project, following the arrest of a former Russian naval officer who had supplied the Norwegian environmental group Bellona with information about the number of submarines and the amount of radioactive waste at the site. The officer, who was arrested on charges of treason, faces a long prison sentence or possibly the death penalty.

  In the port of Murmansk, engineers of the French firm Cogema and the British company AEA Technology have been retained by the European Union to examine the situation aboard an old ship, *Lepse*, where spent fuel from Russian nuclear icebreakers is being stored. The point of the examination is to determine whether the situation presents a danger to health and safety and, if so, how it can be cleared up.

  (**Nuclear Fuel**, 4/12/95; **Reuter's**, 15/2; **Nucleonics Week**, 22/2)

- The **United States** Department of Energy (DoE) is planning to resume reprocessing of irradiated fuel. Although it has long been a part of American non-proliferation policy to refrain from reprocessing and urge other states to do likewise, DoE now reportedly considers it necessary for reasons of safety to start reprocessing the spent fuel it has had on hand since the 1980s, when reprocessing was halted. The move is condemned by environmentalists, because it will produce large amount of highly radioactive waste products; critics also express concern about the criticality hazards that would arise from improper handling of plutonium and the fact that stores of separated plutonium constitute 'enticing targets' for theft. Reprocessing of the first batch, consisting of 140 tonnes of spent fuel, is supposed to start in April, at Savannah River.

  After some last-minute 'shake-out problems' the Savannah River Defense Waste Processing Facility for the vitrification of high-level liquid radioactive waste formally started operating on 12 March. Construction of the plant began in 1983. Cold testing had been going on for the past eighteen months. The plant should solidify the 34 million gallons of high-level liquid waste that is currently held in 51 underground tanks, which are said to be corroding. The tanks hold from 750,000 to 1.3 million gallons of waste each. Construction of a similar waste-processing facility, at West Valley, in New York State, near Buffalo, which has been built to deal with waste from a reprocessing plant for commercial reactor fuel that was closed in the 1970s, is said to have run into problems. Plans for the construction of a third vitrification facility, at the Hanford Nuclear Reservation, which supposedly contains the greatest amount of military nuclear waste, much of which has already leaked, have been delayed.

  (**Reuter's** 4/1, in **UI News Briefing** 96.01; **New York Times**, 7/1, 15/1, 13/3; **NuclearFuel**, 15/1)

k. Miscellaneous

- **South Africa** is said to be unwilling to blend down its stockpile of highly enriched, weapons-usable uranium, which the United States would prefer it do for non-proliferation reasons. Reportedly, the Atomic Energy Corporation hopes to use the material, which is under IAEA safeguards pursuant to the NPT, to fuel the Safari research reactor for the next 15 to 20 years. (**Sunday Independent** [Johannesburg], 3/12/95, in **FBIS-TAC**-95-007, 27/12/95)

- The Moscow-based *Center for Policy Studies in Russia* ('PIR CENTER') has begun to publish a monthly journal, *Yaderny Kontrol* to cover the full spectrum of nuclear issues, including non-proliferation, export controls, nuclear safety and nuclear strategy, as well as issues relating to chemical and biological weapons and missile technology. The address is Prospect Vernadskogo 76, MGIMO, Suite 4038, Moscow Russia.

- It has been confirmed that the *Canberra Commission on the Elimination of Nuclear Weapons*, which was set up by the former Australian Prime Minister Paul Keating (see **Newsbrief 32**, p. 15), will continue also after the recent change of government

II. PPNN Activities

- The initial meeting of the PPNN Core Group during the third phase of PPNN's work, from 1996–97, will take place over the period 19–22 April at the Wye River Conference Centers, Queenstown, Maryland, United States. Besides considering PPNN's work and programme through to the end of 1997, the Core Group will address several substantive issues related to the 1997 PrepCom for the next NPT review conference.

- The PPNN Core Croup has been reduced in size and reconstituted for the next phase of its work. It now consists of: Ambassador Olu Adeniji (Nigeria); Dr. Djali Ahimsa (Indonesia); Dr. Jiri Beranek (Czech Republic); Mme. Thérèse Delpech (France); Ambassador Jayantha Dhanapala (Sri Lanka); Dr. Lewis Dunn (United States); Ambassador Fan Guoxiang (China); Mr. Peter Goosen (South Africa); Ambassador Oleg Grinevsky (Russian Federation); Ms. Martine Letts (Australia); Mr. Sverre Lodgaard (Norway-UNIDIR); Dr. Harald Müller (Germany); Ambassador Yoshio Okawa (Japan); Ambassador Enrique Roman-Moray (Peru-OPANAL); and Ambassador Mohamed I. Shaker (Egypt). The group

will continue to be chaired by Ben Sanders with John Simpson as Rapporteur.

- Grants for the future activities of PPNN have recently been received from the Ford Foundation and the Ploughshares Fund.

III. Recent Publications

Books

Eric Arnett (Ed.), (with contributions by Giri Deshingkar, Pae Sang Hak, Shafqat Ali Khan, Sergey V. Kortunov, Marie-Hélène Labbé, Patricia M. Lewis, Katherine Magraw, Marvin M. Miller, Jalil Roshandel, and Dingli Shen) *Nuclear Weapons after the Comprehensive Test Ban*, Sipri, Oxford University Press, Oxford, 1996, 150 pp.

Bert Bomert and Huub Jaspers (Eds.), *De Bom Voorbij? De Verlenging Van Het Non-Proliferatie Verdrag En De Toekomst Van De Kernbewapening* (with contributions by Hok An, Edith Ballantyne, Frank Barnaby, Bharat Bhushan, Shaun Burnie, Martin Butcher, Piet de Klerk, Roland Kollert, Mathias Küntzel, Wolfgang Liebert, Jürgen Scheffran, and Bart Van der Sude) Studiecentrum Voor Vredesvraagstukken, Ku Nijmegen, Amsterdam, 1995, 180 pp.

Marco De Andreis and Francesco Calogero, *The Soviet Nuclear Weapon Legacy*, SIPRI Research Report, Oxford University Press, Oxford, No. 10, 1995, 130 pp.

Jørn Gjelstad and Olav Njølstad (Eds.), (with contributions by General Mirza Aslam Beg, Godfried van Benthem van den Bergh, Hans Blix, David Fischer, John Lewis Gaddis, Jozef Goldblat, Ashok Kapur, John Mueller, Bruce Russett, James R. Schlesinger, Dan Smith, and General K. Sudarji.) *Nuclear Rivalry and International Order,* Sage Publications, London, 1996, 212 pp.

Richard Kokoski, *Technology and the Proliferation of Nuclear Weapons*, Sipri, Oxford Universtiy Press, Oxford, 1995, 351 pp.

Harald Müller (Ed.), *Nuclear Export Controls in Europe*, European University Press, Brussels, 1995, 275 pp.

Taysir N. Nashif, *Nuclear Weapons in Israel*, A.P.H. Publishing Corporation, New Delhi, 1996, 124 pp.

Barry R. Schneider and Lawrence E. Grinter (Eds.), *Battlefield of the Future: 21st Century Warfare Issues*, Air War College, Studies in National Security, No. 3, September 1995, 287 pp.

Reports, articles and other materials

David Albright and O'Neill Kevin, 'The Proliferation Threat Posed by Russian Centrifuges', *The Monitor: Nonproliferation, Demilitarization and Arms Control*, Vol. 1, No. 4, Fall 1995, pp. 22-23.

Frank Barnaby, 'The Need for an Effective Ban on the Production of Fissile Materials Usable in Nuclear Weapons', *Disarmament Diplomacy*, No. 2, February, pp. 2-4.

Gary Bertsch and Igor Khripunov, 'Controlling the Spread of Weapons of Mass Destruction in the Former Soviet Union: Export Controls as a Long-Term Tool', *The Monitor: Nonproliferation, Demilitarization and Arms Control*, Vol. 1, No. 4, Fall 1995, pp. 11-14.

Beyond the NPT: A Nuclear-Weapon-Free World, International Network of Engineers and Scientists Against Proliferation [INESAP], Wiesbaden, April 1995, 189 pp.

Praful Bidwai and Achin Vanaik, 'A Case of Jitters? The CTBT Debate in India', *INESAP Information Bulletin*, No. 8, February, pp. 14-16.

Seongwhun Cheon, 'A Loophole in the US Guarantee of Non-Use of Nukes Against the DPRK', *RINU Newsletter,* Vol. 4, No. 4, December 1995, pp. 10-11.

'Chernobyl Ten Years On: Radiological and Health Impact', An Appraisal by the NEA Committee on Radiation Protection and Public Health, Organisation for Economic Co-operation and Development, November 1995, 112 pp.

Zachary S. Davis, 'Nuclear Proliferation and the Future of the Non-Proliferation Treaty: Coping with the Best and Worst Cases', *Irish Studies in International Affairs,* Vol. 6, 1995, pp. 5-17.

Jonathan Dean, 'Reducing the Danger From Nuclear Weapons', *INESAP Information Bulletin*, No. 8, February, pp. 21.

Dieter Deiseroth, 'Germany's NPT Obligation not Under Condition of War?', *INESAP Information Bulletin*, No. 8, February, pp. 9-10.

Thérèse Delpech, 'Non-prolifération nucléaire: Les enjeux après la prorogation du TNP', *Les Etudes du CERI*, No. 11, January, 29 pp.

G. P. Deshpande, 'China's World View and Nuclear Weapons', *The Journal of the United Service Institution of India,* Vol. 123, No. 512, April-June 1993, pp. 216-227.

Jayantha Dhanapala, 'The 1995 Review and Extension Conference of the Nuclear Non-Proliferation Treaty: The Outcome of the Conference', *Disarmament*, Vol. XVIII, No. 3, 1995, pp. 1-14.

Disarmament: Ending Reliance on Nuclear and Conventional Arms, Disarmament, United Nations, Centre for Disarmament Affairs, New York, 1995, E.95.IX.4, 155 pp.

Stephen A. DuPree, Cecil S. Sonnier, and Charles S. Johnson, 'Remote Monitoring in International Safeguards', *Journal of Nuclear Materials Management*, Vol. 24, No. 2, January, pp. 18-30.

Mohamed ElBaradei, 'On Compliance with Nuclear Non-Proliferation Obligations', *Security Dialogue,* Vol. 27, No. 1, January, pp. 17-26.

David Fischer, 'The Pelindaba Treaty: Africa Joins the Nuclear-Free World', *Arms Control Today*, Vol. 25, No. 10, December 1995/January 1996, pp. 9-14.

Submit Gangly, 'Indo-Pakistani Nuclear Issues and the Stability/Instability Paradox', *Studies in Conflict and Terrorism,* Vol. 18, No. 4, October-December 1995, pp. 325-334.

Banning N. Garret and Bonnie S. Glaser, 'Chinese Perspectives on Nuclear Arms Control', *International Security,* Vol. 19, No. 1, Winter 1995/96, pp. 43-78.

André Gsponer, 'Fourth Generation Nuclear Weapons', *INESAP Information Bulletin*, No. 8, February, pp. 17.

Nadine Gurr, 'French Nuclear Testing', *ISIS Briefing*, International Security Information Service, February, No. 49, 10 pp.

Devin T. Hagerty, 'Nuclear Deterrence in South Asia: The 1990 Indo-Pakistani Crisis', *International Security,* Vol. 19, No. 1, Winter 1995/96, pp. 79-114.

Mark Hibbs, 'Germans Knew Plutonium Sting Was "Problematic" ', *Bulletin of the Atomic Scientists*, Vol. 52, No. 2, March/April, pp. 7-8.

'How the Nuclear Powers Voted', *Disarmament Times,* Vol. 18, No. 8, 19 December 1995, p. 1.

Sean Howard (Ed.), *Disarmament Diplomacy*, No. 1, January, 40 pp.

'ICJ: Are Nuclear Weapons Legal?', *Disarmament Times,* Vol. 18, No. 8, 19 December 1995, p. 4.

Ryukichi Imai, 'Nuclear arms control and nonproliferation: Looking into the future', *IIPS Policy Paper* 146E, December 1995, 42 pp.

Shinichiro Izumi, 'International Management of Plutonium', *Plutonium*, No. 12, Winter, pp. 3-6.

Alastair Johnston, 'China's New "Old Thinking": The Concept of Limited Deterrence', *International Security,* Vol. 19, No. 1, Winter 1995/96, pp. 5-42.

Martin Kalinowski, 'Subcritical Tests', *INESAP Information Bulletin*, No. 8, February, pp. 24.

Kumao Kaneko, 'Japan Needs No Umbrella', *Bulletin of the Atomic Scientists*, Vol. 52, No. 2, March/April, pp. 46-51.

Robert E. Kelley, 'The Iraqi and South African Nuclear Weapon Programs', *Security Dialogue,* Vol. 27, No. 1, January, pp. 27-38.

Sergei Kortunov, 'Russian-American Cooperation On Counterproliferation', *The Monitor: Nonproliferation, Demilitarization and Arms Control*, Vol. 1, No. 4, Fall 1995, pp. 1, 5-9. Reprinted and edited with permission from *Yaderniy Kontrol.*

Mitsuru Kurosawa, 'Beyond the 1995 NPT Conference: A Japanese View', *Osaka University Law Review*, No. 43, February, pp. 11-22.

Wolfgang Liebert, 'Russian Plutonium to German MOX? Comments on the Hanau Debate', *INESAP Information Bulletin*, No. 8, February, p. 11.

Miguel Marin-Bosch, 'The 1995 NPT Review and Extension Conference', *Irish Studies in International Affairs,* Vol. 6, 1995, pp. 23-31.

Frank Miceli, 'Strategic Nuclear Weapons: A Force for the Post-Cold War World', *Studies in Conflict and Terrorism,* Vol. 18, No. 4, October-December 1995, pp. 335-348.

Tom Milne, 'The Future of Nuclear Weapons in Europe: Does Britain Need Nuclear Weapons?', A Report from the British Pugwash Group, *INESAP Information Bulletin*, No. 8, February, pp. 1, 3.

Harald Müller, 'Beyond the 1995 Conference: a European Perspective', *Irish Studies in International Affairs*, Vol. 6, 1995, pp. 41-53.

Harald Müller, 'Rüstungs- und Zerstörungspotentiale als Herausforderung der Internationalen Politik' in Karl Kaiser and Hanns W. Maull, (Eds.), *Deutschlands neue Aussenpolitik,* R. Oldenbourg Verlag, München, Vol. 2, 1995, pp. 201-223.

'Nonproliferation and the U.N. Security Council: Prevention, Compliance, and Enforcement', A Conference Report of the UNA-USA Project on the Security Council and Nonproliferation, United Nations Association of the United States of America, New York, 10 pp.

Robert Norris, 'French and Chinese Nuclear Weapon Testing', *Security Dialogue,* Vol. 27, No. 1, January, pp. 39-54.

Savita Pande, 'Controversial Issues in Japanese Nuclear Policy', *Strategic Analysis,* Vol. 18, No. 9, December 1995, pp. 1159-1178.

'Proceedings of a Seminar on Nuclear Testing and the CTBT & Implementing the Decisions of the 1995 NPT Review and Extension Conference: A European Perspective', *European Parliament Seminar on Nuclear Issues*, 28 September 1995, British American Security Council and Centre for European Security and Disarmament, London.

Questions Nucléaires, Les Cahiers de la Fondation pour les Etudes de Défense, Paris, No. 2, February, 57 pp.

Tariq Rauf, 'France Ends Nuclear Tests', *INESAP Information Bulletin*, No. 8, February, p. 7.

Paul Rogers, 'Nuclear Disarmament: Pressures For and Against', *Disarmament Diplomacy*, No. 2, February, pp. 5-6.

Mycle Schneider, 'The Future of Nuclear Weapons in Europe: The Franco-German Nuclear Tandem', *INESAP Information Bulletin*, No. 8, February, pp. 1, 4.

Glenn E. Schweitzer, 'A Multilateral Approach to Curbing Proliferation of Weapons Know-How', *Global Governance,* Vol. 2, No. 1, January-April, pp. 25-41.

Mohamed I. Shaker, 'The 1995 NPT Conference: A New Beginning', *Disarmament*, Vol. XVIII, No. 3, 1995, pp. 15-29.

Kenneth B. Sheely, Bobby H. Corbell, John C. Matter, Jerry L. Silva, and J. Michael Whitaker, 'IAEA Field Trials of the Remote Monitoring System for Safeguards Applications at the Oak Ridge Y-12 Facility', *Journal of Nuclear Materials Management*, Vol. 24, No. 2, January, pp. 31-35.

Kenneth B. Sheely, Michael F. O'Connell, Bobby H. Corbell, John C. Matter, Rebecca D. Horton, Jerry L. Silva, Vladimir Sukhoruchkin, Anatoly Drozdov, Alexandr Grigoriev, Paul Henslee, and Gail Walters, 'Bilateral U.S. and Russian Remote Monitoring System for Special Nuclear Materials', *Journal of Nuclear Materials Management*, Vol. 24, No. 2, January, pp. 36-40.

WPS Sidhu, 'India's Nuclear Test Programme', *International Security Digest*, Vol. 3, No. 4, January, p. 3.

John Simpson, 'The Issues and Significance of the New NPT Regime', *Disarmament*, Vol. XVIII, No. 3, 1995, pp. 30-46.

Richard Sinnott, 'Ireland and the Diplomacy of Nuclear Non-Proliferation: the Politics of Incrementalism', *Irish Studies in International Affairs,* Vol. 6, 1995, pp. 59-78.

Michael Slage, 'A Pocket Guide to Nonproliferation Research on the Internet', Monterey Institute of International Studies, December 1, 1995, 46 pp.

'Special Feature: Disarmament Week Panel: The comprehensive nuclear-test-ban treaty: A progress report on the negotiations', with contributions by Sohrab Kheradi, Ludwig Dembinski, Lars Norberg, Jaap Ramaker, Joëlle Bourgois, Stephen Ledogar, and Richard Starr, *Disarmament*, Vol. XVIII, No. 3, 1995, pp. 47-76.

Kunihiko Uematsu, 'Status and Roles of International Nuclear Organizations', *Plutonium,* No. 12, Winter, pp. 7-14.

Waldo Stumpf, 'South Africa's Nuclear Weapons Program: From Deterrence To Dismantlement', *Arms Control Today*, Vol. 25, No. 10, December 1995/January, pp. 3-8.

Paul F. Walker, 'The Republican Assault on Nuclear Arms Control', *INESAP Information Bulletin*, No. 8, February, pp. 19.

Phil Williams and Paul N. Woessner, 'The Real Threat of Nuclear Smuggling', *Scientific American*, January, pp. 26-30.

IV. Documentation

Protocols to the Treaty of Rarotonga

PROTOCOL 1

The Parties to this Protocol
Noting the South Pacific Nuclear Free Zone Treaty (the Treaty)
Have agreed as follows:

Article 1

Each Party undertakes to apply, in respect of the territories for which it is internationally responsible situated within the South Pacific Nuclear Free Zone, the prohibitions contained in Articles 3, 5 and 6, in so far as they relate to the manufacture, stationing and testing of any nuclear explosive device within those territories, and the safeguards specified in Article 8(2)(c) and Annex 2 of the Treaty.

Article 2

Each Party may, by written notification to the depository, indicate its acceptance from the date of such notification of any alteration to its obligations under this Protocol brought about by the entry into force of an amendment to the Treaty pursuant to Article 11 of the Treaty.

Article 3

This Protocol shall be open for signature by the French Republic, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

Article 4

This Protocol shall be subject to ratification.

Article 5

This Protocol is of a permanent nature and shall remain in force indefinitely, provided that each Party shall, in exercising its national sovereignty, have a right to withdraw from this Protocol if it decides that extraordinary events, related to the subject matter of this Protocol, have jeopardized its supreme interests. It shall give notice of such withdrawal to the depositary three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

Article 6

This Protocol shall enter into force for each State on the date of its deposit with the depository of its instrument of ratification.

IN WITNESS WHEREOF the undersigned, being duly authorised by their Governments, have signed this Protocol.
DONE at Suva, this Eighth day of August, One thousand nine hundred and eighty-six, in a single original in the English language.

PROTOCOL 2

The Parties to this Protocol
Noting the South Pacific Nuclear Free Zone Treaty (the Treaty)
Have agreed as follows:

Article 1
Each Party further undertakes not to use or threaten to use any nuclear explosive device against:
(a) Parties to the Treaty; or
(b) any territory within the South Pacific Nuclear Free Zone for which a State that has become a Party to Protocol 1 is internationally responsible.

Article 2
Each Party undertakes not to contribute to any act which constitutes a violation of the Treaty, or to any act of another Party to a Protocol which constitutes a violation of a Protocol.

Article 3
Each Party may, by written notification to the depository, indicate its acceptance from the date of such notification of any alteration to its obligations under this Protocol brought about by the entry into force of an amendment to the Treaty pursuant to Article 11 of the Treaty or by the extension of the South Pacific Nuclear Free Zone pursuant to Article 12(3) of the Treaty.

Article 4
This Protocol shall be open for signature by the French Republic, the People's Republic of China, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

Article 5
This Protocol shall be subject to ratification.

Article 6
This Protocol is of a permanent nature and shall remain in force indefinitely, provided that each Party shall, in exercising its national sovereignty, have a right to withdraw from this Protocol if it decides that extraordinary events, related to the subject matter of this Protocol, have jeopardized its supreme interests. It shall give notice of such withdrawal to the depositary three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

Article 7
This Protocol shall enter into force for each State on the date of its deposit with the depository of its instrument of ratification.

IN WITNESS WHEREOF the undersigned, being duly authorised by their Governments, have signed this Protocol.
DONE at Suva, this Eighth day of August, One thousand nine hundred and eighty-six, in a single original in the English language.

PROTOCOL 3

The Parties to this Protocol
Noting the South Pacific Nuclear Free Zone Treaty (the Treaty)
Have agreed as follows:

Article 1
Each party undertakes not to test any nuclear explosive device anywhere within the South Pacific Nuclear Free Zone.

Article 2
Each Party may, by written notification to the depository, indicate its acceptance from the date of such notification of any alteration to its obligation under this Protocol brought about by the entry into force of an amendment to the Treaty pursuant to Article 11 of the Treaty or by the extension of the South Pacific Nuclear Free Zone pursuant to Article 12(3) of the Treaty.

Article 3
This Protocol shall be open for signature by the French Republic, the People's Republic of China, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

Article 4
This Protocol shall be subject to ratification.

Article 5
This Protocol is of a permanent nature and shall remain in force indefinitely, provided that each Party shall, in exercising its national sovereignty, have a right to withdraw from this Protocol if it decides that extraordinary events, related to the subject matter of this Protocol, have jeopardized its supreme interests. It shall give notice of such withdrawal to the depositary three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

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V. Comments From Readers/Corrections

- The item on the temporary shut-down of the French fast-breeder reactor 'Superphénix', on page 8 of **Newsbrief 32**, contained the note that there was no news about the resumption of operations of that facility. It has been learned since that operations had resumed on 22 December. (See also **f. Peaceful Nuclear Developments**, page 7 of this issue.)

- Also in **Newsbrief 32**, on page 16, in the first item under the heading **PPNN Activities**, the Rockefeller Brothers Fund was mistakenly called 'Rockefeller Brothers Foundation'.

- On page 25 of the same issue, in the first line of the second column, (subparagraph 3. (c)) 'in' should read 'its'.

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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