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PROGRAMME FOR PROMOTING NUCLEAR NON-PROLIFERATION

Number 22 **NEWSBRIEF** **2nd Quarter 1993**

Editorial note

This issue of the **Newsbrief** reports on events relating to the non-proliferation of nuclear weapons that took place, or that came to the editor's attention, during April/June 1993.

The **Newsbrief** is published four times a year as part of the effort of the Programme for Promoting Nuclear Non-Proliferation (PPNN) to foster awareness of the issues related to the spread of nuclear weapons and of developments that may help constrain that spread. Based on publicly available material derived from reputable and generally reliable sources, the **Newsbrief** seeks to present an accurate and balanced picture of pertinent developments, including events relating to the peaceful uses of nuclear energy.

The limited size of the **Newsbrief** makes it necessary to choose among items of information and to present them in condensed and simplified form. Subheadings are chosen for ease of presentation and do not necessarily imply a judgment on the character of the events referred to; related items of information may be combined under a single subheading, even though some might fit also into other categories of subjects in the **Newsbrief**. For example, events and discussions concerning the nuclear weapons deployed in Ukraine may be seen in relation to the question of that country's accession to the NPT (**'NPT Events'**); concern the implementation of the START I and II treaties, dealt with under the subheading **'Nuclear Disarmament'**; might be taken together with other **'Events in the Commonwealth of Independent States'**; or could be considered as **'Developments of Concern for Horizontal Proliferation'**. It therefore seemed appropriate to combine these events under the general subheading **'Background'**. Given the great public interest aroused lately by events in North Korea, these events are also presented under **'Background'**, although substantively they would fit in section **k. Developments of Concern for Horizontal Proliferation.**

The Executive Chairman of PPNN is the editor of the **Newsbrief** and is responsible for its contents. The inclusion of an item in the **Newsbrief** should not be taken as implying the agreement of the members of PPNN's Core Group collectively or individually, either with its substance or with its relevance to PPNN's work.

Readers who wish to comment on the substance of the **Newsbrief** or on the manner of presentation of any item, 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 date from 1993.

I. Topical Developments

a. Background

- The refusal by the **Democratic People's Republic of Korea** (DPRK/North Korea) to allow the IAEA to make a special inspection of two sites thought to contain waste from reprocessing, which, if found to be the case, would indicate that North Korea had produced more plutonium than it had declared, and its subsequent announcement that it was withdrawing from the NPT, have caused serious misgivings about that country's nuclear activities and the effect its move might have on the world-wide non-proliferation system.

  To recapitulate: on 9 February, following inconsistencies discovered during routine inspections, the IAEA's Director General requested North Korea to give Agency inspectors access for additional information to the two sites in question. This request was refused on 13 February and formally repeated on the 16th. On 25 February, the IAEA's Board of Governors adopted a resolution, stating that access to additional information and two additional sites was essential and urgent in order to resolve differences, calling on North Korea to give Agency inspectors access to the two suspected sites — meanwhile discovered by intelligence means to have been concealed under a layer of earth — and requesting the Director General to continue trying to resolve the matter in dialogue with the DPRK, and report to the Board one month later.

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On 10 March North Korea advised the Director General that it reserved its consideration of the receipt of the inspection team; it referred to the resumption of the South Korean/US military exercises 'Team Spirit' and the fact that the country had been put in a 'state of semi-war'. The Director General answered the same day that this could not impede the implementation of the safeguards agreement. In a statement of 12 March, the DPRK government called the Board 'resolution' (sic) an encroachment of the sovereignty of the DPRK, an interference in its internal affairs and a hostile act; it accused the IAEA of acting on behalf of the United States and it announced its decision to withdraw from the NPT 'to defend its supreme interests'.

The Director General's response of the same date pointed out that the Treaty and the safeguards agreement remained in force until the withdrawal would take effect and that therefore the declaration of the intention to withdraw from the Treaty could not impede the receipt of the inspection team; he repeated his previous request for inspection access. That request was turned down on 16 March. In a resolution of 18 March, the Board of Governors requested the Director General to continue his efforts and dialogue and to report further on the DPRK's response to its previous resolution, at a meeting to be held on 31 March. When by that date the DPRK had not granted the requested access, the Director General reported to the Board that it continued to be in non-compliance with its obligations under the safeguards agreement. On 1 April, the Board adopted a resolution in which it confirmed that the DPRK was in non-compliance; found that the IAEA was unable to verify that there had not been a diversion of nuclear material required to be safeguarded; called on the DPRK to remedy forthwith its non-compliance; and decided to report on the matter to the Security Council. North Korea reacted with the statement that if the Security Council would try to exert pressure and decide on sanctions, 'it would be compelled to take a corresponding self-defensive measure'.

Reportedly, in a communication to the IAEA, Russia, United Kingdom and the United States, as Depositary Governments, expressed regret and concern at North Korea's announcement and questioned whether the reasons it gave for withdrawing constituted 'extraordinary events relating to the subject matter of the Treaty' in accordance with Article X.1.

Presumably to avoid a veto from China, which had made clear during the discussions in the Board of Governors that it preferred dialogue over pressure, and which was said to have been against bringing the matter before the Security Council, no attempt was made to have the Council adopt a resolution calling for sanctions against North Korea. Instead, the Security Council — reportedly having overcome China's objections — invited the Director General to brief it in closed session, after which the Council's President issued a statement welcoming 'all efforts aimed at resolving the situation' and encouraging the IAEA to continue its consultations with the DPRK. There were reports that Russia, too, was not wholeheartedly in favour of a tough stance by the Council, although its diplomatic efforts to persuade Pyongyang to open its facilities to the IAEA brought it a sharp rebuff there. Japan also favoured continued dialogue and its call for talks was rejected as well. Reportedly, at the ASEAN talks in May, Indonesia and Malaysia expressed the view that the United States should not exert more pressure on North Korea than it had, for instance, done in the cases of Israel and South Africa, which both were known to have nuclear weapons. They called for a single non-proliferation standard to be applied to all countries, and urged that the IAEA not appear to be an American 'tool'. South Korea was reported to consider concessions that might help North Korea to accept international inspections of its nuclear facilities. It also backed Pyongyang's wish for senior-level talks with the United States: one of the items mentioned by high-level DPRK officials as possible conditions for their country's withdrawal of its renunciation of the NPT. Other conditions mentioned were the cessation of the 'Team Spirit' military exercises; inspection of military facilities in South Korea; the promise not to use nuclear weapons against the DPRK; withdrawal of US nuclear weapons from the region; and respect for North Korea's socialist system.

Meanwhile, the IAEA's Director General was continuing his talks with the DPRK on the full implementation of safeguards there. In May a three-member inspection team performed activities relating to the maintenance and replacement of monitoring equipment installed previously. Repeated requests to make special inspections were persistently refused, however.

On 11 May, the Security Council adopted resolution 825 (1993) by a vote of 13 against none, with China and Pakistan abstaining, which called on the DPRK to reconsider its decision to withdraw from the NPT, to honour its non-proliferation obligations under the Treaty and to comply with its safeguards agreement with the IAEA. It also requested the Agency's Director General to continue his consultations with the DPRK to resolve the issues and urged all Member States to encourage the DPRK to respond positively to the resolution. Apparently in order to avoid a Chinese veto, there was no mention of sanctions. The Council did not act on a request from the DPRK's Permanent Representative to consider the issue of 'abuse of Safeguards Agreement by the IAEA'. North Korea immediately rejected resolution 825, denouncing it as unreasonable and saying that the Council was 'blocking' negotiations at a time when negotiations with the IAEA and the United States might be possible.

Bilateral contact between the DPRK and the United States had been opened in early May in meetings between working-level diplomats stationed in Beijing. Subsequently, the United States and the DPRK agreed to hold senior-level diplomatic talks in New York, strictly confined, as pointed out in the press, to nuclear issues. Following preparatory meetings in mid-May, and apparently also in-depth discussions between China and North Korea, and amid signs from Washington that it might be prepared to make some concessions to the DPRK's 'legitimate concerns', meetings began in New York on 2 June between the United States Assistant Secretary of State for Political-Military Affairs, Robert Gallucci, and Kang Sok Ju, Vice Foreign Minister of the

DPRK. Working against the deadline of 12 June, when North Korea's withdrawal would take effect, and under the implicit threat that the US might seek enforcement action against Pyongyang if the matter was not settled in time, the talks at first seemed to make little progress. At the same time, there were reports that North Korea had ordered all diplomats to leave the country by 15 June. It was not clear if this move was connected with North Korea's potential pull-out from the Treaty.

On 11 June, after resumed talks, it was announced that North Korea had decided to 'suspend as long as it consider[ed] necessary' its withdrawal and would continue to allow the IAEA to apply safeguards. In a joint statement, the two sides said that they would continue their discussions 'on an equal and unprincipled basis'; they also gave each other assurances against 'the threat and use of force, including nuclear weapons'. Apparently because North Korea's agreement does not meet American demands for a full reversal — for one, the matter of special inspections at the sites at issue does not appear to have been settled — the statement did not make reference to further American concessions, such as an end to the 'Team Spirit' exercises. Given the lack of ready alternatives (it is still not thought likely, for example, that China would go along with a Security Council resolution providing for sanctions against the DPRK) the agreement is nevertheless seen as a step in the right direction. Both sides expressed the hope that there would be further talks, and there are reports that they will meet again in Geneva, on 14 July. President Clinton has called the agreement 'a first but vital step' and said that Washington would continue to press North Korea towards the goals of a nuclear-free Korean Peninsula. South Korea, too, persists in its pursuit of that goal; in Seoul suggestions are being made for North-South co-operation in the peaceful use of nuclear energy, including indigenous reprocessing. On 23 June the DPRK reportedly postponed its reply to an offer by the South to resume bilateral talks on 24 July.

Reports about North Korea's nuclear-weapon programme continue. A South Korean nuclear physicist interviewed for the Seoul periodical *Wolgan Choson* said recently that North Korea, in giving the IAEA contradictory data about its reprocessing and conducting explosive experiments in a way that ensured them being seen, may have done so to distract attention from clandestine reprocessing or uranium enrichment work done elsewhere.

(*IAEA Newsbriefs*, Vol. 8, No. 2(59), March/April and No. 3(60), May/June; *Nuclear News*, April; *Pravda*, 30 March, in *JPRS-TND-93-010*, 16 April; *The International Herald Tribune*, March 30, 31, April 1, 2, 7, 8, 9, 14, 19, 23, May 4, 10, 13; *Daily Telegraph*, 31 March; *Reuter's Information Services, Inc.*, March 31, April 1, 22; *The Guardian*; March 31, April 2; *United Press International*, March 31, April 2, 5, 7; *The New York Times*, March 30, 31, April 2, 8, 10, 23, May 6, 13, 15, 27, June 1, 3, 5, 6, 13; *IAEA Press Release* PR 93/8, 1 April; *The Christian Science Monitor*, April 1, May 10; *Financial Times*, 1, 2, 10, 23 April; *Asian Wall Street Journal*, April 2; *Die Presse* [Vienna], 2, 8 April; *Jane's Defence Weekly*, 3 April; *The Economist*, April 3rd, May 29th; *Süddeutsche Zeitung*, 2, 8/9, 24 April; *KCNA* [Pyongyang], 6 April, in *JPRS-TND-93-010*, 16 April, 12 May, in *JPRS-TND-93-014*, 18 May; *Le Monde*, 7, 12 April; *IAEA Document* INFCIRC/419, 8 April; *Security Council Document S/25562*, 8 April; *Asahi Shinbun* [Tokyo], 12, 23 April; *Mainichi Daily News* [Tokyo], April 13, 24; *Ashahi Evening News*, [Kyoto], April 14; *The Daily Yomiuri* [Yokohama], April 16; *Newsweek*, April 19; *Yonhap* [Seoul] 20 April, in *JPRS-TND-93-011*, 23 April, ditto 29 April, 8, 12 May, in *JPRS-TND-93-014*, 18 May, and *Yonhap*, 18 May, in *JPRS-TND-93-015*, 24 May, 3 June, in *JPRS-TND-93-017*, 7 June; *Mainichi Shimbun* [Tokyo], April 21; *Frankfurter Allgemeine Zeitung*, 23 April; *Korea Times* [Seoul], April 24, May 12, 13; *The Times* [London], 24 April, 13 May; *The Washington Post*, April 27, 28, May 9, 12; *Far Eastern Economic Review*, 6 May; *Security Council Document S/25747*, 10 May; *United Nations Press Release*, SC/5614, 11 May; *The Washington Post Weekly Edition*, May 10-15; *Neue Zürcher Zeitung*, 14 May; *Agence France Presse*, 19 May, in *JPRS-TND-93-015*, 24 May; *Wolgan Choson* [Seoul], May, *The Korea Herald*, 29 May, both in *JPRS-TND-93-017*, 7 June; *ENSP Press Release*, 'The North Korean Nuclear Program' [Monterey Institute of International Studies], June 1; *NuclearFuel*, June 21; *Nihonkeisai Shimbun* [Tokyo], 24 June; *Financial Times*, 29 June)

- **Implementation of the START I and II treaties** is still held up by **Ukraine's** continuing reluctance to give effect to the undertaking it has made in Lisbon in May 1992, to ratify START I and accede to the NPT as a non-nuclear-weapon state. Statements by Ukrainian officials cite issues that would need to be resolved before the parliament in Kiev can ratify SALT-I and the NPT, such as security guarantees from the nuclear-weapon states, compensation for the fissile material recovered from the nuclear weapons now on Ukrainian territory and from the tactical weapons already moved to Russia, and technical and financial assistance in dismantling the missiles. However, a number of Ukrainian parliamentarians and a large part of the defence establishment seek to retain the weapons, gain operational control over them, aim them in various directions, and declare the country to be a nuclear-weapon state. Reportedly, Prime Minister Kuchma proposed in a closed meeting of parliament that Ukraine should declare itself a nuclear-weapon state and should temporarily keep part of its nuclear arsenal. Currently, Western news media say that many parliamentarians in Kiev predict that Ukraine will soon ratify START I, that it will consent to the removal of the 130 silo-based SS-19 missiles, each with 6 warheads, which are difficult to maintain, but that it will try to retain 46 (10-warhead) SS-24 mobile missiles that are deployed on its territory, as well as all or most of the bomber-delivered weapons. It would then denounce the Lisbon Protocol and declare itself to be a nuclear-weapon state.

  Besides the 176 strategic nuclear missiles in Ukraine, with 1,240 warheads, there are at least 30 bombers, carrying cruise missiles and possibly gravity bombs, for an estimated total of 400-600 warheads. Reports that Ukraine is trying to gain operational control over these weapons cause concern in Moscow and Washington. American intelligence sources are said to estimate that

this could be achieved in 12 to 18 months; the Russian calculation seems to be that it could be done in half that time. Russian sources recall that the Soviet Strategic Rocket Forces had many senior Ukrainian officers and that there are important elements of the weapons infrastructure in Ukraine, including facilities producing nuclear control devices – such as the Permissive Action Links (PALs) for the SS-24 – and targeting software.

Russia's President has repeatedly assured his Ukrainian counterpart that Russia will respect Ukraine's territorial integrity and will protect it against nuclear attack; he did so most recently on 17 June, in a meeting in Moscow with President Kravchuk. Earlier, the Ukrainian cabinet had welcomed Russia's readiness to give it such guarantees, but said that their substance and detail needed to be worked out and that they should include, beside an assurance of the inviolability of Ukraine's territory, an undertaking not to use force, or threaten the use of force, against it, and the promise not to use any pressure, including economic pressure. The cabinet again declared that Ukraine did not intend to acquire total unilateral control over the nuclear weapons on its territory and repeated its intention 'to acquire non-nuclear status in the future', adding, however, that 'the realistic timetable for removing nuclear weapons ... with the aim of dismantling and destroying them will be determined by a whole series of factors [including] the completion of the relevant Ukrainian-Russian talks and the conclusion of agreements ...'. Press reports quote Ukraine's President, who is generally seen to favour early ratification of START I and accession to the NPT, as confirming that his country is not a nuclear state; that it intends 'gradually' to attain nuclear-weapon-free status; but that it will not for the time being renounce its nuclear arsenal. In May, the first deputy chairman of Ukraine's parliament said in a news briefing that it continued its serious consideration of the disarmament measures it has promised to adopt, but had to take account of the security considerations and the economic ramifications involved. He said that the $175 million offered by the United States towards the cost of dismantling the weapons, was not enough to cover all the expenses. The chairman of the parliamentary commission considering the question of ratifying START I is quoted as saying that dismantling the missiles would cost $2.8 billion and that it would be cheaper to keep them in combat readiness. A majority of members of the parliament are said to share the view that the weapons should be retained, at least for a transitional period. The situation is complicated by the recent dissolution of the joint military command of the Commonwealth of Independent States, which had technical control of the weapons. The resumption of control of the weapons by Russia is seen as confirming Ukraine's suspicions of its Eastern neighbour.

In recent months, **Russia** and a number of Western states have put increasing pressure on Ukraine to adhere to its undertaking to ratify START I and accede to the NPT as a non-nuclear-weapon state. The lack of success of these efforts has prompted criticism that the West, and particularly the **United States**, were unfairly harsh on Ukraine and that 'strong-arm tactics', if not accompanied by incentives, would have an effect contrary to the one intended. The refusal of President Clinton and Vice-President Gore to receive Ukraine's Prime Minister when he was in Washington is seen to have caused bad feelings in Kiev, where it was seen as a signal that the United States pays attention to Ukraine only in the nuclear context and not as a newly democratic country that deserves support. Reputedly, especially after the meeting in Vancouver, in April, of Messrs. Clinton and Yeltsin, Kiev resents the apparent co-ordination of America's policy towards Ukraine with that of Russia. Another ground for resentment is said to be the fact that American aid is linked to the fulfillment by Ukraine of its nuclear policy pledges.

Washington now seems to have adopted a softer approach to Kiev, showing greater interest in co-operation and seeking better overall relations. That approach is believed to aim at supporting those Ukrainian officials – including the President, the Minister of Foreign Affairs and the Minister of Defence – who are thought to want getting rid of the nuclear weapons, and also those who want to hold on to them temporarily only, in order to gain economic aid and security guarantees. Conversely, it might help isolate the many hard-line parliamentarians who want Ukraine to become a nuclear-weapon state. The change is also thought to respond to concern among Central European nations, that political and economic instability in Ukraine – which they see as a buffer against Russia – could have an adverse effect on their security.

During a visit to Ukraine in May, the US Ambassador-at-large to the former Soviet Republics, Strobe Talbott, made proposals for co-operation in a range of areas, including help in the conversion of military to civilian production. In early June, US Defense Secretary Aspin visited Kiev, where he is said to have proposed that after being taken off the missiles, the nuclear warheads in Ukraine should be put under international supervision. They would then be moved to Russia where the fissile material would be taken out and either sold to Washington — with Ukraine receiving its share of the proceeds — or blended down for eventual use in the latter's nuclear reactors. Initial reactions to the plan in Kiev, including those of Defence Minister Morozov, were positive but Russia at first reacted critically, repeating its contention that the weapons belonged to it and should be under its control. During a recent visit by President Kravchuk to Moscow, however, signs were seen that both countries might be able to accept the arrangement as a face-saving solution. Meanwhile, in an effort to reassure Russia of its good intentions, the US Administration has offered closer co-operation with that country in military matters, including joint exercises. Also supposedly to encourage Ukraine to accede to the NPT as a non-nuclear-weapon state, **Japan** has offered it technical assistance for weapons dismantling.

(*Agence France Presse*, 15 January, in *JPRS-TND-93-003*, 27 January; ditto, 4 June, in *JPRS-TND-93-017*, 7 June; *Kiev Radio Ukraine*, 3, 6 April, in *JPRS-TND-93-010*, 16 April; ditto 15 April, in *JPRS-TND-93-011*, 23 April, 3 June, in *JPRS-TND-93-017*, 7 June; *Süddeutsche Zeitung*, 6, 13 April; *The Christian Science Monitor*, April 5, May 12; *The Washington Post*, April 6, May 11; *The New York Times*, April 8, June 1, 4, 6, 7, 8, 12, 18, 20; *Daily Telegraph* and *Kurier* [Vienna], 9

April; *The International Herald Tribune*, April 9, 21; *Der Standard* [Vienna], 10 April; *INTERFAX* [Moscow], 6, 11 April, in *JPRS-TND-93-010*, 16 April, and *JPRS-TND-93-011*, 23 April, respectively; *Time Magazine* and *US News and World Report*, April 19; *Financial Times*, April 23, May 5, 10, 11; *Die Presse* [Vienna], 24 April; *Wall Street Journal*, April 23, 30; *Defense News*, May 3-9, 17-23; *Nezavisimaya Gazeta* [Moscow], 6 May, in *JPRS-TND-93-013*, 10 May; *Nucleonics Week*, May 27; *The Economist*, April 3rd, June 12th; *The Washington Post International Weekly Edition*, June 14-20; William C. Potter *et al.*, *Nuclear Profiles of the Soviet Successor States*, Program for Nonproliferation Studies, Monterey Institute of International Studies, Monograph No. 1, May)

b. NPT Events

- The **Preparatory Committee for the 1995 Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons** (NPT) held its first meeting in New York on 10-14 May. Jan Hoekema of the Netherlands served as its Chairman; Silvana Da Silva, of the UN Office for Disarmament Affairs, was the Secretary. The session was attended by representatives of 128 states parties to the NPT. The Committee decided that the Conference would be held in New York on 17 April-12 May, 1995. The Committee will hold three more sessions: on 17-21 January 1994 in New York; 12-16 September 1994 in Geneva and 23-27 January 1995 in New York. The Committee's first session was largely taken up with discussions on procedural matters, including the question whether decisions should be taken by consensus or whether voting should be permitted, and the possibility of attendance by representatives of non-party states and non-governmental organizations. These matters, as well as the rules of procedure, the agenda, and the final document(s) of the Conference itself, and the background documents to be prepared for the Conference, were deferred for later decision.

  During the session, the Group of Eastern European States announced its endorsement of the candidacy of Poland for the Presidency of the 1995 Conference. On behalf of the States members of the Non-Aligned Movement parties to the NPT, and in accordance with a decision taken in September 1992 at the summit meeting of the Non-Aligned Movement, Indonesia informed the Committee of the candidacy of Ambassador Jayantha Dhanapala of Sri Lanka for the Presidency of the Conference. The text of the *Progress Report* of the PrepCom is reproduced in **section V. Documentation** of this **Newsbrief**. (*UN Press Release*, DC/2443, 19 May, 1993; *Document NPT/CONF.1995/PC.I/2*; Jim Wurst, 'NPT Meeting Launches Preparations for 1995', in *Basic Reports*, Number 30, 21 May)

c. Other Non-Proliferation Developments

- **Japan** and the **United States** have agreed to hold regular meetings on the proliferation of weapons of mass destruction and missiles. At the economic summit meeting of the G-7, to be held in Tokyo in July, **Japan** is expected to launch an initiative for an international plutonium storage and/or management scheme and for international action with regard to fissile material recovered from nuclear warheads. Proposals in this area were discussed at an international meeting held in Tokyo in April, under the egis of the International Institute for Global Peace, headed by former Prime Minister Nakasone, and of the Center for Science and International Affairs, Harvard University. (*Nucleonics Week*, April 1; Joint Policy Proposal on Post Cold-War Cooperative Denuclearization and Plutonium Issues, IIGP/CSIA, April 20; *Kyodo* [Tokyo], 19 April in *JPRS-TND-93-011*, 23 April, 4 May, *JPRS-TND-93-013*, 10 May; IIGP News Vol. 4, No. 1, Summer 1993)

- **Japan** and **India** are continuing their high-level contacts on the issue of non-proliferation in South and Central Asia. Reportedly, India, which objects to the NPT, is seeking ways of reducing the risk of nuclear proliferation in the region. The **United States** seeks to lower the chance of nuclear conflict between India and Pakistan by encouraging them to have talks about such nuclear confidence-building measures as a ban on nuclear detonations in the area; a cut-off in the production of weapon-grade material; and restrictions on the transfer of technologies relating to weapons of mass-destruction. (*Nucleonics Week*, April 8, May 27; direct information)

- The 1993 meeting of the **'Nuclear Suppliers Group'** (NSG) was held in Lucerne, Switzerland from 30 March to 1 April. It was chaired by Alec Bauer of Switzerland. The Group adopted an amendment to the NSG Guidelines that requires IAEA safeguards on all current and future nuclear activities ('full-scope safeguards') as a condition for any significant new supply commitments to non-nuclear-weapon states, and it called on nuclear supplier countries that have not yet adopted such a policy to do so as soon as possible. Argentina attended the meeting as an observer. The next plenary meeting will be held in April 1994, in Madrid. (*NSG Communique*, 5 April; *IAEA Newsbriefs*,Vol. 8, No. 3(60), May/June)

- In the **United States** Congress Senator John Glenn has introduced two bills to strengthen efforts to stop nuclear proliferation. One, the 'Omnibus Nuclear Proliferation Control Act of 1993', would create additional sanctions against firms that willingly promote nuclear proliferation and against countries that trade in critical weapon components or designs. It also seeks to strengthen IAEA safeguards, among other things by mandating more intrusive inspections in countries with 'dubious nonproliferation credentials'. The 'Nuclear Export Reorganization Act of 1993' would provide for a range of measures, including strengthening government control over the export of nuclear dual-use items and sanctions against illicit nuclear commerce and reviewing and modifying policy on the foreign use of US-origin plutonium. It would establish the institutional means to oversee these measures, including an interagency group within the National Security Council to co-ordinate nuclear export controls.

- Assistant Secretary of State Gallucci has announced that the new US Administration is considering framing 'a special policy' in the area of fissile material control, which would be designed, inter alia, to avoid the accumulation of highly enriched uranium and pluto-

nium in excess of actual need in 'legitimate nuclear fuel programs'. It also intends to give serious attention to the problem of trade in dual-use items.

- It has been reported in the United Kingdom that the US Administration has let it be known that the British 'THORP' reprocessing plant will figure in its current review of proliferation issues.

- The Department of Energy is proposing a change in the rules concerning export licenses, which would facilitate export of equipment to improve the safety of nuclear power reactors in a number of countries, including the former USSR. (*NuclearFuel*, March 29, May 24; *The Independent*, 6 April; *News Release* from Sen. John Glenn's office, May 27; *NuclearFuel*, June 21)

- At a Workshop held at the IAEA from 4 to 7 May, experts from 24 countries discussed verification options and safeguards approaches that might apply to a future nuclear-weapon-free zone in the Middle East. (*IAEA Newsbriefs*, Vol. 8, Nr. 3(60), May/June)

d. Nuclear Disarmament

- Progress in the implementation of the START I and II treaties is delayed by **Ukraine**'s tardiness in ratifying START I and acceding to the NPT as a non-nuclear-weapon state. Recent developments are outlined above, under a. Background.

- **Belarus**, which has ratified START I and the NPT (but has not yet acceded to the latter), has received additional security guarantees from the **Russian Federation**, **United Kingdom** and **United States**. (*INTERFAX* [Moscow], 5 April, in *JPRS-TND-93-010*, 16 April)

e. Nuclear Testing

- At their meeting at Vancouver, in early April, Presidents Clinton and Yeltsin agreed that negotiations on a multilateral nuclear test ban should commence at an early date. Washington reportedly wishes talks to begin during the summer. ('*Vancouver Declaration*', April 4; *Washington Post*, April 22)

- On 30 June it was reported from Washington that President Clinton would announce at the economic summit meeting to be held in Tokyo, in July, that the **United States** would not be the first nation to resume testing. The US press indicated that before announcing his decision, the President would consult with the heads of state of France, Russia and the United Kingdom (Meanwhile, in a radio address made on 3 July, i.e., before leaving for Tokyo, the President announced his decision to extend the moratorium, Ed.) The American moratorium on nuclear testing was set to expire on 1 July. Previous acounts in the American press had been that the President, at the urging of the Departments of State and Defense, the Joint Chiefs of Staff and the weapons laboratories, was considering approval of a plan for nine test explosions to be made before 1996, when, according to US law, a comprehensive test ban should go into effect. Three of the tests would have concerned an improved model W80 warhead for air-launched cruise missiles, which is to be made more fire- and accident-resistant; three would check the reliability of W87 and W86 warheads on Trident and MX missiles; and the remaining three would have been reserved for British weapons developers. Democratic members of both Houses of Congress, supported by the Arms Control and Disarmament Agency, the White House Science Adviser and the Department of Energy, had opposed the resumption of testing and asked the President not to let the United States be the first to break the current present moratorium; this opinion now appears to have prevailed. Under-Secretary of Energy John Deutch had told a Congressional Committee in May that testing should be resumed as soon as possible; the budget request for 1994 of the Department of Energy includes $462 million for four tests. It is noted that the law that was adopted in 1992 sets a limit of fifteen tests before 1996.

  A recent article in the *New York Times* recalls that it was one of the conditions of the Joint Chiefs of Staff for concurring with a limited test ban, in 1963, that the United States should stay ready to resume atmospheric testing. It reveals that there still exists a project, 'Safeguard C', for this purpose, consisting of three installations, one in Nevada, and two in the Pacific, which house ships and aircraft, laboratories, launching pads, test sites and staff. The project is said to cost $20 million a year and may have cost more than $1 billion so far. (*The Christian Science Monitor*, 4 May; *Die Welt* and *Süddeutsche Zeitung*, 5 May; *Jane's Defence Weekly*, 15 May; *Defense News*, May 10-16; *The New York Times*, May 15, June 9, 16, 30, July 1; *Nucleonics Week*, June 17; *The Washington Post*, June 29)

- There have been demonstrations in Kazakhstan against **China**'s continued nuclear tests. (*Moscow TV*, 4 May, in *JPRS-TND-93-013*, 10 May)

- **France** would reportedly be ready to resume tests as soon as the United States does so. The Administrateur Général of the French Atomic Energy Commission (CEA), Rouvillois, and the Director of Military Applications, Baleras, have advised the defence committee of the National Assembly that further tests are 'a necessity' for the country's security and are 'irreplaceable'. They have urged the government to take an early decision in favour of a resumption. It was revealed for the first time that until the start of the moratorium, in April 1992, France had conducted 161 nuclear tests. The CEA has announced that preparations have been made for a resumption of testing in the second part of 1993. The South Pacific Forum has warned France that a resumption of its nuclear tests would harm its relations with island countries in the region. New Zealand's Premier has said that he would be very disappointed if France resumed its nuclear tests; its Foreign Minister had earlier stated that his country had no formal indication of the resumption of France's tests and pointed out that the call for renewed testing had so far come only from the French government agency most interested in the matter. (*Enerpresse*, No. 5815, 3 May; *Le Monde*, 4 May; *International Herald Tribune*, May 20; *Trust and Verify*, Vertic, No. 37, May; *Agence France Presse*, 1 May, in *JPRS-TND-93-012*, 4 May; ditto 6 May, in *JPRS-TND-93-013*, 10 May)

- Russia's testing moratorium was also set to expire on 1 July. There are reports that already in 1992 President Yeltsin ordered preparations for two to four nuclear tests — to be made at Novaya Zemlya, as the government of Kazakhstan has closed the test site at Semipalatinsk — but the Office of the President has said it was not aware of any presidential edict to this effect. A spokesman for the Russian Ministry of Foreign Affairs is quoted as saying that Moscow is ready to make its moratorium on nuclear testing permanent and is to begin consultations with the United States. Russia supports the French proposal to discuss the issue among the five nuclear-weapon states. (*Nuclear Engineering International*, March; *Defense News*, April 19-25; *Komsomolskaya Pravda*[Moscow], 4 March, in *JPRS-TND-93-008*, 22 March; *ITAR-TASS*, 18 May, in *JPRS-TND-93-015*, 24 May; *Moscow Radio*, 3 June, in *JPRS-TND-93-017*, 7 June)

f. Nuclear Trade and International Co-operation

- In March, nuclear officials from **Australia**, **China**, **Indonesia**, **Japan**, **Malaysia**, **the Philippines**, **the Republic of Korea**, and **Thailand** met in Tokyo for the Fourth International Conference on Nuclear Cooperation in Asia. They reportedly agreed to focus their co-operation on the utilization of research reactors, agricultural uses of radioisotopes and radiation, and public acceptance of nuclear energy. (*Nucleonics Week*, April 8)

- **Brazil** and **Russia** have signed an agreement on co-operation in the peaceful use of nuclear energy. (*O Estado de Sao Paolo*, 25 April, in *JPRS-TND-93-012*, 4 May)

- **Russian** engineers will work in **China** for several years, to develop the conceptual design of a fusion-fission hybrid reactor. (*Xinhua* [Beijing], 19 April, in *JPRS-TND-93-011*, 23 April)

- **Hungary** has received the assurance from **Ukraine** that it will not denounce the tri-lateral agreement on transit of Hungarian spent fuel through Ukrainian territory and will not stop such transports. This followed reports that Ukraine had prohibited the transport of spent nuclear fuel to **Russia**, because the latter refused to take back Ukrainian spent fuel, supposedly for environmental reasons. It seems, however, that the argument between Russia and Ukraine is in fact caused by the latter's unwillingness to pay the price asked by Russia and to take back reprocessing waste. The return of spent fuel from Hungary to Russia will be discussed again later this year between the three governments. (*NuclearFuel*, May 24)

- In **Iran**, the Majles (Parliament) has approved agreements for co-operation in the peaceful uses of nuclear energy with **China** and **Russia**. In talks with government officials and parliamentarians from **Germany**, Iran declared that it is willing to submit its nuclear installations to 'any kind' of international supervision, including German and other international inspection, and the permanent stationing of IAEA inspectors at Iran's expense. The German press sees this as a move aimed not only at dispelling accusations that Iran is engaged in a nuclear-weapon programme, but also at persuading Germany to complete the Bushehr power station. (*Hamshahri* [Teheran], 14 April; *Deutsche Presse Agentur*, 27, 30 April; *Frankfurter Rundschau*, 30 April-1 May; all in *JPRS-TND-93-012*, 4 May; *Berliner Zeitung*, 14 May, in *JPRS-TND-93-015*, 24 May)

- **Pakistan** is said to be negotiating with **Russia** about buying a nuclear power plant. A significant increase in the budget for the nuclear project at Chasma is taken as a sign that it hopes to get a second 300-MW reactor from **China**, to be built there. (*Mainichi Daily News* [Tokyo], April 10; *The Nation* [Lahore], 19 April, in *JPRS-TND-93-015*, 24 May; *Nucleonics Week*, July 1)

- The **Russian Federation** and General Atomics Corp. of the **United States** have agreed to co-operate in the development and construction of a modular high-temperature gas-cooled reactor (MHTGR). The reactor is described as capable of burning plutonium or uranium in all-ceramic fuel, and combining melt-down proof safety with high thermal efficiency. It is conceived as consisting of one or more modular units in underground silos, each containing a reactor vessel and a power-producing vessel. The helium coolant would directly drive the turbine generator. The parties hope that the US government would support the project financially, and that Russia would provide test facilities and equipment. Realization of the project would depend on the conclusion of agreements between the two governments. The idea is the object of lively controversy within the non-proliferation community. (*The New York Times*, April 4 and 6; *Associated Press*, April 6; *Die Presse*, April 7; *Nucleonics Week*, April 8)

- **Ukraine** may be helped by **France** with the construction of new nuclear power stations if its government obtains parliamentary support to lift the moratorium on new nuclear construction. (*Reuter's Information Services, Inc.*, May 7)

g. IAEA Developments

- The current term of the IAEA's Director General Hans Blix expires on 30 November, 1993. At its meeting in June, the Board re-appointed Dr. Blix for another four-year term; the General Conference is expected to approve this appointment at its forthcoming session.

  Bruno Pellaud of Switzerland, has succeeded Jon Jennekens as Deputy Director General of the Department of Safeguards. Demetrius Perricos of Greece has been appointed Director of Division of Operations A in the Department of Safeguards. Dirk Schriefer of Germany has been appointed Director of Division of Operations B in the Department of Safeguards. (*IAEA Statute*, Article VII A; *IAEA Press Release*, PR 93/10, 30 April)

- On 30 April, a joint working group of the IAEA and the International Maritime Organization adopted a draft code for the safe carriage on board of ships of irradiated nuclear fuel, plutonium and high-level radioactive waste. (*Asahi Shimbun*, 30 April)

h. Peaceful Nuclear Developments

- Argentina has inaugurated an industrial-scale heavy-water production plant at Arroyito, 50 km from the city of Neuquen. At the ceremony, President Menem confirmed that construction of the Atucha-2 nuclear power plant will go ahead. (*TELAM* [Buenos Aires], 20 April, in *JPRS-TND-93-012*, 4 May)

- In **Brazil** the decision has been taken to resume construction of the 1,300-MW Angra-2 PWR, which was suspended in 1988. It should be completed in 1997. There have been unconfirmed reports of a sudden problem at Angra-1 in early March, which caused a rise in the radiation level within the plant and forced it to shut down. Local rumours speak of defects in the reactor vessel. Work on Angra-3 remains suspended. The country's uranium-enrichment capacity is to be increased during the current year by the addition of 162 high-speed centrifuges made by the Brazilian navy. A spokesman for the navy reported that 565 centrifuges had already been installed and that the navy aims to set up a pilot plant with 8,000 centrifuges. Reportedly the enrichment level will be 20% or less. This news has created some concern among foreign observers who fear that if there is a change in the present peaceful policy, the navy would be in a position to produce weapons-grade uranium. (*Nucleonics Week*, April 1; *The Independent*, 13 April; *Noticias Argentinas*, 13 March in *JPRS-TND-93-009*, 29 March; *Foreign Report*, April 5)

- *The New York Times* says that the World Bank and the International Energy Agency will present at the July summit meeting of the major industrialised countries a report on nuclear energy in Eastern Europe and the former USSR. The report is thought to say that it would be economically feasible in the next few years to close the 25 nuclear reactors that pose the worst safety risks and replace them with gas-fired power plants. The countries operating the reactors are said to prefer to go on doing so, notwithstanding the risks and the high costs — those would have to be paid largely by the West. Russia, which will need about half of the funds needed to improve nuclear safety, is said to prefer nuclear energy because it wants to sell its natural gas abroad for hard currency; the other states resist importing gas because it costs more than nuclear energy. **Bulgaria** has urged Western countries to continue helping it to upgrade the safety features of the Kozloduy power station. The station consists of six VVER-type reactors: two first-generation VVER-440/230 units, the design of which Western experts consider unsafe for long-term operation; two second-generation VVER-440s and two VVER-1000s. According to press reports, Bulgaria has long resisted a demand by the European Bank for Reconstruction and Development (EBRD) that units 1 through 4 be shut down, in exchange for near-term assistance from the nuclear safety account. Even among Bulgarian experts, however, there appears to be doubt that the two oldest units can be operated beyond 1998, and latest reports say that Bulgaria has now promised to work out alternative-energy possibilities that might allow the four units to be shut down by 1998, in return for which the EBRD has promised it $28 million worth of safety equipment. Substantial improvements are reported in the safety of the station over-all, however, since work started, in 1991. The Bulgarian authorities reportedly demonstrate willingness to apply strict safety standards, but more work needs to be done. The assistance to Bulgaria might take a large part of the EBRD-administered assets of the Nuclear Safety Account set up by the G-7. So far, twelve countries (Canada, Denmark, Finland, France, Germany, Italy, Japan, Norway, Sweden, Switzerland, the United Kingdom and the United States) plus the European Community have pledged a total of $150 million to the Nuclear Safety Account. Discussions have been held in recent months on the way available funds should be shared among **Eastern European Countries** where, an authoritative German course claims, the overall nuclear safety situation is getting worse. According to that source, the **Czech Republic, Hungary** and **Slovakia** are increasingly safety-conscious and there are positive developments in **Bulgaria**, but in **Lithuania, Russia** and **Ukraine** the preference is said to be for short-term measures; Russia in particular is said to have been reluctant, initially, to accept Western help, but it has now agreed with the European Community on a 12-month study, funded by the latter, on safety aspects of RBMK reactors. The study has started with Smolensk-3, the newest operational RBMK, on which Russia has given the IAEA a report which is said to show that this version of the RBMK-plant is safer than Western experts think. Reportedly, while the IAEA has acknowledged that the plant has some positive safety features of which it had not been aware, it seeks independent international verification of the Russian analyses. The study will go on to older units and incorporate work now done by Sweden to upgrade the safety of the two 1,500-MW RBMK units at Ignalina, Lithuania, and by Finland at the Leningrad plant. The former effort may be delayed by the demand by the Swedish suppliers that before delivery of the safety equipment Lithuania adopt legislation on third-party liability in case of an off-site nuclear accident. The IAEA has issued a list of priorities for the enhancement of the safety of RBMK plants, in Lithuania, Russia and Ukraine. Dutch reactor operators have joined with Belgium, Italy and Spain in 'adopting' power stations in the Commonwealth of Independent States (two multiple VVER-100 units; one in Russia and one in Ukraine) as subjects for nuclear safety assistance. At its biannual general meeting in Tokyo, last April, the World Association of Nuclear Operators (WANO) agreed to help utility operators in East European and former Soviet republics to find financing for safety upgrades of nuclear power stations. (*Atom*, March/April; *Nucleonics Week*, April 29, May 13, 20, June 10, 24, July 1; *East European Energy Report*, 13 May; *The New York Times*, June 23; *The Economist*, June 26th)

- The **Czech Republic** has decided to complete and upgrade the two-unit VVER-1000/320 power station at Temelin, in co-operation with Westinghouse Electric Corp. of the United States, which will supply technology, equipment and services. Westinghouse will also manufacture the first fuel cores for both reactors, plus four reloads. (*Atom*, March/April; *Nucleonics News*, May 20)

- On 13 May, the new government of **France** announced that it was extending the public inquiry into the

relicensing of the 1,240-MW Superphenix breeder reactor for another month, until 14 June. A decision on the restart is not expected before the middle of next year. The government has also said that it would sponsor a national debate on France's energy policy. (*Nucleonics Week*, May 20)

- No headway was made in **Germany** in recent attempts to reach consensus among industry, government, political parties and public lobbies on the country's nuclear policy. The death, in April, of one of two chief industrial proponents of a plan to negotiate an orderly phase-out of existing German reactors and fuel-reprocessing in exchange for agreement that waste disposal sites be licensed and nuclear power be held open as a future option is said to have been a blow to the future of the talks. Pronuclear industrialists were seen as strongly opposed to the proposal. In May, the other promotor of the plan was quoted as saying that a phase-out would be irresponsible, and predicting that there would be no consensus this year on a comprehensive energy policy. The matter is a subject of great controversy. The ruling Christian Democratic Union is pro-nuclear and the Socialists have long favoured a phase-out but they are now thought to be close to accepting a continued use of nuclear power; environmentalists are demanding an immediate shut-down. There is an ongoing debate about the disposal of nuclear waste, on which the respective positions follow the various attitudes to the use of nuclear power.

  The air transport to Scotland of plutonium that was to have been used in Germany's fast breeder reactor at Kalkar, has run into resistance in both countries. Plans for the reactor have been scrapped and the material was to be stored at Dounreay. Environmentalists in Germany claim that the transport should be discontinued because of the risks of dispersal in the case of a crash; the United Kingdom Department of Transport said it was not aware of the shipment, but the Atomic Energy Authority claimed such shipments were routine and the Department had been notified. (*Reuter's Information Services, Inc.*, April 8; *The Independent*, 9 April; *Nucleonics Week*, April 8, 22, May 6, June 17)

- **Indian** media report that the costs of new nuclear power projects are rising far beyond the original estimates, while older stations are losing money. For Kakrapar-1 (India's tenth nuclear power reactor, which went into operation in November 1992) and for the new Rajasthan (RAPP III and IV) and Kaiga reactors current costs are said to be between two-and-a-half and three times the original estimates. Technical problems have forced RAPP I and II and the Madras Power Station to operate below rated power, reducing revenues. The Indian Atomic Energy Agency has cut its target for installed nuclear generating capacity for the year 2000 from 10,000-MW(e) to 5,800-MW(e). Plans for the nuclear power station that was to have been constructed at Kundankulam with Russian assistance have been scaled down from 2,000-MW to 500-MW. It is now thought unlikely that Russia can provide the necessary funds, and India hopes to build the smaller plant by its own means. A fire at the turbine hall of the twin-reactor 440-MW Narora power station, on 31 March, is said to have caused $8 million damage and to have forced a shut-down of at least four months. During 1992, 147 'safety-related unusual occurrences' were reported in nuclear facilities in India, five of which involved fatalities. (*UPI*, April 3, May 12; *Nucleonics Week*, April 15; *The Hindustan Times*, 17 April, in *JPRS-TND-93-012*, 4 May)

- **Japan**'s nuclear energy plan for budget-year 1993 — which started 1 April — was approved in March; it includes the equivalent of $1.71 million for the preparation of designs for a 'top-entry loop'-type fast breeder reactor, to succeed the prototype 'Monju'. Japanese industry has begun studying a next generation of boiling-water reactors, reportedly giving consideration also to the use of plutonium. Three utility companies are said to plan asking Japan's Electric Power Coordination Council in 1994 for approval for the construction of nine new BWR units with a total capacity of 10,637-MW. Approval is expected in 1995; building should start in 2000; and the plants should be commissioned in 2006.

  On 28 April, after many delays and anti-nuclear protests, ground was broken in Rokkasho-mura, Aomori prefecture, for the world's largest reprocessing plant. The French-designed plant, which is due for completion in the year 2000, will have an annual capacity of 800 metric tons of plutonium. It is estimated to cost ¥840 billion (about US$7.8 billion).

  There have been reports recently about hitherto undisclosed shipments of plutonium from France and the United Kingdom to Japan, in the 1970s and 1980s. According to the British press, these shipments included a total of more than one metric ton of plutonium extracted in the United Kingdom from spent fuel from the Tokai-mura reactor, sent to Japan by sea and air.

  Japan's short-term needs for plutonium may be less than expected as a result of delays in the realisation of its fast reactor, advanced thermal reactor and MOX plans. Allegations that the Japanese Ministry of International Trade and Industry tried to influence public opinion through government-sponsored newspaper articles have led to protests by anti-nuclear groups. (*Ens NucNet*, No. 174/93, 28th April; *Reuter's Information Services, Inc.*, April 28; *Nucleonics Week*, April 1; May 6, 13; *The Independent*, 9 May; *NuclearFuel*, April 12; *Japan Times*, April 13, 15; *Yonhap* [Seoul], 28 April, in *JPRS-TND-93-012*, 4 May; *Kyodo* [Tokyo] 1 June, in *JPRS-TND-93-017*, 7 June)

- Kazakhstan is reported to consider constructing near Semipalatinsk a 1,000-MW nuclear power reactor or two medium-sized units. There are several nuclear research facilities of the former USSR in Kazakhstan, including the prototype fast reactor BN 350, which is used for power production and seawater desalination. (*Atom*, March/April)

- The present government of the **Netherlands**, where elections will be held in 1994, is leaving to its successor the decision whether the country will order new nuclear power stations to supplement and eventually replace the two now operating there. Reputedly, by 2008 new generating capacity will be needed, and a decision on

new power sources must be taken soon. The current government has gathered documentation to help the next one take the necessary decisions. Meanwhile, in co-operation with industry, it has promoted work on the development of next-generation reactors and launched a programme to improve and maintain the nuclear competence of Dutch scientists and engineers. The two existing nuclear power stations have been backfitted with a view to extending their lifetime well into the next century. Nuclear-power opponents are suing to have the 58-MW Dodewaart station shut at least until it is given a new operating license; it now operates under a temporary license granted in 1992. The Dutch government is expected to decide later this year whether to issue a license for the expansion of Urenco's uranium enrichment plant at Almelo, from its present capacity of 1,280 MT SWU/yr to 2,500 MT SWU/yr. Reportedly, given the anticipated merger of Urenco's operations in Germany, the Netherlands and the United Kingdom, a decision as to which of its three sites should be expanded would be based on overall demand rather than national needs. (*Nucleonics Week*, May 6, 27; *NuclearFuel*, June 7; direct information)

- **Pakistan** has decided to extend the operating life of its 20-year old Canadian-supplied 105-MW power station at Karachi, KANUPP. Originally scheduled for shut-down after 30 years, its safety features are to be enhanced with Canadian help, so that it should be available for another 20 years from now. (*The Muslim* [Islamabad], 15 January, in *JPRS-TND-93-003*, 27 January, and 27 January, in *JPRS-TND-93-004*, 3 February)

- In **Russia**, the first power reactor to be started up since the break-up of the USSR – the fourth VVER-1000 unit of the Balakovo power station on the Volga River – went critical on 25 March. (*Nucleonics Week*, April 8)

- In **Sweden**, operation of Oskarsham-1, one of the five first-generation BWR power units that were shut down after the discovery of a potential clogging problem in their emergency cooling systems, has been further held up by cracks in the piping of the reactor water clean-up system. The outcome of a study ordered by the Swedish government of the costs of nuclear energy — including those of waste disposal and decommissioning — is expected to be used by both pro- and anti-nuclear groups in next year's election campaign. (*Nucleonics Week*, April 8, May 13)

- Nuclear experts from **Taiwan** have attended a scientific symposium in Beijing. The visit is seen as a possible beginning of co-operation between Taipei and Beijing in the peaceful uses of nuclear energy. (*Chinese News Agency*, [Taipei], 4 March in *JPRS-TND-93-008*, 22 March)

- The tight energy situation in **Ukraine**, said to be due to problems in the supply of gas and oil, especially from Russia, has prompted new discussions about the possibility of lifting the moratorium on new nuclear construction to complete three unfinished VVER-1000 power stations. Supporters of an end to the ban, which the Ukrainian Parliament issued in 1991 and which runs until 1995, see the move as an alternative to keeping two Chernobyl RBMK units going beyond 1993.

No first prize seems to have been awarded in the international competition for the job of constructing a second sarcophagus around Chernobyl-4, the unit that exploded in 1986. The present structure, which was hurriedly built in the second half of 1986, has structural flaws, is affected by radiation and corrosion and might be unable to withstand significant seismic activity. In discussions between German and Ukrainian experts, in April, the latter put the maximum life expectancy of the present sarcophagus at 10 more years and said that the groundwater beneath the reactor was already being contaminated. German experts thought that the structure might survive for 15 years, and said that radiation was contained at one meter above groundwater. A short list selected by an international jury reportedly contained 18 competitors, out of a total of 400 who had submitted proposals for 'Object Shelter'. A French-led symposium, which included British, German and Ukrainian firms, was awarded second prize for the design of a leaktight shell that would go around the reactor, including the present sarcophagus, within which waste treatment, decontamination and dismantling of the reactor would be carried out. The total project was estimated to cost $2.5 billion, of which $300 million would be for the shell. One objection to the concept, and a reputed reason why it was not given first prize, was that it would involve the shut-down of Chernobyl-3, which would be also be covered by the new shell. Chernobyl-3 is supposed to be shut down at the end of 1993, but Ukraine's nuclear authorities hope to keep it going longer. Apparently, whatever the eventual decision, Ukraine will have to rely on foreign financing for the project, and its next move is expected to be to seek bids for a feasibility study, to be paid for by the European Commission. The expectation is that the eventual job will be done by an international consortium and will be financed by Western governments and organisations. Meanwhile, it seems that urgent steps are called for to stabilise the internal structure of Chernobyl-4, which is said to have become more unstable than had been expected even recently.

In the British Isles, restrictions are still in force on the sale, movement and slaughter of sheep that have grazed on pastures contaminated by fall-out from the Chernobyl disaster.

A fire at the Zaporozhe nuclear power plant, set off by a spark from a welder's torch which ignited hydrogen escaping from an accidentally opened valve, killed one worker and seriously injured another. Nuclear components or turbine hall equipment were not thought to have been affected.

France and the United States have made agreements with Ukraine to help it improve the safety of its nuclear facilities. (*ENS NucNet*, News No. 138/93, 5th April; *Nucleonics Week*, April 8, 29, May 6, June 17, July 1; *International Herald Tribune*, May 22)

- In the **United Kingdom**, the startup of British Nuclear Fuel's thermal oxide reprocessing plant (THORP) at Sellafield, which was to have taken place late last year and was since put off until September, will be delayed again as the result of a decision of the Environment Secretary to have further consultations on economic,

environmental and political aspects of the project. No decision is expected before November. Each week's delay is said to cost £2.4 million; BNF says that so far, the holdup has cost £50 million. The company has announced that it will lay off 1,700 contract workers at Sellafield and that it is also forced to reduce the clerical staff at its Risley office by 1,500 persons. (*Independent*, 29 June; *The Daily Telegraph* and *Financial Times*, 30 June; *Nucleonics Week*, July 1)

- The new **United States** Administration is cutting federal spending on nuclear research and development projects by 45%. The projects cut include the integral fast reactor; the modular, high temperature gas-cooled reactor (on which the General Atomics Co. had hoped to co-operate with Russia — see above); the liquid metal reactor and the space reactor programme. Work on light water reactors will be funded at a slightly lower level than before.

  The Tennessee Valley Authority has advised the Nuclear Regulatory Commission (NRC) that it intends to complete the 1212-MW Bellefonte-1 station, on which worked was suspended in 1988 when it was about 80% complete.

  There is a report that, in the wake of the shut-down of the 32-year old Yankee Rowe reactor, in response to questions about the integrity of its reactor vessel, the NRC has identified 15 nuclear power stations of which the reactor vessels must be analysed to make sure that the metal, although weakened by radiation, is still strong enough to meet safety requirements. Apparently, one American power reactor in seven is affected by embrittlement of its reactor vessel. This seems to have occurred at a much faster rate than anticipated.

  The NRC has warned operators of 34 boiling water reactors — i.e., all but two of the power reactors supplied by General Electric — that the instruments used for the measurement of the water level in the reactors may give false readings and must be replaced.

  Prompted by the intrusion of a deranged man who crashed his car through the fence around the Three Mile Island nuclear plant, last February, the NRC on 30 June approved a rule requiring operators of nuclear power stations to reinforce the fences in the area of the reactors to prevent trucks crashing through them and, where fences are close to the facility, either move them farther out or demonstrate that an explosion against the present fence would not cause damage to equipment controlling radioactive material. A report on the event of last February says that the security measures fully conformed with the rules, but these did not provide for means against vehicular attack.

  The Indian Point-3 nuclear station, 35 miles from mid-Manhattan, has been cited for safety and management problems. It has been plagued by problems ever since it came on line, 17 years ago. Efforts are underway to remedy the defects.

  The fuel from the Shoreham nuclear power plant on Long Island, which was shut down for administrative reasons before it started commercial operation, will be moved to a power station at Limerick, Pennsylvania. The material is only lightly radioactive and extensive precautions are being taken to avoid any contamination risk, but the plan to move the 100 tons of material involved, in 33 separate rail trips through populated urban areas, is causing some public excitement, especially among local politicians. A slower alternative, of shipping the consignment by barge, is now being considered. The cost of decommissioning the plant is estimated at $186 million, not counting the $45 million which the Long Island Power Authority must pay the Philadelphia Power Company to take the fuel; the shipment, which will cost $20 million; or the $3 million a month spent to guard it. There is a suggestion to use the canal that was dug to draw cooling water from Long Island Sound to the reactors as the harbour for a new high-speed ferry across the Sound. (*Nucleonics Week*, April 1, 8; *The New York Times*, March 29, April 2, 8, 21, 23, June 1, 22, July 1; *The Energy Daily*, June 2)

i. Events in Nuclear-Weapon States

- It has been reported that the **United Kingdom** will not develop a new nuclear weapon to replace its WE177 free-fall nuclear bomb. (*Press Association* [London], 17 May, in *JPRS-TND-93-015*, 24 May)

- The **disposal of marine propulsion reactors** is causing increasing problems, not only in and around **Russia** (see below) but also for other countries operating nuclear-propelled ships.

  The **United States** stores its discarded submarine reactors on land. The Idaho National Engineering Laboratory has long been used for this purpose as well as for the storage of spent fuel cores from naval vessels, including surface ships. In response to a suit brought by Idaho's Governor, however, in June a Federal judge in Idaho ordered shipments of spent fuel to the site suspended until the Department of Energy has completed a thorough environmental study of the area. This is expected to prevent disposal at least until 1995, when the study, which was begun in 1992, should be ready. The Department has expressed concern that the order may interfere with the refuelling of naval vessels. Currently, also, 35 submarines are being retired.

  In the **United Kingdom** a number of nuclear-powered attack boats and several missile-launching submarines are being decommissioned, but there is no indication of a decision as to what will be done with the reactors. (**Nucleonics Week**, April 15; **The New York Times**, June 13, 30)

- The **United States** draft budget for 1994 includes $6.5 billion for the clean-up of contaminated weapon-production sites; this represents almost a third of the total budget request for the Department of Energy, and is an increase of 18% over the current year. Of this amount, $1.6 billion will go for the clean-up of the Hanford Nuclear Reservation, with the bulk of the rest being divided among the Oak Ridge, Savannah River, Idaho and Rocky Flats establishments. There will be an across-the-board reduction in funds and jobs for defence activities. Following a cut of $210 million in funds for the production of nuclear weapons at the Savannah River site, Westinghouse Electric Corp.,

which is in charge of the idled K-reactor there that was used for the production of tritium, is decreasing its workforce by 2,500, or 16%; more cuts are expected.

Work has started on decontaminating and dismantling the production reactors and reprocessing plant at Hanford. The job will take longer than the original construction and is expected to cost more than $2 billion a year by 1997. Agreement is said to have been reached among the various interest groups involved, to create at the centre of the Hanford reservation, where the waste tanks and some of the plutonium facilities are, a long-term dump for waste from other sites in the area, including the radioactive cores from the reactors that line the Columbia River. Apparently as a compromise between those who want a firm cleanup schedule to be set for the entire site and others who think that it may never be possible to decontaminate the dump area completely, a clean-up goal has been set of 100 years from the time decontamination and decommissioning of the rest of the area has been completed.

Construction of a $1.7-billion facility for the processing of highly active nuclear waste from the Hanford Nuclear Reservation, which was due to start on 1 April, has been put off for at least six months. One reason for the postponement seems to be the finding of the Government Accounting Office that the plant would not be adequate for the job. Apparently, it has not yet been decided what waste would be treated there and precisely how it would be treated. One factor to be taken into consideration is where the treated waste will be stored. It is said that the licensing process for the mode of storage can itself take years. A license for the disposal mode must therefore be obtained before the plant is built.

Claims for compensation for health defects caused by radioactive fall-out from atmospheric tests over the Pacific Ocean are still coming in and are expected to exceed the funds set aside for the purpose by the United States government. A federal law to help people who can claim to have been affected by the testing programme — the Radiation Exposure Compensation Act — sets benefits for three categories of victims. 'Downwinders' — such as inhabitants of southwestern Utah who lived in an area affected by fall-out from nuclear tests above the Nevada Test Site, near Las Vegas, in the early 1950s — and who suffer from specified forms of cancer, are entitled to a maximum of $50,000 per family. By 1 May, of 1,307 claims for compensation from people in this category, 348 had been approved and 267 rejected. On-site participants, whose maximum entitlement is $75,000, had submitted 325 claims, of which 16 had been approved and 89 rejected. Among the third category, uranium miners, who may be compensated up to a maximum of $100,000, 1,125 had made claims; 341 of these were approved and 131 denied. The Act was passed in 1989, many years after the first claims were submitted, and following a ruling by a Federal court of appeals — upheld by the Supreme Court — that the government could not be sued for discretionary acts performed in good faith.

Adm. James Watkins, Secretary of Energy in the former Administration, has charged in a letter to members of Congress that his successor, Hazel O'Leary, is giving insufficient attention to nuclear safety. In a recent reorganisation of the Department of Energy (DOE) the independent Office of Nuclear Safety, which Watkins created, was absorbed into the Office of Environment, Safety and Health. Some see this as a signal that DOE is reverting to the practice of leaving safety matters largely in the hands of industrial contractors. A report by the departing director of the Office of Nuclear Safety claims that deteriorating equipment, worker sabotage, documentation falsified to cover up inadequate performance and inept management have undermined safety at US weapon plants to the point where there is a high likelihood of a disaster. The report is said to record a number of incidents where tampering with equipment and the falsification of records might have caused serious accidents, and to contain a long list of recent safety related incidents at virtually every major weapon-production site in the country. (*The New York Times*, April 4, 8, June 9, 21; *NuclearFuel*, April 12; *The Energy Daily*, April 16; *The Washington Post*, April 18; *The Guardian*, 30 April; *The Washington Post National Weekly Edition*, May 31-June 6 (two reports); *Nucleonics Week*, April 8, May 6)

j. Events in the Commonwealth of Independent States

- The United States is looking for international participation in the Safe Secure Dismantlement (SSD) Programme with respect to former Soviet nuclear weapons. Ambassador James Goodby, Chief of the SSD, speaking at a UN meeting in Japan, called for multinational participation in the design and construction of a storage facility for fissile material; assistance to **Russia**, **Kazakhstan** and **Ukraine** in taking apart nuclear missiles; cleaning-up contaminated missile silos and nuclear facilities; converting defense plants to civilian purposes; and training personnel for other occupations. Japan has announced that it will offer Russia technological assistance for the storage of plutonium derived from dismantled nuclear warheads. It has also promised to provide **Belarus**, Kazakhstan and Ukraine with equipment and technology to help them set up their internal safeguards systems. Belarus says that disposing of its nuclear arsenal will cost $232 million. (*The Japan Times*, April 14; *Yomiuri Shimbun*, *Reuter's Information Services, Inc.* and *United Press International*, April 10; *The Daily Yomiuri*, April 16; Statement by Amb. Goodby at the *Third United Nations Conference on Disarmament Issues*, 13-16 April, Kyoto; *NuclearFuel*, April 26; *Reuters*, 23 June)

- The issue of the emigration of nuclear experts from **Russia** and other **member states of the CIS** remains a matter of concern. Russian security personnel are supposed to have prevented 64 experts in missile and nuclear technology from leaving for North Korea. While denying that nuclear specialists were involved in this incident, a spokesman for the Russian Ministry of Atomic Energy said that there are in fact no obstacles to anyone's travel; almost a thousand persons from the Kurchatov Institute were working under contract at British, German and American laboratories. A new Russian decree on the rights of citizens to free exit and unhindered return is not considered to have altered the situation. The Russian scientific community is further weakened by the fact that many scientists who stay in

Russia have lost their jobs or leave them for better paying ones. (*Literaturnaya Gazeta*, 20 January; *Kommersant* [Moscow], 1-7 February; both in *JPRS-TND-93-006*, 5 March; *Segodnya* [Moscow], 20 April, in *JPRS-TND-93-013*, 10 May)

- **Kazakhstan** has ratified START I but has not yet met its commitment to accede to the NPT as a non-nuclear-weapon state and to part with the strategic nuclear weapons on its territory. It is said to be encouraged in this delay by Ukraine's tardiness in doing so. There are 104 intercontinental ballistic missiles in Kazakhstan, carrying ten warheads each, and 40 Bear-H bombers with gravity bombs and air-launched cruise missiles, accounting for 320 more warheads. Kazakhstan has a sophisticated nuclear establishment (see above, under **h. Peaceful Nuclear Developments**), but the controls over its operations appear to leave much to be desired and the nuclear material accounting system is reputedly primitive. This is demonstrated by a statement ascribed to an IAEA source, that Kazakhstan recently 'discovered' a 50-MW research reactor on the nuclear test range at Semipalatinsk. Experts point to the military potential of the country's nuclear programme, which officials at Alma-Ata contend is intended exclusively for peaceful purposes. Another source of concern abroad is the perceived laxity of the country's export controls. The governments of Germany and the United States have asked the authorities in Alma-Ata to investigate the smuggling of nuclear fuel and dual-use materials supposedly of Kazakhstani origin. (*The Economist*, April 3rd; *International Herald Tribune*, May 17; *The Washington Post National Weekly Edition*, May 24-30)

- The explosion, on 6 April, of a tank containing highly-concentrated uranyl-nitrate in a chemical reprocessing plant at the nuclear city of Tomsk-7, in Siberia, is blamed on inadequate monitoring of the concentration of the nitric acid solution, combined with the fact that an emergency release valve was partly closed and had not been checked before acid was added. Initial reports, including preliminary analyses by the IAEA of soil and melted snow, described the off-site contamination as small, although the explosion itself had been very powerful. The IAEA team found that of 310 grams in the plant only 82 grams could be recovered after the explosion. Russian nuclear authorities said that, although the incident was qualified as the worst since Chernobyl, its environmental effect was 80 million times less; no site personnel had suffered undue exposure. The IAEA team criticized radiation protection at the plant. First reports said that about 2,500 acres of unpopulated land were contaminated, but this was subsequently amended to 35 square kilometres and then raised to 200 square kilometres. While the reports still do not appear to be complete, there has so far not been any information about personal injuries. The Tomsk facility has long been known to be heavily polluted and operated at below-standard levels. Environmental groups accuse Russian authorities of downplaying the extent of the contamination and are calling for the evacuation of inhabitants of the region; they are also agitating for the closing of the Tomsk reprocessing plant and against the construction there of a storage facility for plutonium from dismantled weapons. (*Reuters Information Services*, April 6; *The New York Times*, April 7, 8; *The Washington Post*, April 7; *The International Herald Tribune*, April 8; *The Wall Street Journal* [Europe], April 8; *Le Monde*, 8 April; *Financial Times*, April 8-9; *The Daily Telegraph*, 8, 10 April; *Associated Press*, 11, 12, 13 April; *NuclearFuel*, April 12; *The Times* [London], 13 April; *Die Presse*, 13 April; *ENS NucNet*, News No. 148/93, 13 April; ditto Background No. 17/93, 19 April; News No. 185/93, 11 May; *Nucleonics Week*, April 15, May 13, June 17; *Kurier*, 19 April; *Agence France Presse*, 19 April, and *Deutsche Presse Agentur*, 20 April, both in *JPRS-TND-93-011*, 23 April; *New Scientist*, 24 April; *La Libération*, 12 May)

- Reports from **Russia** reveal that for 25 years, the former USSR followed a practice of dumping much of its nuclear waste into the surrounding seas. Since 1957, the Soviet navy is reported to have scuttled a considerable number of submarines, some of them with twin reactors, as well as the reactors of several surface warships and of six nuclear ice-breakers, in the seas around the country. Russia is expected to scrap at least 45 more nuclear vessels in the first half of this decade. Seventy percent of former Soviet navy vessels are said to be idle, many of them fuelled-up. The United States is contemplating providing equipment and technical assistance to convert existing Russian shipyards into storage facilities for scrapped submarines.

Deteriorating sunken submarines are said to pose an increasingly urgent problem. There is a prospect that radioactive leaks from the Soviet submarine *Komsomolets*, which sank in 1989, 300 nautical miles from the Norwegian coast, may contaminate arctic fishing grounds. There have been several proposals for encapsulating the reactor and the nuclear torpedoes or possibly salvaging the latter, as it is not feasible to raise the submarine itself, but this has not yet been decided. Some western experts believe that reports about the threat posed by the wreck are deliberately exaggerated in an attempt to collect money for the clean-up. Russia has acknowledged that in 1974 the US salvage vessel *Glomar Explorer* managed to recover the bow section and two nuclear-tipped torpedoes, of the Soviet Golf-2 class submarine *PL-722* which sank off Hawaii in 1968. Due to a defect in the salvaging equipment the main section of the boat broke off and dropped back.

Norway is asking to inspect Russian nuclear dumping sites in the Barents and Kara Seas, where most submarine reactors have been dumped. It is now also known that in 1989 contaminated water from a tank with spent fuel assemblies from submarine reactors leaked into the sea close to the Norwegian coast.

Japan has long been worried about contamination of the Sea of Japan, the Sea of Okhotsk and the areas near Kamchatka, and has asked Russia to stop disposing of nuclear waste at sea. Reportedly, Russia has said that since it does not have the facilities needed to process and store the waste, it will have to continue for the foreseeable future its practice of radioactive waste disposal at sea. In late June, following a three-month, sea-borne and on-shore monitoring exercise, Japan issued a provisional report according to which no evidence had been found so far of negative health

effects. However, it will continue to insist on an immediate end to the disposal of radioactive waste at sea, and is expected to bring the matter up at the summit meeting of the G-7 states in Tokyo, in July; reportedly, it will suggest helping Russia build facilities to store radioactive waste.

South Korea is ready to contribute experts, equipment and funds to finance a joint survey of damage caused in the area.

An international scientific conference at the Woods Hole Oceanographic Institution in Massachusetts, United States, on the sea dumping of nuclear waste, has reportedly concluded that the wastes discarded so far do not seem to pose a worldwide danger. Participants also reached the consensus that on a regional scale there was no evidence of radioactive contamination currently posing a threat to human health. (*The Bulletin of the Atomic Scientists*, Vol. 49, No. 3, April; *The Wall Street Journal Europe*, April 2-3; *International Herald Tribune*, April 3-4; *The Daily Telegraph*, 3, 12 April; *The Sunday Times*, 11 April; *The Independent*, 12 April; *Asahi Evening News*, April 13; *Nucleonics Week*, April 15, 22, July 1; *The Daily Yomiuri*, April 17; *Tribune de Genève*, 6 May; *The New York Times*, April 27, May 21, June 3, 13 and 20)

- The IAEA and the United Nations Development Programme have launched an initiative to improve radiation protection systems and nuclear safety networks in the newly independent states of the former Soviet Union. As a first step, a ministerial-level forum was held in Vienna, from 4 to 7 May, in which **Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrghystan, Latvia, Lithuania, Moldova, Russia, Ukraine** and **Uzbekistan** participated, along with representatives of other countries in the region and of interested organisations. The forum was intended to help determine where international assistance should be focused. (*IAEA Press Release*, PR93/9, 28 April)

k. Developments of Concern for Horizontal Proliferation

- In **India,** the leader of the Bharatiya Janata Party, Lai Krishna Advani, has stated that when his party comes to power the country will go nuclear. He called for amendment of the NPT, to remove its discriminatory elements; alternatively, he said India could accede to the Treaty as a nuclear-weapon state.

  International concern persists that an armed conflict between India and **Pakistan** might eventually take on a nuclear dimension. However, American sources deny assertions made in the *New Yorker* magazine of March 29, that in 1990 the two countries were on the brink of a nuclear war.

  India is reportedly seeking the consent of the United States for the reprocessing of the fuel irradiated in the (US-supplied) Tarapur reactor; Washington is said to have told New Delhi that it cannot do so unless it accepts full-scope safeguards. (*The Hindustan Times*, 17 April, in *JPRS-TND-93-011*, 23 April; *The Wall Street Journal*, April 20; *Nature*, 17 June)

- **Iran**'s efforts to build up its military potential fuels concern at the possibility that it is engaged also in a military nuclear programme. Reports that Iran may have acquired several nuclear warheads from the former Soviet arsenal reappear periodically in the international press, most recently in May, when there was a report in the German press that an Iranian physicist defecting to the United States had claimed that Iran had obtained 'at least' two warheads, one of them from the former Soviet military. American intelligence sources are quoted as saying that Tehran's fast-expanding peaceful nuclear programme, to which China and Russia are each contributing two medium-power reactors, (China is also said to be about to supply two research reactors) may be used as a cover for a secret effort to develop nuclear weapons, or to create the necessary infrastructure. The United States is making an effort to isolate Iran by persuading other countries to cease their commercial and financial transactions with that country. Reports from Germany claim that Iran has tried to buy nuclear components from several major German firms. (*The New York Times*, April 8, May 27; *The Guardian*, 9 April; *Japan Times*, April 15; *Der Spiegel*, 3 May; *Die Presse*, 7 May; *The Wall Street Journal*, May 12; *Berliner Zeitung*, 14 May, in *JPRS-TND-93-015*, 24 May)

- Reports of an exchange of visits between **Israel** and the **Republic of Korea** (South Korea), to discuss co-operation between the two countries, are thought to be connected with the nuclear activities of the **Democratic People's Republic of Korea** (North Korea). The latter alleges that the intelligence services of the two states are co-operating and that Seoul intends to make an air raid on the North Korean installations, along the lines of Israel's attack of 1981, on the Osirak reactor. Presumably in an attempt to persuade Pyongyang not to sell **Iran** nuclear technology and nuclear-capable missiles, Israel is said to have begun talking with North Korea in October 1992 on possible trade. The talks were apparently suspended at the request of the United States after DPRK announced its withdrawal from the NPT, but they are expected to be resumed soon. (*Nucleonics Week*, May 6; *KCNA* [Pyongyang], 15 May, in *JPRS-TND-93-015*, 24 May; *The New York Times*, June 20)

- **Iraq** and the IAEA have concluded a memorandum of understanding on the removal of the spent fuel from the Soviet IRT-5,000 and the French Osirak research reactors. Reportedly, the shipment involves about 86 lbs of highly-enriched uranium. A preliminary agreement has been made with Russia to transport the fuel by air from Iraq to a Siberian reprocessing facility. Earlier, the United Kingdom and France had jointly offered to recover the material and render it harmless. Apparently, that agreement was about to be signed when Russia made its bid, which includes taking responsibility for the waste and reprocessed material; the earlier offer was found less attractive in that it stipulated that the waste would be returned to Iraq.

  Dr. Maurizio Zifferero of the IAEA is quoted by *Reuters Information Services* as saying that there were no secret nuclear activities taking place in Iraq and that he was convinced all the major elements of Iraq's nuclear programme had been accounted for. He is also reported to have said, however, that Iraq was still not

providing all details of its procurement network. In a report submitted to the Security Council on 19 April, the Director General of the IAEA said that renewed resistance by the Iraqi authorities to providing clarifications about its nuclear material inventory made it impossible for the IAEA to conclude that all such material had been declared and presented to it. Mr. Blix also indicated that the Iraqi government had persisted in its refusal to provide the IAEA with information related to foreign procurement and procurement networks, in particular as it related to enrichment. In early March, IAEA inspectors are said to have found undeclared dual-use equipment that might have served to produce nuclear weapons but is not thought to have been used for that purpose. According to the IAEA, precision grinding tools, measuring devices and high-speed cameras made in **Japan** were used in Iraq's nuclear programme. The IAEA did not identify the firms involved. Japanese authorities have started investigations. Inquiries are also underway in the **United Kingdom** about the alleged involvement of senior British government officials in the export of dual-use equipment to Iraq, in violation of regulations promulgated in 1985. Doubts surfaced earlier in connection with the prosecution of the Matrix Churchill company for presumably illegal exports of equipment for weapons manufacture which had apparently been approved by the government. (*Kyodo* [Tokyo], 26 and 30 January in *JPRS-TND-93-004*, 5 February; *Agence France Presse*, 11 March, in *JPRS-TND-93-008*, 22 March; *The Times* [London], 1 April, 1, 4, 5, 13 May; *The New York Times*, April 20, May 4, 5; *The Daily Telegraph*, 20 April, 3, 13 May; *The Guardian*, April 20, May 4, 5, 6; *Gulf News*, April 24, 25, May 1; *Enerpresse*, No. 5814, 30 April; *The Observer*, 2 May; *The Independent*, 4, 5, 6, 13 May; *Financial Times*; 5, 12 May; *NuclearFuel*, May 10)

- Reports of co-operation in the development of nuclear warheads between **Israel** and **South Africa** continue, although the latter, in announcing its former nuclear-weapon programme, has categorically denied that such co-operation took place. Some reports speak of an exchange of South African uranium oxide ('yellow cake') for Israeli tritium.

  Israel's Minister of Environmental Affairs has denied claims that the Dimona reactor is in disrepair. The government has rejected calls to remove nuclear waste from the site. Apparently under pressure from nuclear authorities, members of Israel's Parliament are believed to have withdrawn a motion to discuss the issue. Earlier reports about the leakage or the deliberate disposal of radioactive waste water from Dimona in the Negev desert are believed to have been hushed up; following repeated reports about higher-than-average radiation levels in the area, officials of the Environment Ministry (rather than, as usual, personnel of the Atomic Energy Commission or the facility itself) in April made tests which supposedly revealed that the radiation, although higher than acceptable by Israeli standards, posed no risk to health or the environment. In June, Israeli authorities permitted journalists to witness renewed measurements, which reportedly found radiation levels below the internationally accepted standards. Egypt and Israel have also been discussing the matter. Local press comments see the event as part of a move towards more openness about the country's nuclear activities. (*City Press* [Johannesburg], 28 March, in *JPRS-TND-93-010*, 16 April; *Nucleonics Week*, April 1, May 6; *Qol Ysra'el* [Israel Radio]) 14 April, in *FBIS-NES-93-070*, 14, 17 April, in *FBIS-NES-93-73*, 19 April, 23 April, in *FBIS-NES-93-077*, 23 April; *Ha'aretz* [Tel Aviv], 25 April, in *FBIS-NES-93-082*, 30 April; *Jerusalem Post*, 10 June)

- The former head of the Department for Foreign Intelligence of **Romania** claims that work was started in the Ceausescu era on medium-range ballistic missiles with nuclear warheads. There is also a report that Romania had worked on plutonium extraction. (*Evenimentul Zilei*, 10 May in *JPRS-TND-93-014*, 18 May; *Rompres*, 25 May, in *JPRS-TND-93-016*, 1 June)

- The announcement by **South Africa**, last March, that it had built and dismantled six nuclear explosive devices and was working on a seventh when the decision was taken to stop the programme, still occupies the international press. South African newspapers have run long interviews with major figures involved in the programme and additional detail is becoming available about the nature of the programme and the devices produced. As an apparent point of concern, newspapers note that the scientist originally in charge of the weapons programme, Dr. Wally Grant, is now the leader of the movement for a separate white Afrikaner homeland. Some African experts claim that the estimate given by Dr. Waldo Stumpf, head of the Atomic Energy Corporation, of the cost of the programme, i.e., R (Rand) 70-80 million a year over ten years, is too low; one has put the real cost at ten times that figure. Research work is said to have started in 1971 on a 'peaceful' nuclear explosive for the mining industry. Apparently, in 1977, the non-nuclear component of the device was ready for testing with a dummy core at a site in the Kalahari Desert, but the attempt was discontinued under diplomatic pressure from the United States and the Soviet Union, whose satellites had spotted the excavations. In 1978, the government reportedly ordered the start of a nuclear weapons programme and the production of highly-enriched uranium. This resulted within seven years in the production of several hundred kgs of weapons-grade material and the manufacture of the six, supposedly gun-type, nuclear weapons which were dismantled before South Africa acceded to the NPT in 1991. It is noticed in this connection, however, that there are indications of attempts at developing more sophisticated implosion weapons. IAEA inspectors have been given access to metallurgical, testing and diagnostic equipment involved in the nuclear weapons programme. The IAEA earlier saw a facility that had evidently been used for the development of nuclear weapon cores, which South Africa initially claimed was used for reactor development. Rumours that emerged in recent years about South Africa's supposed production of 200-400 kg of weapons-grade uranium are now seen to have been roughly consistent with its acknowledgement of the production of seven explosive devices. South Africa says that all highly enriched uranium from the dismantled devices was melted down into metal ingots, unsuitable for explosive use, and that all of it has been included in the inventory of nuclear material notified to the IAEA and open to verification. While it claims it has produced only the 880 lbs (400 kg) of en-

riched uranium it has supposedly notified to the IAEA, some US intelligence experts believe that it might have produced three times that amount if the enrichment facility at Valindaba — which has since been closed down — had operated at full capacity, and that the production records may have been changed. There are rumours that material may have been exported, to Israel, among others, and that some has been hidden. There is talk of plans to analyse the ink and the paper used in the records to establish their age, and thus to find out if they date from the time the material is said to have been produced or have been fabricated afterwards. (*Sunday Star* and *Sunday Times* [Johannesburg], 28 March; *The Weekly Mail*, [Johan- nesburg] 26 March-1 April; all in *JPRS-TND-93-010*, 16 April; *Nucleonics Week*, April 1; *NuclearFuel*, March 29; Special report by Mark Hibbs in *NuclearFuel*, May 10 and 24; *Jane's Defence Weekly*, 10 April; *The Washington Post*, May 12; *The Washington Post National Weekly Addition*, May 17-23; *The Financial Times*, May 20; *IAEA Newsbriefs*, May/June; *Business Day* [Johannesburg], 14 May, in *JPRS-TND-93-015*, 24 May)

II. PPNN Activities

- From 31 March to 7 April, Emily Bailey, Jan Bird, Darryl Howlett, Ben Sanders and John Simpson were in Zimbabwe for PPNN's African regional seminar.

On 13-15 April, Ben Sanders attended a conference on 'Disarmament and National Security in an Interdependent World' held in Kyoto, Japan, under the auspices of the United Nations. He presented a paper on preparations for the 1995 NPT Conference. On 16 April, he participated in a panel discussion at the 26th JAIF Annual Conference, in Yokohama, and made a statement on the present relevance of the NPT. On 19-20 April, he took part in a conference in Tokyo on 'Post-Cold War Cooperative Denuclearization and Plutonium Issues', organized by the International Institute for Global Peace, Tokyo and the Centre for Science and International Affairs of Harvard University. While in Japan, he gave ten newspaper interviews.

On 18-21 April, John Simpson was in Cairo for a Regional Conference of Research Institutes in the Middle East, organised by UNIDIR in association with the Institute of Diplomatic Studies, Cairo. In the course of the meeting, he made a post-lunch presentation on PPNN's Regional Meeting at Harare and on the account offered there of the South African programme to produce nuclear devices. He also held consultations with the directing staff of The National Centre for Middle East Studies and the Al-Ahram Centre for Political and Strategic Studies.

On 22 April, Ben Sanders spoke on the connection between the peaceful uses of nuclear energy and nuclear proliferation, at the NGO Conference held at UN headquarters in New York.

On 27 April, Ben Sanders and John Simpson called on the W. Alton Jones Foundation in Charlottesville, Virginia and on 28 April they visited the John D. and Catherine T. MacArthur Foundation in Chicago. On 29 April, they both lectured at the Argonne National Laboratory there, on aspects of nuclear non-proliferation.

On 4 May, Ben Sanders participated in a meeting of the IAUP-UN Commission on Arms Control Education, at the United Nations in New York.

On 6 May, John Simpson made a presentation on the background to the NPT at the initial session of a BASIC/CDS seminar on 'The Nuclear Non-Proliferation Treaty (1993 PrepCom and 1995 Review)', held at Kings College, University of London, and then give a lecture on the current state of arms control negotiations at the Greenwich Royal Naval College, London.

On 8 May, Ben Sanders and John Simpson, spoke at a roundtable meeting on 'Preparing for the 1995 Non-Proliferation Treaty Extension Conference' organised at the United Nations in New York by the Canadian Centre for Global Security.

On 10-14 May, Ben Sanders acted as consultant/advisor to the Secretariat of the first session of the Preparatory Committee for the 1995 NPT Conference.

On 17-19 May, in Bad Ems, Germany, Ben Sanders and John Simpson attended a conference held by the Peace Research Institute, Frankfurt and the Monterey Institute of International Studies, and spoke on preparations for the 1995 NPT Conference. On 24 May, they made presentations on the 1995 NPT Conference at a briefing meeting convened by Harald Müller as part of PRIF's European Non-Proliferation Programme, at the Royal Institute for International Affairs in Brussels. The purpose of this meeting was to discuss with members of the Belgian Foreign Office priorities and possible initiatives in the non-proliferation area during Belgium's Presidency of the EC.

On 3–4 June, John Simpson co-chaired a Franco-British meeting on nuclear non-proliferation convened by the Mountbatten Centre for International Studies (MCIS) at Southampton, and also made a presentation on Security Assurances.

On 16 June, Ben Sanders took part in a roundtable discussion of the 1995 NPT Conference, held by the Atlantic Council of the United States in Washington.

On 18 June John Simpson co-chaired a meeting of the UK National Nuclear Non-Proliferation Study Group, and also made a presentation on Security Assurances. At the same meeting, Darryl Howlett made a presentation on the South African programme for the production of nuclear devices, and its implications for nuclear non-proliferation.

John Simpson visited New York from 27 June to 3 July to participate as a member in a meeting of the UN Secretary-General's Advisory Board for Disarmament Matters. At this meeting, he made a presentation on priorities in the areas of disarmament and arms control through to the end of the decade. On 30 June, he and Ben Sanders called on Dr. Thomas Graham, of the Rockefeller Foundation in New York. He also used his

presence in that city to call on Mr. Geoffrey Wiseman, of the Ford Foundation, on 2 July.

- PPNN held its third regional meeting on nuclear non-proliferation [previous meetings having been in Germany and Japan] at the African Rehabilitation Institute Headquarters, Batanai Gardens, Harare, Zimbabwe from Friday, 2 April to Sunday, 4 April 1993. This took the form of an international workshop on 'Africa and Nuclear Non-Proliferation' for senior African government officials. The workshop was organised for PPNN by the Department of Political and Administrative Studies, University of Zimbabwe jointly with the Mountbatten Centre for International Studies, University of Southampton, UK. The workshop was chaired by Ben Sanders and was attended by the nominees of 23 African states; 10 members of the PPNN Core Group and staff; 1 representative each from the Organisation of Africa Unity [OAU], the IAEA and the UN; 4 representatives of the Department of Political and Administrative Studies of the University of Zimbabwe; and 3 additional expert speakers and panelists. Those present included members of the UN/OAU Group of Experts set up 'to Examine the Modalities and Elements for the Preparation and Implementation of a Convention or Treaty on the Denuclearization of Africa'. The meeting was also attended by observers from the University of Zimbabwe, local non-governmental organisations and the diplomatic corps. French-English and English-French simultaneous interpretation was provided, and all prepared papers were available in both languages.

  The workshop comprised 5 sessions in which short presentations were made, based on papers that had been circulated in advance of the meeting and was followed by a discussion period. Session 1 on ***The Nuclear Non-Proliferation Regime and the Non-Proliferation Treaty Conference in 1995*** was based on papers by Ben Sanders (*The Nature of the Non-Proliferation Regime - PPNN paper number IW1/1*) and John Simpson (*The 1995 NPT Conference - IW1/2*). Session 2 on ***Africa and the New Political/Military Environment***, included papers by Solomon Nkiwane (*African Security in the Changed International Situation - IW1/3*), and Sola Ogunbanwo (*An African Nuclear-Weapon-Free Zone: Current Proposals - IW1/4*). This session ended with a discussion on *'An African Nuclear-Weapon-Free Zone: Requirements and Prospects'* led by members of the UN/OAU Group of Experts. Session 3 on ***Africa and the Peaceful Uses of Nuclear Energy*** involved papers by Waldo Stumpf [Atomic Energy Corporation of South Africa] (*Nuclear Energy in Africa: Issues and Prospects for Nuclear Power and Radioisotopes - IW1/5*); Jan Murray (*Africa's Role in Meeting World Uranium Demand - IW1/6*) and John Tilemann [IAEA] (*Regional Nuclear Co-operation Arrangements in Africa -IW1/7*). Session 4 on ***Africa and the Global Non-Proliferation Regime*** was structured around papers by Mohamed Shaker (*Africa and the Nuclear Non-Proliferation Treaty - IW1/8*), David Fischer (*Africa and IAEA Safeguards -IW1/9*) and Olu Adeniji (*How Can Africa Strengthen the Nuclear Non-Proliferation Regime - IW1/10*). In **Session 5**, John Simpson, as workshop rapporteur, presented a short paper entitled *Africa and Nuclear Non-Proliferation: Some Reflections of the Rapporteur*. This was followed by a panel discussion involving Oleg Grinevsky, James Leonard, Gift Punungwe and Olu Adeniji.

  It is hoped to have a bound volume of papers from the workshop, including a summary paper by PPNN staff on the background to South Africa's military nuclear capability and its subsequent dismantlement, available for distribution and sale in September.

- PPNN is holding its Thirteenth Core Group meeting at the Chilworth Manor Conference Centre, University of Southampton, United Kingdom between 8 and 12 July 1993. The meeting is combined with a 3-day international seminar for senior diplomats and officials from 40 states party to the NPT, including most of those who have acceded to the Treaty since 1990. Information on the papers prepared for the meeting will be given in Newsbrief 23.

- The bound volume of papers arising from the International Seminar on East Asia and Non-Proliferation which was held in Japan in November 1992 has been completed, and is available for distribution and purchase. It is now expected that PPNN Study 4, **Nuclear Export Controls**, will be published and distributed in August.

III. Other Non-Governmental Groups Active in Related Areas

- On 20-23 April, a conference of non-governmental organizations, organized by the **NGO Committee on Disarmament, Inc.**, was held at United Nations headquarters in New York, on the subject 'New Realities: Disarmament, Peace-building and Global Security'. It was attended by over 500 representatives of more than 50 NGOs from sixteen countries. (**Press Release**, April 26)

- The **UK National Nuclear Non-Proliferation Study Group** held its eleventh meeting on 18 June 1993. Among subjects discussed were Nuclear Proliferation and the CIS; the first session of the Preparatory Committee for the 1995 NPT Conference; South Africa and Nuclear Weapons; and Security Assurances.

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V. Documentation

Progress Report of the Preparatory Committee for the 1995 Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (First session)

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INTRODUCTION

1. At its forty-seventh session, the General Assembly of the United Nations, in its resolution 47/52 A of 9 December 1992, took note of the decision of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, following appropriate consultations, to form a preparatory committee for a conference to review the operation of the Treaty and to decide on its extension, as called for in article X, paragraph 2, and also as provided for in article VIII, paragraph 3, of the Treaty.
2. The Assembly also noted that the Preparatory Committee would be open to all the parties to the Treaty and, if the Preparatory Committee so decided at the outset of its first session, to States not parties, as observers, and would hold its first meeting in New York from 10 to 14 May 1993.
3. Accordingly, the following 128 States Parties participated in the work of the Preparatory Committee at its first session, which was held at United Nations Headquarters in New York from 10 to 14 May 1993:
   Afghanistan, Albania, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Benin, Bhutan, Bulgaria, Burkina Faso, Cameroon, Canada, Cape Verde, Central African Republic, China, Colombia, Costa Rica, Cote d'Ivoire, Croatia, Cyprus, Czech Republic, Democratic People's Republic of Korea, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Fiji, Finland, France, Gabon, Germany, Ghana, Greece, Grenada, Guatemala, Guinea-Bissau, Holy See, Hungary, Iceland, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Italy, Jamaica, Japan, Jordan, Kenya, Kuwait, Lao People's Democratic Republic, Latvia, Lesotho, Liberia, Libyan Arab Jamahiriya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Malta, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, Solomon Islands, South Africa, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Uruguay, Venezuela, Viet Nam, Yemen, Zambia, Zimbabwe.
4. The composition of the delegations participating in the session is set out in the annex to the present report.
5. At its first session, the Preparatory Committee held 9 meetings.
6. Mr. Prvoslav Davinic, Director of the Office for Disarmament Affairs, Department of Political Affairs, represented the Secretary-General of the United Nations,

and Ms. Silvana F. da Silva, Chief, Arms Register, Data Collection and Monitoring Branch of the Office for Disarmament Affairs, served as Secretary of the Committee. Mr. Mohamed Elbaradei, Director, Division of External Relations, International Atomic Energy Agency (IAEA), Vienna, Ms. Jan Priest, Head, Safeguards and Non-Proliferation Policy Section, Division of External Relations, IAEA, Vienna, and Mr. Berhanykun Andemicael, Representative of the Director-General of IAEA to the United Nations in New York, represented the Agency.

I. OPENING OF THE SESSION

7. The first session of the Preparatory Committee was opened by Mr. Prvoslav Davinic, Representative of the Secretary-General. The Committee unanimously selected Mr. Jan Hoekema of the Netherlands to serve as Chairman of its first session. The Committee also decided that Mr. André Erdös, Ambassador of Hungary, would be Chairman of its second session. Subsequently, the Committee was informed that the Group of Non-Aligned States had nominated Nigeria to serve as Vice-Chairman of the current session and Chairman of a future session. It was further decided that the persons elected, when not serving as Chairman, would serve as Vice-Chairman.

II. DECISIONS ON ORGANIZATION AND PROCEDURES

8. At its first meeting, on 10 May 1993, the Preparatory Committee adopted the following programme of work:
   1. Organization of the Preparatory Committee
      - 1.1 Agenda
      - 1.2 Composition of the Bureau
      - 1.3 Dates for further session(s)
      - 1.4 Methods of work
        - Decision-making
        - Participation
        - Working languages
        - Records
        - Progress reports
        - Press releases
   2. Organization of the 1995 Conference
      - 2.1 Dates and venue
      - 2.2 Rules of procedure
      - 2.3 Financing
      - 2.4 Background documentation
      - 2.5 Agenda
      - 2.6 Final document(s)
   3. Other business
9. With respect to its own organization and procedures, the Preparatory Committee decided:
   (a) that its second session would be held in New York from 17 to 21 January 1994; that the third session would be held in Geneva from 12 to 16 September 1994; and that the fourth session would be held in New York from 23 to 27 January 1995;
   (b) That its working languages would be Arabic, Chinese, English, French, Russian and Spanish;
   (c) That there should be summary records of the meetings of its last session and that only records of decisions would be kept for the other sessions;
   (d) That a progress report would be made for each session, and be distributed to all States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons;
   (e) That a press release would be issued at United Nations Headquarters in New York and at the United Nations Office in Geneva at the conclusion of each session of the Preparatory Committee.
10. The Committee decided to invite the Secretary-General of the United Nations, in consultation with the members of the Preparatory Committee, to nominate an official to act as provisional Secretary-General of the 1995 Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, a nomination which would later be confirmed by the Conference itself.
11. The Committee discussed the issues of decision-making and participation in the Committee and agreed to defer a decision on those items to a later session.

III. CONSIDERATION OF THE WORK OF THE 1995 CONFERENCE

12. At the 6th meeting of the Committee, Mr. Aivars Baumunis, Ambassador of Latvia, on behalf of the States Parties to the NPT which belong to the Group of Eastern European States, informed the Committee of the endorsement by that Group of the candidature of Poland for the Presidency of the 1995 Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons. At the same meeting, Mr. Mohammed Jusuf, representative of Indonesia, on behalf of the States members of the Movement of Non-aligned Countries that are Parties to the NPT, and in accordance with the decision taken by the September 1992 summit meeting of the Non-Aligned Movement, informed the Committee of the candidacy of Ambassador Jayantha Dhanapala of Sri Lanka for the Presidency of the 1995 Conference.
13. During the session, the Preparatory Committee, in conformity with its task to prepare for the 1995 Conference, held a preliminary discussion on some of the questions listed under item 2 of its programme of work.
14. In this regard, the following decisions were taken:
   (a) Dates and venue of the Conference
   The Committee decided that the 1995 Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons would take place in New York, from 17 April to 12 May 1995.
   (b) Financing
   The Committee decided to request the Secretariat to provide for its second session an estimate of the costs of the 1995 Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons and its preparation.
15. The Committee agreed to defer a decision on the rules of procedure, background documentation, the agenda and the final document(s) of the Conference to a later session.

IV. OTHER BUSINESS

16. Under item 3 of the Committee's programme of work, a number of statements were made by delegations addressing substantive issues relating to the Treaty on the Non-Proliferation of Nuclear Weapons and its 1995 Conference.

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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