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PROGRAMME FOR PROMOTING NUCLEAR NON-PROLIFERATION

Number 31 **NEWSBRIEF** **3rd Quarter 1995**

Editorial Note

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

The limited size of the **Newsbrief** makes it necessary to choose among items of information and to present them in condensed form. The special attention the media sometimes devote to a particular issue (such as, currently, *nuclear testing*) and the fact that different press organs often take their information from the same sources means that many of the news items on hand tend to duplicate each other and adds to the need for careful selection of the references used for the **Newsbrief** from among the available material.

Subheadings used in the **Newsbrief** serve to facilitate presentation and are not intended as judgements on the nature of the events covered.

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

Due to circumstances beyond the editor's control, the production of this issue of the **Newsbrief** has had to be postponed by one week after the end of the third quarter of the year. Its period of coverage has been extended accordingly to events that occurred, or that came to the editor's attention, in the period 1 July to 7 October 1995.

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

Unless otherwise stated, sources referred to in this issue and publications listed date from 1995.

The current stage in PPNN's work, under whose aegis the **Newsbrief** is produced, ends on 31 December 1995. Present plans call for the **Newsbrief** to continue during 1996 and means are now being sought to go on beyond that year.

I. Topical Developments

a. NPT Events

- **Vanuatu** deposited its instrument of accession to the NPT on 24 August. The **United Arab Emirates** did so on 26 September. The NPT now has 181 parties.

b. Other Non-Proliferation Developments

- The Republic of Korea, which hopes to join the Nuclear Suppliers Group in the near future, and would thus accept the obligation to transfer nuclear equipment only to states that have accepted full-scope safeguards, has announced that it will not supply the pressure vessel for the power reactor which China is building at Chasma, in Pakistan. An earlier report had it that China would be unable to provide the vessel in time to complete the reactor on schedule and was negotiating with South Korea to do so; the latter had been understood to be prepared in principle to supply the vessel. (**Nucleonics Week**, 21/9, 28/9)

- In the **Russian Federation**, a presidential decree has changed the rules on the importation of nuclear waste so as to permit fuel from any power station abroad to be brought in for reprocessing; previously, this was true only for spent fuel from Russian or Soviet built reactors. Waste remaining after reprocessing may now also be

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retained on Russian soil, for up to twenty years. (**Ekho Moskvy Radio**, 31/8, on **BBC Monitoring Service,** 8/9)

- **Nuclear-Weapon-Free Zone in Africa**: At meetings held between 21 and 28 June in Addis Ababa, by the Council of Ministers of the Organization of African Unity and the African Heads of State, the draft of a treaty establishing an African Nuclear-Weapon-Free Zone was approved. The draft treaty has been submitted to the fiftieth session of the General Assembly of the United Nations. (**IAEA Document** GC(39)\14, 14\8)

- **ASEAN**: The United States has advised Indonesia that it will no longer oppose plans for the establishment of **a nuclear-weapon-free zone in Southeast Asia**. Reportedly, there are expectations that the Association of South East Asian Nations (ASEAN: Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam) will be able, in the course of the current year, to agree upon a treaty. The three Southeast Asian countries that are not members of ASEAN, Cambodia, Laos and Myanmar, will be encouraged to join. The United States is said to be ready to sign the customary protocols with regard to the treaty, and in that context may do the same with respect to the Rarotonga Treaty. ASEAN officials reportedly have agreed to speed up the preparation of the treaty, so that it can be considered at a summit meeting that will take place in Bangkok in December; in September it was understood to be 90 per cent complete. (**International Herald Tribune**, 1/8; **Nuclear Proliferation News**, 27/9)

- An early decision is expected from the US Administration with regard to its accession to the protocols to the **South Pacific Nuclear-Free Zone Treaty** (Treaty of Rarotonga). China and the Russian Federation have signed the protocols. (**International Herald Tribune**, 18/9; **Nuclear Proliferation News**, 27/9).

- In August, the US Administration removed **Argentina**, **Brazil**, **Chile** and **South Africa** from the list of countries subject to specific restrictions with regard to nuclear trade. (**SpentFUEL**, 4/9)

- The **United States** Administration has eased the restrictions on the export of high-performance computers. Reportedly, the decision, worked out after long deliberations among the Departments of Commerce, Defense, Energy, and State, and following intense lobbying on behalf of the computer industry, drops the rule that a special license is required for the export of computers with a capability over 1,500 MTOPs (Millions of Theoretical Operations Per Second). Under the new system, the requirement depends on the recipient country, its history, the state of its nuclear and missile programmes, and the identity of the customer. For the DPRK, Iran, Iraq and Libya the ban on the export of any powerful computers would be maintained. Reportedly, 'friendly countries without nuclear arms programs, like Mexico' would be allowed to import computers of up to 10,000 MTOPs for civilian uses. While generally restrictions on the export of computers of less than 2,000 MTOPS would be eliminated, none could be exported to anyone 'using them to make nuclear weapons'. The Administration is said to plan giving US companies training in how to recognise suspect users (*sic*). Civilian customers in China, Egypt, India, Israel, Pakistan, Russia and Syria (countries reputedly listed 'as having a nuclear arsenal or having attempted in the past to produce missiles and other weapons of mass destruction' – *sic*) could import computers of less than 7,000 MTOPs; for exports of computers of 2,000 to 7,000 MTOPs to military users in those countries a license would be required. The proposals have aroused negative comments from expert observers and are expected to be criticised in the US Congress. Industry, on the other hand, is pressing for the elimination of all controls on the export of computers. (**New York Times**, 2/10, 7/10)

c. Nuclear Disarmament and Arms Limitation

- There appears to be no further likelihood of the Siemens fuel fabrication plant at Hanau in **Germany** using plutonium produced in Germany to make MOX fuel. German utilities are turning to France and the UK for this purpose and are understood to be unwilling to undertake funding for the plant. Siemens has let it be known that under those circumstances completion of the plant, which is said to be 95 per cent finished, is not feasible, and that it is forced to abandon MOX fuel production in Germany. Earlier, however, there appeared to be interest in Bonn in the use of the facility for the manufacture of MOX fuel with plutonium extracted from Russian nuclear weapons. At that time, Siemens was understood to be willing in principle to make the facility available for this purpose and keep it ready for up to six months, at its expense. It has added, however, that the matter would then be one of disarmament rather than energy economy, and that the facility could no longer be operated as a private enterprise. It now looks as if these plans will not be realised, because Chancellor Kohl is said to have decided against them, mainly, it appears, because he considers it politically unwise to favour any extension of nuclear activities in Germany, where the public are largely anti-nuclear. There is thus every likelihood that the plant will have to be decommissioned. The chances of realisation of the scheme were apparently slim all along. Reportedly, Russia has never been in favour of sending its excess military plutonium abroad for processing, and the Ministry of Atomic Energy (MINATOM) appears to have told Germany that it would not do so because it considers the Russian inventory of weapons plutonium, which is said to include about 100 metric tons derived from dismantled warheads, as a national resource that should stay within the country. No formal discussions seem to have been held on the matter, although at one point, Chancellor Kohl was said to have raised it with President Yeltsin, from whom, reportedly, he did not receive a favourable response. More recently, however, there had been a report that Russia might be willing to send plutonium from military stocks for processing abroad if it was blended with larger volumes of reactor-grade plutonium, so that scientific information about its composition and production is obscured. Under that condition, it is thought that Russia might have been willing to consider the application of IAEA safeguards on the material in Germany. This suggestion, on the other hand, was met with the argument, used in particular in the US, that blending military and civilian plutonium might encourage the use of the latter in the name of disarmament, something considered negatively in Washington because it could mask the extension of commerce in civil plutonium.

German industry is also said to have had some doubt about the use of the Hanau plant for this purpose. The

facility was thought to have been virtually written off and Siemens itself was seen as having relatively little interest in the further pursuit of any plutonium economy. German claims that the plan to use the Hanau plant to fabricate MOX fuel from excess Russian plutonium was supported by the US government, have been rejected in Washington. The Department of Energy (DoE) has said that it had not so far considered supporting such a move. Similar signals have come from other US quarters, although there seemed to have been sympathy for the idea in the State Department and the White House. A report by the German–American Academic Council and the US National Academy of Sciences lists the 'Hanau Option' as the fastest technical solution among several ways to dispose of Russia's surplus weapons plutonium.

There are also plans for various international schemes to manufacture MOX fuel in Russia itself, where plutonium stocks appear to be increasing steadily with continuing reprocessing. One of the options still under discussion is the transfer of Siemens' Hanau plant to Russia. However, a difficulty there is said to be Germany's insistence that the plant would have to be under IAEA safeguards.

The feasibility of using Russian weapons plutonium in Candu fuel is under study in Canada. Russia and Canada are also said to be exploring making Candu fuel at a MOX plant at Chelyabinsk. Here, too, it seems that the application of IAEA safeguards is a point of contention. A German study is reported to have found that the fabrication of MOX fuel for Candu reactors would make the cost of fuel considerably higher than that of the fuel normally used in those reactors.

(**NucNet News**, 26/6, 7/7; **NuclearFuel**, 3/7, 17/7, 11/9; **Nucleonics Week**, 6/7, 13/7, 10/8, 7/9, 14/9; **Enerpresse**, 7/7; **Süddeutsche Zeitung**, 8/7; **Neue Zürcher Zeitung**, 8-9/7; **Die Welt**, 8/7; **US-German Cooperation in the Elimination of Excess Weapons Plutonium**, Report by the National Academy of Sciences/German-American Academic Council, July; **SpentFUEL**, 17/7; **Handelsblatt** [Düsseldorf], 5/9)

- Action in the **United States** Senate on the ratification of the START II agreement is held up pending agreement between the Administration and Congress on the reorganisation of the Department of State. Reportedly, Democratic Senators are blocking a bill on this subject which would abolish, among other things, the Arms Control and Disarmament Agency (ACDA). In response, and in what the press describes as an attempt to force the Administration to take him more seriously, Senator Helms, Chairman of the Foreign Relations Committee, has said he would hold up ratification of all treaties and appointments. However, on 29 September, after the Administration agreed to work with him on a bill to restructure the institutions dealing with US foreign policy, the Senator stated that he would allow the Senate to act on 33 proposed ambassadorial appointments. There is said still to be some hope that a compromise can be reached in the form of the absorption of the Agency for International Development and the US Information Agency into the State Department and leaving ACDA intact; this would permit a resumption of the ratification processes of several disarmament agreements, including the chemical weapons ban.

  Reports that in **Russia**, Presidential control over the nuclear arsenal has broken down to the point where an unauthorised launch of intercontinental ballistic missiles is no longer unthinkable are receiving serious attention in Washington, especially among Republican members of Congress. The US Administration is criticised for supposedly disregarding the situation.

  (**Direct Information**; **Times** [London], 28/7; **New York Times**, 20/8, 30/9; **Arms Control Today**, September)

- In early July, the President of **Belarus** announced that the transfer of the 18 remaining SS-25 strategic missiles to Russia, pursuant to the START I treaty and the 1992 Lisbon Protocol, would be suspended pending the payment of a higher compensation than the country has so far received. (**Nuclear Proliferation News** — Acronym Consortium — 7/8)

- The **Russian Federation** and the **United States** have concluded a new agreement, reconfirming the existing agreement for the purchase of 500 tonnes of highly enriched uranium (HEU) from Russian stockpiles. The agreement is said to involve simultaneous payment to Russia for the enrichment (SWU) value of the material as well as for the natural uranium component; it also provides for an advance payment of $100 million. The agreement is expected to take about twenty years to implement, and to be worth about $12 billion. The United States is understood to have committed itself to seek legislation that would authorise the President to waive anti-dumping and other trade restrictions, thus allowing the blended down (LEU) uranium to enter the US market and payment to be made for the natural uranium part. The US Nuclear Energy Institute, which had previously resisted the entry of Russian uranium into the American market, has worked out a scheme to facilitate the entry of Russian LEU into that market, at what is hoped are mutually acceptable conditions. Currently, however, the situation is said to be complicated by the impending privatisation of the United States Enrichment Corporation, which once it starts to operate on a for-profit basis, may seek to renegotiate the arrangements made with Russia in a way the latter may find unacceptable. One factor is the wish of the Republican majority in the US Senate to maintain present import restrictions that protect the weak American uranium industry.

  On the other hand, Republican Senator Richard Lugar, citing faulty security and nuclear materials management in the former Soviet Union and a large number of instances of actual and attempted nuclear smuggling, has called upon the Administration to purchase as much highly-enriched uranium from Russia as possible, with a minimum of delay. In a major speech given in Texas on 12 August, followed by hearings in which he 'brought to public light' what he called previously unreported cases of nuclear material smuggling, weapons-grade nuclear material theft and nuclear terrorism attempts, Senator Lugar urged that the scope of the Russian–American purchase agreement be expanded to incorporate highly-enriched uranium from former Soviet research reactors and institutes, which, he said, contained ten metric tons of HEU. The US Administration has also urged Congress to continue funding the Nunn–Lugar programme at the level requested by the President.

  There are persistent reports from Russia that the security of stocks of chemical warfare agents also leaves very much to be desired. It is thought that early ratification of the Chemical Weapons Convention would establish the incentive to improve the situation. The likelihood of a

move in that direction in the Duma is said to be largely dependent on progress in that direction in the US Senate.

(**NucNet News**, 3/7; **NuclearFuel**, 3/7, 17/7, 28/8; **Information from US Enrichment Corporation**, 6/7; **New York Times**, 25/7, 1/10; **Arms Control Today**, July/August; **Speech by Senator Richard G. Lugar to United We Stand**, 12/8; **SpentFUEL**, 21/8)

d. Nuclear Testing

- On 17 August, **China** conducted its second underground test of the year — its 43rd nuclear test so far. The test, carried out at the Lop Nor site, was said to have had a yield equivalent to the explosion of between 20,000 and 80,000 tons of TNT. The latest tests, both staged after the conclusion of the NPT Review and Extension Conference, are criticised around the world as conflicting with that conference's decision on Principles and Objectives for Nuclear Non-Proliferation and Disarmament, which calls on the nuclear-weapon states to exercise utmost restraint, pending the entry into force of a comprehensive test-ban treaty. Initially, it was reported that China was planning to stage four more tests before the test ban treaty enters into force, but reports from Tokyo in late August said that China had informed Japan that it would carry out two more tests, one of them in the current year. In Beijing, Prime Minister Li Peng has called Japan's decision to retaliate to China's tests by cutting its grant aid by approximately one third, 'unfriendly and undesirable'. (**Trust and Verify**, August; **Financial Times**, 15/8, 18/8; **Die Presse**, 18/8, 26/8; **International Herald Tribune**, 18/8, 20/9; **Financial Times**, 18/8; **Frankfurter Allgemeine Zeitung**, 18/8; **Le Monde**, 18/8; **Neue Zürcher Zeitung**, 18/8; **Independent**, 18/8; **Economist**, 19/8; **Süddeutsche Zeitung**, 18/8; **Sunday Times**, 20/8)

- Well before **France** resumed nuclear testing, the announcement by President Jacques Chirac that it would do so received worldwide publicity and strong criticism. Among governments that initially expressed concern at the announcement (among the total of 150 states that are said to have expressed criticism at one time or another) were those of Australia (which also spoke for the fifteen member-states of the South Pacific Forum), Austria, Belgium, Canada, Chile, Denmark, Finland, Greece, Indonesia, Iran, Ireland, Japan, Kenya, Luxembourg, Mexico, New Zealand, the Netherlands, Norway, Peru, Philippines, Republic of Korea, the Russian Federation, South Africa, Spain, Sweden, Switzerland, and the United States. Opposition has also been expressed within the European Union. The relations between Austria and France seem to have been affected in particular by the intensity of Austrian opposition to the tests. Notably mild comments were reported, however, from Germany and the United Kingdom. In early September France recalled its ambassador from Stockholm, to register its disapproval of the participation by the Swedish culture minister in antinuclear protests in Tahiti. In their turn, Chile and New Zealand withdrew their ambassadors from Paris.

  In early July a resolution condemning the resumption of French nuclear tests received a large majority in the European Parliament in Strasbourg. On that occasion members jeered President Chirac when he reported on France's presidency of the European Union in the six previous months. Australia recalled its ambassador from Paris for 'urgent consultations'; it also froze defence contacts with France, thereby affecting the possible supply of 45 French Dassault jet trainers for the Australian Air Force, said to be worth about US$550 million). Consideration was also said to be given to the possibility of barring the French–German company Eurocopter from bidding for a contract to supply helicopters for the police of New South Wales. In response to the Dassault decision France recalled its Ambassador from Australia and threatened to stop importing Australian oil and uranium; however, France is said to have ruled out retaliatory action that might lead to a full-fledged trade war between the two nations. Calls within Australia to end the export of uranium to France are said to have caused embarrassment to the government. France gets only about 3 per cent of its uranium imports from Australia. The current export contract is valid until the year 2001 and apparently sets a price well above present rates. Abrogating the contract would be disadvantageous to Australia, and France might buy uranium elsewhere at lower cost. One shipload of uranium destined for France has been halted meanwhile by Australian workers. Threats by several countries, including Japan, to boycott French products and informal boycotts of such products in a range of countries do not seem to have had a perceptible impact on the French economy. In September the European Parliament again adopted a resolution condemning the resumption of the French tests. This time 281 members voted in favour and 232 were against, a result seen by France as reflecting weakening opposition to its tests. Delegates from other states, however, saw it as the result of disagreement between left- and right-wing politicians over wording rather than principle. A proposal to start judicial proceedings against France was not adopted.

  There have been widespread public demonstrations in a number of countries. A Spanish citizen high-jacked a French airliner on Majorca, ostensibly to protest France's plans. In Tahiti, which benefits from France's activities in the area by serving as a supply base and providing labourers, opposition was expected to be muted, but after the first test, violent rioting broke out in and around its capital Papeete. This, however, is seen as having been sustained as much by anti-French sentiment and the wish for independence as by opposition to the tests. The riots caused widespread damage and the situation had to be brought under control by police and soldiers brought in for the purpose; there are local claims that the riots were provoked by police brutality against an initially peaceful demonstration.

  As the date for the first test approached governments across Asia and the South Pacific stepped up their pressure on France to reconsider its decision. In what some press reports see as a response to the worldwide reaction, the French minister for European Affairs said in early August that the tests constituted the very last series France was planning to conduct, and that they were definitely limited to seven or eight; he raised the possibility that the eighth test might be omitted. This announcement was confirmed soon afterwards by the French Foreign Ministry. In its statement the Ministry described the series as mainly serving the purpose of testing a new warhead for a submarine-launched missile. Earlier, as reflected in a letter to the *Financial Times* from the French Embassy in London, French officials had given to understand that the tests were not designed to improve the performance of France's nuclear weapons

but to help ensure their safety and reliability. Other French sources had also indicated that they were needed to develop computer simulations that would make further testing unnecessary. In fact, French authorities have indicated that the test series is meant to serve all these purposes: the improvement of the new warheads for the M-5 submarine-launched ballistic missile, so as to make it less sensitive to environmental changes as a result of aging; to calibrate data for nuclear simulation technology and build a new laser fusion test facility. A number of high-level nuclear experts have expressed serious doubts about the need to carry-out test explosions to ensure the safety and reliability of the nuclear arsenal. Doubt is expressed also about the argument that testing serves the purpose of constructing the laser facility.

Polls conducted in France itself soon after the President's announcement indicated that a little more than half the people questioned at that time opposed the resumption of tests. More recent polls have indicated growing opposition; in early September almost two-thirds of the persons polled declared their opposition.

In early August the President of the French National Assembly, Philippe Séguin, was the first of several senior French politicians to claim that his country's nuclear tests served the interests of Europe and to propose that France's nuclear weapons programme should be extended to defend Germany. This theme was repeated several times, first by Prime Minister Alain Juppé, who suggested that the European Union might be involved in France's system of deterrence, and later by Foreign Minister Hervé de Charette. In a talk delivered on 1 September at the annual conference of French Ambassadors, President Chirac said that France would be willing to make its nuclear deterrent part of a European Union defence system. That proposal was reiterated on 7 September by Prime Minister Juppé, who suggested close cooperation with the UK on nuclear defence matters and specifically offered to guarantee Germany's security through its nuclear deterrent. Initially, these ideas seemed to find a positive response in the German administration as well as among some other members of the European Union. A foreign ministry spokesman in Bonn said that it would be welcome if France's vital interests were not limited to protecting the inviolability of its own territory. The spokesman for arms control of the CDU faction in the German parliament reportedly discussed the matter with French authorities and concluded that France was not only thinking of extending a nuclear umbrella over its European allies but was seeking a way to involve them in the management of a European deterrent. Some time later, Bonn took a less positive position to the idea; Foreign Minister Klaus Kinkel was quoted as saying that Germany did not want the least involvement in the nuclear weapons of others — 'even by the back door'. In London, Foreign Office reactions were also seen as reticent; British officials were heard to express resistance to the idea of collective decisions being taken on the use of UK nuclear weapons and suggested that Europe should coordinate its defence through NATO, without trying to duplicate that organisation's far greater potential. Foreign Minister Kinkel in turn expressed the same view, although he also said that he was ready to discuss the issue with his French friends. Subsequent reports in the German press indicate that some prominent politicians in that country may be increasingly attracted by the idea of using the French nuclear deterrent in the European context. Officials in London are quoted as saying that the French initiative seemed mainly intended to deflect condemnation from the tests, which were much sharper than had been expected in Paris and are thought to have taken the French government by surprise. American, British and German newspapers also carried comments ascribing France's offer to a wish to deflect the criticism, at least among European allies. There were some comments in the European press, however, that France's move responded to what was thought to be a growing view, that the US had become an unreliable nuclear guarantor. At a conference of European Union Foreign Ministers, held in Santander, Spain, on 9 and 10 September, France's proposals were generally rejected. Reportedly, the discussions showed the existence of deep differences on the matter between France on the one hand, and the majority of European Union membership on the other and did little to improve relations. At a subsequent informal meeting in Majorca, of heads of government from European Union countries the positions appear to have been unaltered.

The International Court of Justice has rejected a request by New Zealand for an interim order to stop France from proceeding with the tests until an environmental report can be prepared. When in 1973 the Court, upon the request of Australia and New Zealand, issued an interim judgment against France, ordering it not to conduct atmospheric nuclear tests that caused radioactive fallout in those two countries, France said it would not recognise the Court's authority on matters of national defense. In 1974, the Court decided that a final decision on the merits of the case was no longer needed because France had ceased its atmospheric nuclear tests. This time, New Zealand reportedly sought to invoke the part of the earlier ruling that provided for a review if there was a change in the circumstances, taking the position that it could resume the earlier litigation based on the damage done to the environment (the argument it also used in the earlier instance). Hearings took place in the Hague on 11 and 12 September. On 22 September the Court ruled, 12 to 3, first, that it was not competent to issue an injunction in the matter against France, and, secondly, that there were no grounds for it to review the 1974 ruling because that did not apply to underground tests.

Western media have published warnings from geologists and geophysicists that further underground tests at Mururoa might cause serious damage to the subsoil of the island, which, they say, is already badly eroded and riddled with fractures, crevices and craters. Environmental specialists and health authorities in the area are expressing concern that radioactive substances from previous explosions and waste that has been dumped on the island might over time seep into the ocean. Concern has also been expressed by seismologists from Australia and New Zealand, that shock waves from the explosions might further fracture the wall of the submerged volcano which forms the base of Mururoa Atoll, causing it to cave in abruptly, so that large amounts of radioactive waste are released. A scientific report to a meeting of environment ministers from South Pacific countries, held in Brisbane in August, has concluded that major rupturing was unlikely, but it warned that firm predictions were difficult for lack of long-term data on the atolls' geology. The demand has been expressed at the meeting of the South Pacific Forum that France should be held financially liable for any damage that might result from its nuclear tests.

The Directorate General for Health and Safety Affairs of the European Commission has requested France to provide health physics data on expected radiation releases from the tests. Reportedly, the first data given by France in response to that request contains inconsistencies, on which Euratom asked and obtained clarification, and France accepted an invitation to participate in a meeting of experts convened under the auspices of the European Union and said it would supply information on the tests. It also invited experts from the European Union to observe the tests. Under the Euratom treaty, France is held to request the consenting opinion of the European Commission before the tests could take place, enabling the Commission to rule whether the tests are an exceptionally dangerous activity. Apparently, however, the European Commission has not insisted on the matter and observers say that even if it had found the tests to be 'exceptionally dangerous', the Commission would not have been in a position to take any action that would have made France alter its testing plans.

The violence said to have been used repeatedly by French naval forces against *Greenpeace* ships which had penetrated the area to observe and, wherever possible, to hamper French preparations for the tests, and the arrest of passengers and crews, has been widely condemned in the world press. Although at one time at least two of the organisation's vessels were said to have been effectively disabled, *Greenpeace* has persisted in its attempts to impede French operations. While its efforts do not seem to have had that effect, they did add greatly to the publicity surrounding the event as well as to its own public image.

The first test of the series was duly held, on 5 September. It was reported to have had a yield of 20,000 tons of TNT (20 kilotons) and was followed by an announcement from President Chirac that the series would be ended as soon as enough information had been obtained to permit changing over to simulation — he suggested that the number might be reduced to six. News of the actual start of the tests led to renewed international protests, most strongly from Argentina, Australia, Chile, New Zealand, Peru, and the Nordic countries. Germany, Japan, Russia and the US expressed regret. A second detonation took place just before midnight GMT on 1 October, at Fangataufa Atoll. It was reported to have had a yield in the order of 110 kt.

It has been noticed in the press that any American reactions to France's tests were relatively low-key. Some observers ascribe this to cooperation said to be underway between the two states, on the development of means to determine the behaviour of nuclear explosives, without actual field testing. According to a recent article in the *Washington Post*, France and the United States are discussing an agreement under which they would share computer codes that describe how nuclear bombs behave when they are detonated: information France is said to need to make full use of access to new US weapons research facilities at Lawrence Livermore and Los Alamos National Laboratories, which the US has offered it. Meanwhile, there are reports that the US has allowed France to fly cargo planes carrying equipment and nuclear material for use in the tests, over its territory and permitted them to make stops on the American West Coast. Allegations currently published about nuclear cooperation between the two countries draw parallels with similar cooperations now known to have taken place in the past, supposedly gainsaying France's claims that it developed its nuclear deterrent without any foreign assistance.

Much attention has been paid to the French announcement, made both in Paris and in the Conference on Disarmament in Geneva, where negotiations on a test ban treaty are currently being held, that, once the current series of tests has been completed, before the end of May 1996, France will seek to conclude a treaty prohibiting any nuclear weapon test explosion or any other nuclear explosion, no matter how small. France has also indicated that it wants the cessation of nuclear testing to be definitive, i.e., the treaty should be of unlimited duration. The announcement includes the statement that French 'nuclear forces will continue to rely on the same doctrine of deterrence, on the same concept of strict sufficiency, and thus on the same weapon systems. In other words, France does not intend to design new types of weapons, nor to increase the number of the power of existing weapons, nor to develop miniaturized weapons, nor to modify the role of nuclear weapons in our defence policy.'

(**New York Times**, 23/6, 30/7, 2/8, 3/8, 4/8, 6/8, 11/8, 1/9, 2/9, 3/9, 6/9, 7/9, 8/9, 12/9, 23/9, 30/9; **Canberra Times**, 25/6, 31/7; **Age** [Melbourne], 28/6; **Nuclear Proliferation News** — Acronym Consortium — 30/6, 11/7; **Die Welt**, 5/7, 25/8; **Australian**, 6/7, 10/7; **International Herald Tribune**, 6/7, 11/7, 21/7, 28/7, 4/8, 26/8, 2/9, 18/9, 21/9, 23-24/9; **Salzburger Nachrichten**, 6/7, 3/8, 19/8; **Le Monde**, 8/7, 11/7, 12/7, 14/7, 6-7/8, 17/8, 20-21/8, 23/8, 1/9; **Süddeutsche Zeitung**, 10/7, 15/7, 17/7, 4/8, 5-6/8, 7/8, 17/8, 1/9; **Guardian**, 10/7, 12/7, 18/7, 2/8, 4/9, 5/9, 7/9, 9/9; **Christian Science Monitor**, 12/7; **Mainichi Shimbun**, 13/7; **Times** [London], 13/7, 3/8, 4/8, 5/8, 1/9, 2/9, 4/9; **Economist**, 15/7, 12/8, 19/8; **Frankfurter Allgemeine Zeitung**, 20/7, 23/8; **Independent**, 21/7, 1/9, 4/9; **Washington Post**, 27/7; **Nature**, 27/7; **San Francisco Chronicle**, 28/7; **Sydney Morning Herald**, 29/7; **Arms Control Today**, July/August; **Trust and Verify**, August; **Financial Times**, 10/7, 18/7, 2/8, 4/8, 7/8, 8/8, 12-13/8, 3/10; **Wall Street Journal**, 2/8, 14/8, 8/9, 11/9; **US National Public Radio**, 8/8, 7/9; **Daily Telegraph**, 9/8; Statement by Ambassador G. Errera to the Conference on Disarmament, Permanent Mission of France, Geneva, 10/8; **NuclearFuel**, 14/8; **SpentFUEL**, 14/8; **Neue Zürcher Zeitung**, 17/8, 28/8; **ITV/PBS**, 7/9; **Standard** [Vienna], 8/9; **Bulletin of the Atomic Scientists**, Sept/Oct; **Die Presse**, 20/9, 22/9, 23-24/9)

- **Russia**'s Ministry for Foreign Affairs has greeted the American proposal (see item below) to prohibit all experimental explosions, including laboratory-scale ones, as a 'significant initiative'. It has also said that, although it needs to carry out a series of tests of its own, if the decision is taken, Russia will respect it. It is understood that in the Russian view a low-yield treaty would be discriminatory because only the UK and the US would be able to carry out such tests but a zero-yield treaty would be acceptable. (**Trust and Verify**, August; **Frankfurter Allgemeine Zeitung**, 17/8; **Die Presse**, 17/8)

- On 14 September, in the Conference on Disarmament, the representative of the **United Kingdom** confirmed his country's support for 'an absolute ban on test explosions involving the release of nuclear energy'. Officials had stated earlier that they were considering adhering to a

zero-yield nuclear test ban, in the understanding that the United States would allow the country access to sophisticated simulation techniques to maintain the safety of existing stockpiles. (**Guardian**, 1/9; **International Herald Tribune**, 2/9; **Die Welt**, 2/9; **Nuclear Proliferation News**, 27/9)

- Just before recessing for the summer, the **United States** Senate voted $50 million for hydronuclear tests to be carried out after a test ban treaty enters into effect. On 11 August, however, President Clinton called for a 'true zero yield comprehensive test ban'. The President's announcement, which would exclude even very low-yield explosions, was seen as ending what is described as a 'fierce' debate within the US Administration. As reported, the Joint Chiefs of Staff had wanted the test ban treaty to include a provision permitting tests of a force up to the equivalent of 500 tons of high explosive, with the purpose of testing for safety and reliability of the existing nuclear stockpile. However, the report of a panel of nuclear physicists and weapons designers, said to have been convened by Secretary of Energy O'Leary and Defense Secretary Perry when differences in view among the President's senior security advisors prevented the adoption of an agreed position on the matter, is understood to have advised that there was 'neither a present nor an anticipated' need for small-scale tests, which, they said, would not add measurably to the safety and reliability of the US nuclear arsenal ('The JASON Report'). Instead, the President has announced that a science-based stockpile stewardship programme would be conducted, including a broad range of effective and continuing experimental programmes. These would include an annual certification of the stockpile. Maintenance efforts would be increased and would include the establishment of a $1-billion installation to 'check the ignition systems of nuclear weapons'. It is further understood that the basic capability to resume nuclear testing would be maintained, a comprehensive research and development programme to improve American treaty monitoring capabilities would be continued, as would the development of intelligence-gathering and analytical capabilities and operations to ensure accurate and comprehensive information on world-wide nuclear arsenals and weapons programmes.

  As reported, the President obtained the concurrence of the Department of Defense (DoD) with this so-called 'zero option approach' by promising to reserve the right to invoke the 'supreme national interest' waiver that would be part of the test ban treaty, and to conduct tests, if the safety and reliability of the nuclear deterrent could no longer be certified. It is understood that this would be the case if the Secretaries of Defense and of Energy were to determine that they no longer had a 'high level of confidence' in nuclear weapons 'considered to be critical to [the US] deterrent'. The waiver would be exercised in consultation with the Congress.

  Comments from within the Administration deny that the American announcement is connected with the earlier disclosure by France, that it would seek a truly comprehensive ban once its impending test series would be completed (see above). There is some indication, however, that the relatively restrained US reaction to France's initial announcement that it would resume testing, rather than, as some apparently thought, having been inspired by the wish to obtain that country's concurrence with a low-threshold ban, may have been prompted by the hope that it would indeed opt for a ban without exceptions.

  Comments from within the US Administration express the hope that the President's decision will give new momentum to the negotiations on the comprehensive test ban treaty in the Conference on Disarmament and will lead to a consensus among the nuclear-weapon states not to leave a loophole for low-yield test explosions. Republican leaders in the Senate have received it with skepticism but they have promised to study it. The Chairman of the Senate Armed Services Committee, Senator Thurmond, and a prominent member of that Committee, the Republican Senator Warner, have expressed criticism of the move. A negative comment also heard is that a complete ban on experimental explosions would stand in the way of civilian uses.

  (**Reuter's**, 7/8; **Washington Post**, 9/8; **US Newswire**, 11/8; **New York Times**, 11/8, 12/8; **Los Alamos News Bulletin**, 18/8; **Nuclear Proliferation News** — Acronym Consortium — 21/8)

e. Nuclear Trade and International Cooperation

- **Argentina** has reportedly decided to postpone the export of a small research reactor which in 1990 it had promised to provide to **Syria**, until a peace agreement is signed between that country and Israel. Israeli sources are cited as claiming that the United States is concerned over Syrian attempts to buy nuclear know-how from Argentina and the DPRK, but that report has apparently not been confirmed in Washington. Syria has accused Israel of putting undue pressure on Argentina to prevent it from supplying the reactor which, it says, would be used for medical research. The issue is reputed to have caused some embarrassment to Argentina, whose President Carlos Menem is of Syrian extraction. (**Times** [London], 15/7; **Reuters**, 23/7; **Enerpresse**, 26/7; **Nucleonics Week**, 3/8; **Financial Times**, 3/8)

- The centrifuge enrichment plant that is being constructed in Shaanxi Province, in central **China** with equipment and technology from the **Russian Federation** is reported to be one year from completion. The plant will have a nominal capacity of 200,000 SWU/yr but may be expanded by the addition of centrifuges. It is said to be so configured as to be suitable only for the production of low-enriched uranium. It will be under IAEA safeguards pursuant to a voluntary offer by China; reportedly, the Agency will have a permanent inspector at the facility. (**NuclearFuel**, 25/9)

- **EURATOM/USA**: On 26 July the Committee of Permanent Representatives to the European Union (COREPER) approved the text of the new 35-year nuclear co-operation agreement between Euratom and the United States. Ratification of the agreement by a qualified majority on the European side came on 3 August with written communications from member states of the European Union to the European Commission. The agreement will have to be approved by the US President and must then be submitted to Congress, where it has to remain for 90 days of uninterrupted session. It has become obvious that the Congress will not have been in continuous session for ninety days between the time the draft agreement is submitted and the date the old agreement expires, on 31 December 1995. As a result the new agreement is not expected to enter into force until the

early Spring of 1996 and there will be a hiatus of several weeks or perhaps even months during which the United States cannot export nuclear material or equipment to the European Union. It is expected that US-origin items in Europe will be covered during that time by an exchange of notes that will extend the validity of the assurances contained in the old agreement. An exception may be made for Austria, Finland, Portugal, Spain and Sweden which have only recently joined the European Union, and whose bilateral agreements with the USA are still in force.

The agreement is the result of several years of negotiation which remained difficult until the end. On 29 June, COREPER asked the experts of the Atomic Questions Group of the European Commission to get clarification from the United States on a number of issues regarding the draft agreement for nuclear cooperation between Euratom and the United States, including the provisions on perpetuity, re-enrichment of high-enriched uranium, safeguards, spent fuel disposal, and physical protection. The issue of the criteria for suspension gave particular problems. Reportedly, the European side wanted to be able to suspend or terminate the agreement if the United States would suspend its consent for non-objective reasons, and objected to language that would permit the US to suspend consent for national security and non-proliferation reasons, which the American side argued was required by US legislation. At virtually the last moment agreement was reached that the European Union would be able to terminate the agreement if the United States were to suspend its consent for other reasons than the objective criteria. If, in such a case, the European side were to suspend the agreement, this would result in perpetuity of US consent rights and the question how this is to be defined has all along been found difficult to solve. To meet this difficulty it was agreed that if the European side should terminate the agreement there would first be consultations about the further application of consent rights. If no understanding is reached, recourse would be had to arbitration. If that does not succeed, the US would be able to ask for a return of supplied items.

On this basis, on 17 July, the General Affairs Council of the European Union approved the agreement 'in principle', but it withheld its final approval until the issue of storage facilities for weapons-usable material — plutonium, highly-enriched uranium and U-233 — was solved. If they contain materials of US origin, such facilities are subject to safeguards and physical protection requirements and the United States wants to be able to withdraw consent for such storage if it has 'grounds to believe' that those requirements are not met. A list of European facilities promised earlier this year was accordingly submitted, but this was understood to have contained only dedicated storage facilities, besides the facilities for the reprocessing, fuel fabrication and enrichment facilities of sensitive material. The US, on the other hand, has asked Euratom to submit a list in which research and power reactors and critical assemblies where such materials are stored is included, even if they do not have 'dedicated' storage facilities. Reportedly, Euratom has since submitted yet another list which Washington still does not consider complete, reportedly because not all French facilities are listed. Discussions are still going on but it is feared that this matter will further delay the submission of the draft agreement to the US Congress because the State Department sees the facility list as part of a package and wants it to go to Congress together with the agreement. Some Euratom members are said to be of the view that the list of facilities where fissionable material is stored should mention only facilities of which storage is the primary purpose and function, and not installations where strategic material is stored incidentally. France is understood to see the American requirement as a supplementary demand and it is also said to be annoyed with the European Commission which it says had assured member states the list could be limited, while promising the US a more extensive list. The fact that there will probably be a period during which no agreement is in force appears to irk European officials, who are said to hold the view that preparations for ratification should have started in the United States as soon as the main negotiations of the agreement were completed, last May. In the opinion of Euratom officials, the American attitude during the negotiations has been inappropriately demanding, particularly given the fact that the European side sees itself as technologically ahead of the United States and therefore, in fact, the senior partner in the relationship.

Once before the Congress, the new agreement will not require an affirmative vote to enter into force; action would only be required if the Congress wished to reject it, but no significant problems are expected. Reportedly, anti-nuclear groups and opponents of the use of plutonium in the civil nuclear fuel cycle are preparing to oppose the agreement if it is discussed by the US Congress. Confirming the earlier expectation that such opposition would be likely to come in particular from the side of the Democrats, who are currently in the minority, Democratic Representative Edward Markey, who is known as an opponent of the use of plutonium in the civil fuel cycle, has asked the US General Accounting Office (GAO) to assess the extent to which the proposed agreement satisfies the applicable legal requirements for nuclear cooperation agreements. At the time Markey did so, the text had not yet been submitted to Congress and as of the date this issue of the **Newsbrief** went to press the GAO had not yet completed its analysis. Another Democrat, Senator John Glenn, has asked the Congressional Research Service to see if the proposed agreement meets legal non-proliferation requirements.

It is reported that various US agencies including the Commerce Department, the Nuclear Regulatory Commission, and the Department of Energy disagree on the amount of nuclear material exported to Japan and Euratom. The discrepancy was flagged in a study by the US General Accounting Office, made at the request of the Senate Governmental Affairs Committee, which wants to assess the value of US nuclear exports governed by the US–Euratom agreement. The report, which covers the full range of American nuclear supplies to Japan and Euratom, demonstrates the great economic importance for the United States of the new agreement.

(**SpentFUEL**, 26/6, 3/7, 10/7, 17/7, 24/7, 31/7, 7/8, 14/8, 28/8, 18/9, 2/10; **NuclearFuel**, 3/7, 31/7, 28/8, 11/9, 25/9, 9/10; **Nucleonics Week**, 6/7, 13/7, 20/7, 27/7, 3/8, 14/9; **International Herald Tribune**, 28/7; **Direct Information**; **Arms Control Today**, September)

- **Iran**'s plans to have the two semi-completed 1000-MW reactors at Bushehr finished with help from **Russia** are reported to be proceeding. The two countries discussed the matter in Moscow in August. According to an official news bulletin from Iran, specific construction plans were

discussed in Teheran during the fourth week of that month, and a plan for the completion of the first unit is expected to be ready soon. Just before this issue of the **Newsbrief** went to press, there was a report that the final terms of the contract were still being negotiated, but that it was nevertheless expected that this could enter into force in October. Construction of the first unit was expected to start early in the next year and to take 55 months in all. It is further reported that Russia and Iran have signed a separate agreement for the supply of nuclear fuel for ten years, at an annual cost of $30 million. The spent fuel would presumably be returned to Russia for reprocessing, and Russia would retain the plutonium. Reports about the signature, on 6 September, of yet another agreement, under which Russia would supply Iran with two VVER-440s, which would be built in the north of the country, have not been confirmed. Russia's nuclear cooperation with Iran remains the subject of profound disagreement between Moscow and Washington; it is also a source of concern in Israel. Russia's minister for atomic affairs is said to have categorically assured the US Secretary of Energy that reports of Russian assistance to Iran in the construction of underground nuclear facilities were unsubstantiated. There is a report that the US Senate has adopted a bill barring the release of assistance funds to Russia until it ends its nuclear supplies to Iran.

It is reported from **Kazakhstan** that Iran has approached that country for the supply of low-enriched uranium for use in the Russian reactors.

On 27 September, it was announced in New York that **China** had decided to cancel its contract with Iran for the supply of two 330-MW pressurised water reactors. At the time, it was pointed out that there had been earlier reports about disagreements between the two countries over details of the deal and doubt had been expressed about China's ability to supply all the necessary equipment (see **Newsbrief No. 30**, p. 15). A few days after the initial announcement, however, China's Foreign Minister said the sale had merely been suspended 'for the time being', because of questions about site selection. A spokesman for the foreign ministry of Iran has also said that Iran had not been notified by China that the project was being shelved, and that there was no change in the nuclear cooperation with that country. The Iranian representative to the IAEA is also quoted as saying that he believed the lack of progress in the implementation of the project was due to a difference of view about the most appropriate place to locate the station.

Officials in **South Africa** have denied reports about extensive nuclear cooperation between that country and Iran. South Africa's Foreign Minister has told a press conference in Israel that talks between the two countries on nuclear cooperation were limited to the use of radioisotopes for medical purposes.

(**NuclearFuel**, 17/7; **Financial Times**, 8/8, 15/9, 28/9; **New York Times**, 21/8, 28/9, 30/9; **Enerpresse**, 23/8; **ENS NucNet**, 23/8; **International Herald Tribune**, 25/8; **Arms Control Today**, September; **Nucleonics Week**, 7/9, 5/10; **Reuter's** 13/9; **Post-Soviet Nuclear and Defense Monitor**, 22/9 in **UI News Briefing**, 95.40)

- **South Africa** and the **United States of America** have concluded an agreement for cooperation for peaceful uses of nuclear energy. The event is lauded in Washington as the first instance of a country that possessed nuclear explosives divesting itself of them. Reportedly, one activity foreseen under the new agreement is South Africa's participation in the American RERTR (Reduced Enrichment in Research and Test Reactors) programme, which might enable it to use low-enriched uranium (LEU) fuel in its research facilities, rather than highly-enriched uranium (HEU). (**SpentFUEL**, 4/9)

f. IAEA Developments

I. General Conference

- The 39th Regular Session of the IAEA's General Conference was held in Vienna from 18 to 23 September. It was attended by representatives of 103 member states. President was Ambassador Chuchai Kasemsarn, of Thailand.

  At the opening session, the General Conference heard a message from the Secretary-General of the United Nations, which, among other things, stressed the importance of the results of the NPT Review and Extension Conference, referred to the importance of the Agency's work to combat illicit trafficking in radioactive materials, underlined the need for continued close cooperation between the Security Council and the IAEA, and welcomed the Agency's efforts to strengthen its safeguards system.

  The Agency's Director General spoke, *inter alia*, about the increasingly important role of the IAEA in verifying that nuclear materials and related items remain in peaceful activities; the Agency's verification work in the Democratic People's Republic of Korea and in Iraq; the ongoing efforts to strengthen IAEA safeguards; new and emerging verification roles; and the implications for the IAEA's future work of the outcome of the NPT Review and Extension Conference; the Agency's action programme in respect of illicit nuclear trafficking; and the invitation received from France to conduct a radiological assessment of its current nuclear test series. In respect of the last mentioned item, Dr. Blix announced that consultations were taking place with French authorities on the objectives, scope, modalities, and required expertise for that mission. Relevant portions of the statement are reproduced in the **Documentation** section of this **Newsbrief**. (**Press Release** 95/13, 18/9)

  At the outset of its deliberations the General Conference approved the applications by the Republic of Bosnia and Herzogovina and the Republic of Georgia for membership of the Agency. (**GC(39)/8**, 28/6 and **GC(39)/7**, 28/6)

  The General Conference approved the Agency's 1996 regular budget, which calls for expenditures of US $219 million, representing zero real growth. It also approved a target of $64.5 million for voluntary contributions towards the Agency's Technical Assistance and Cooperation Fund for 1996, compared with $61.5 million for the current year. The agreement was reached after a reportedly divisive discussion in the Board of Governors on the issue of the financing of technical assistance and of safeguards. At the end of that discussion a compromise was reached under which the technical assistance programme would be increased by $3 million in 1996 and $3.5 million in each of 1997 and 1998. Reportedly, however, some doubt was felt that the governments of all the major donor countries would go along with these increases. At the same time, the General Conference adopted revised arrangements for the assessment of

member states' contributions towards the IAEA budget for the years 1996 through 2000. Under these arrangements, each member's contribution to the budget is divided into a non-safeguards component and a safeguards component. A formula is established, as contained in document **GC(39)/29** of 20/9, reproduced in section **IV. Documentation**, which reduces the contributions to the safeguards component for so-called 'shielded' member states, i.e., states whose per capita net national products are below a certain level similarly determined therein.

The decision followed a debate in which many speakers referred to the 1995 Review and Extension Conference of the NPT and the need for all states and in particular the nuclear-weapon states to live up to the commitments they made there. A number of speakers expressed .strong opposition to the nuclear tests currently conducted by China and France. More than in previous years, speakers from developing nations mentioned the importance of article IV of the Treaty and some criticised what they saw as the imbalance between the Agency's promotional and regulatory activities, including safeguards. Several states underlined the new roles the IAEA should be called upon to play in connection with various arms control measures, particularly a comprehensive nuclear test ban and a ban on the production of fissile material for weapons purposes.

The General Conference elected eleven new members as the Board of Governors for a two-year term, *viz.* Bulgaria, Chile, Denmark, Egypt, Republic of Korea, Kuwait, Netherlands, Nicaragua, Nigeria, Romania and Saudi Arabia. The other 24 member states of the Board which have either been designated by the Board of Governors or elected by the General Conference in 1994 are: Algeria, Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Ghana, India, Japan, Mexico, Morocco, Pakistan, Russian Federation, Slovak Republic, South Africa, Spain, Thailand, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America, and Uruguay. (**GC(39)/28**, 20/9; **Press Release** 95/14, 22/9) Among the states designated by the Board, South Africa resumed the seat allocated, in terms of Article VI A. 1 (5) of the Agency's Statute, to the African country most advanced in the technology of atomic energy including the production of source materials. At the first session of the Board in its new composition, held on 25 September, Ambassador Joost van Ebbenhorst Tengbergen of the Netherlands was elected Chairman.

The following subjects of discussion are singled out as being most relevant in the context of the **Newsbrief**.

The issue of strengthening the effectiveness and improving the efficiency of the safeguards system received much attention and was the subject of intensive debate. Consensus was reached on a resolution (**GC(39)/46**, 22/9) of which the main point is that the Agency's Secretariat should continue to develop the measures proposed under 'Programme 93+2' to improve and strengthen the IAEA's safeguards, and consultations with member states on the application of proposed measures should continue. The text of the resolution is reproduced in section **IV. Documentation**.

The question of illegal trafficking in nuclear materials, on which the Director General had submitted a report (**GC(39)19**, 21/8) again received prominence in the debates. In a resolution (**GC(39)/38**, 21/9) adopted without a vote, the General Conference took note of a report of conclusions reached at an Interagency meeting on the illicit cross-border movement of nuclear material and other radioactive sources which had been held at IAEA headquarters on 13 to 15 September (**GC(39)/19/Add.1**, 19/9), welcomed the measures taken by the Secretariat in support of efforts to prevent illicit trafficking and requested the Director General to report to the next General Conference on the work done by the Agency. A document (**GC(39)/INF/25**, 20/9) was circulated, containing a statement by the President of Kazakhstan underlining the concern expressed by the UN Secretary General about illicit trafficking in nuclear materials and drew attention to the proposal by Russian President Yeltsin for a meeting in 1996 on the subject.

The report by the Director General on the implementation of the safeguards agreement with the Democratic People's Republic of Korea (**GC(39)/18**, 11/8) was discussed at some length. A resolution (**GC(39)35**, 20/9), in which concern is expressed over the continuing non-compliance of the DPRK with its safeguards agreement with the IAEA was adopted by role-call vote requested by China. Seventy delegations voted in favour and ten abstained, including China, Cuba, India, Iran and Pakistan. The operative part of the resolution is reproduced in section **IV. Documentation**.

Once again the General Conference considered a report by the Director General on the implementation of United Nations Security Council resolutions 687, 707, and 715 (1991) relating to Iraq. A resolution (**GC(39)/36**, 20/9) which, among other things, commends the Director General and the Agency's action team for their efforts to implement the Security Council resolutions; refers to the ongoing monitoring of Iraq's compliance; demands the handing over of any currently undisclosed nuclear-weapon-related items; and stresses the Agency's rights to investigate any aspects of Iraq's past nuclear weapons capability including the information it obtained in August 1995, and any information that may still be withheld, was adopted without a vote. As in previous years, at the outset of the session the General Conference had decided not to act on the request of Iraq (**GC(39)/INF/7**) to be allowed to vote, of which right it has been deprived because it is in arrears in the payment of its contributions.

The Conference adopted without a vote a resolution (**GC(39)/33**, 20/9) on an African Nuclear-Weapon-Free Zone that takes note of a report of the Director General on the establishment of an African Nuclear-Weapon-Free Zone (**GC(39)/14,** 14/8). The resolution welcomes the adoption on 23 June of the treaty text by the Council of Ministers of the Organisation of African Unity, requests the Director General to assist African states in their effort to establish a nuclear-weapon-free zone, and appeals to the nuclear-weapon states to accede to the protocols of the Pelindaba Treaty once that has been adopted. The United States expressed itself in favour of the concept of the African Nuclear-Weapon-Free Zone and said it was reviewing the text with a view to possible accession to the protocols. The United Kingdom said it was considering accession, but that it was not yet ready to accept language committing it to do so.

There was frequent reference during the general debate to the issue of nuclear testing, on which communications had been received from a number of member states,

including communications submitted by the Movement of Non-Aligned Countries, (**GC(39)/INF/6**, 23/8) the Rio Group (**INFCIRC/480**, 23/8) and the Member States of the Permanent South Pacific Commission (**INFCIRC/481**, 23/8). Long negotiations on the draft of a resolution submitted by a number of Asian, Pacific, and Latin American states and South Africa which initially 'deplored' the ongoing nuclear but in the end expressed 'grave concern', led to alterations that permitted it to be adopted without a vote. During the debate several delegates, including Pakistan and the United Kingdom, claimed that the issue should not be discussed in the framework of the IAEA. India reiterated its wish for a time-bound abolition of all nuclear weapons, and France underlined that the purpose of its tests was not to develop new weapons but to ensure the safety of existing ones. The text of the resolution as amended is reproduced in its entirety below in section **IV. Documentation**.

The issue of the application of IAEA safeguards in the Middle East (Report by the Director General, **GOV/2825-GC(39)20**, 17/8) led to intense debate and the submission of a draft resolution (**GC(39)/34/Rev.1**), 20/9) by 15 Arab states. Among other things, this would have noted with concern the continued operation of unsafeguarded sensitive nuclear facilities in Israel; reaffirmed the urgent need for Israel to accept forthwith the application of full-scope safeguards; called on all states of the region to accede immediately to the NPT; and requested the Director General to arrange for the preparation of proposed draft model agreements. Western states (subsequently joined by Russia) thereupon submitted a draft resolution (**GC(39)/41**, 21/9) that would, *inter alia*, affirm the urgent need for 'all states in the Middle East' to accept the application of full-scope Agency safeguards and referred to the ongoing Middle East peace negotiations and the activities of the multilateral working group on Arms Control and Regional Security. Attempts to combine the two drafts were unsuccessful. Reportedly in the negotiations Israel let it be known that it could not agree with any decision that would go beyond those taken in the past. Arab negotiators, on the other hand, noted that the decision on the matter adopted in May at the NPT Review and Extension Conference did go further and claimed that any decision by the General Conference should take that document (**NPT/CONF.1995/32 (Part 1)**, 11/5, page 13) into account. In the end agreement was reached on a text identical to that contained in last year's resolution (**GC(XXXVIII)/Res.21**, 23/9/1994), although a number of states expressed various reservations. Several Western states expressed regret that in this way no reference could be made to the extension of the NPT.

Also in the context of the Middle East, Israel called attention to the consequences of the fact that other states of the area do not recognise it as a *bona fide* member of that region, so that it can never be elected to the Board of Governors as a representative of the region. It submitted a draft resolution listing the Agency's member states among eight regional groups, including Israel as a member of the Middle East region (**GC(39)/Com.5/10**, 19/9. The General Conference dealt with this issue in a resolution (**GC(39)/45**, 22/9), adopted without a vote, in which it requested the Director General to study the implications of the Israeli proposal, taking into account the debate and especially the view 'that the primary responsibility for deciding upon the composition of regional groups lies with the respective groups themselves and the view that every state has a right to participate in a regional group', and asking the Board of Governors to consider the matter and report to the next session of the General Conference. As usual, Israel's position also figured in the discussion of the delegates' credentials, where Arab states expressed reservations about its credentials on the basis of its annexation of Jerusalem and the Golan, as well as other areas (**GC(39)/43**, 21/9).

II. Safeguards

- In late March, the IAEA Board of Governors endorsed the direction of 'Programme 93+2' for a strengthened and cost-effective safeguards system, reaching consensus on the general thrust of the proposed new system, which should provide for verification by the Agency of the 'correctness and completeness' of declarations by states party to comprehensive safeguards agreements, so that there is credible assurance of the non-diversion of nuclear material from declared facilities and of the absence of undeclared activities. The Board asked the Secretariat to submit for consideration at its meeting in June specific proposals on the implementation of the Programme, preparatory to presentation to the General Conference of the IAEA, in September.

The proposals submitted by the Secretariat for the June Board were in two parts: activities with which the Secretariat feels it currently has the authority to proceed and those for which it considers it will need additional authority — both categories of measures being part of an integrated technical system. With respect to activities for which the Agency's Secretariat believes existing instruments, notably the safeguards agreements based on document INFCIRC/153, give it the necessary authority, and which it would be practical and useful to implement at an early date, specific implementation measures were proposed. These activities include the collection of environmental samples at sites where the IAEA already has the right of access; the acquisition of information for which it has not previously asked, but which the Secretariat deems to be covered by existing instruments, such as data on parts of the fuel cycle that precede the introduction of safeguards material into a reactor or enrichment facility, *viz.* mining, processing and conversion plants; and information on past operations. For those measures for which the Secretariat thinks it does not now have express authority, it presented proposals for implementation through additional authority, to complement the authority conveyed on the Secretariat in the safeguards agreements.

Reportedly, the Board of Governors was advised by Director General Blix that he intended to start applying the first category of measures right away and had taken note of the Secretariat's two-pronged approach. With regard to the second set of measures the Board has asked the Secretariat to present for discussion at its December meeting model legal documents through which it would be given the necessary additional authority. As reported in **Newsbrief** 30, p. 9, the Board was divided on the nature of the legal mechanism that was required, with some members favouring the preparation of draft protocols to existing safeguards agreements, or a revised version of those agreements, either of which would first have to be formulated in general terms and subsequently negotiated for formal adoption with each of the states concerned. Other members are understood to support

state-by-state negotiations, which are thought to take less time to complete.

Activities for which additional authority is understood to be needed include physical access to locations where the state has declared that activities are carried out that are 'functionally' related to fuel cycle operations; an example given is heavy-water production; full access to sites where a state has identified nuclear materials to be present (environmental sample collection would be done at such sites, not just the facility involved); and the requirement for an expanded declaration, giving a complete description of the nuclear fuel cycle.

Reportedly, a number of states' representatives, including those from countries in the Middle East, which fear they may be particularly targeted by the new procedures, as well as some of the more highly industrialised Western states, have objections to the increased intrusiveness of the Agency's safeguards system.

A report by the US Office of Technology Assessment (OTA) has analysed the capabilities and limitations of the IAEA safeguards system. The report concludes that the Agency seems to gain support for broader responsibilities, but that under the current zero-growth funding policy the growing demands cannot be met without sacrificing effectiveness. Comments include the remark that the materials accountancy methods used by the Agency are unable at large reprocessing plants to assure that there has been no diversion of the amount of plutonium needed to make one bomb; that IAEA safeguards alone cannot keep a country from making nuclear weapons, but can make it difficult to do so without being found out; and that the Agency's ability to improve its detection capability is set by the extent to which states are willing to cede national sovereignty to it. Options identified in the report to improve safeguards include increasing the resources available; reallocating inspection effort towards problem states; supporting 'enhanced transparency' efforts; tightening 'significant quantity' and 'timeliness' goals; improving the ability to detect secret nuclear facilities; and accepting that very large 'bulk handling facilities' cannot be adequately safeguarded and adopting alternative measures, relying explicitly on other techniques such as surveillance, evaluation of plant design and monitoring of plant operations.

(**US Congress, Office of Technology Assessment**, Nuclear Safeguards and the International Atomic Energy Agency, July; Ditto, Report Brief; **NuclearFuel**, 31/7; See also **Newsbrief** 30, page 9; **Nucleonics Week**, 17/8; Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System–Report by the Director General to the General Conference, **GC(39)17**, 22/8)

g. Peaceful Nuclear Developments

- In **Armenia**, the nuclear authorities in cooperation with the IAEA are reviewing the modifications being made to the Medzamor VVER-440/230 unit-2 reactor, to see if they meet international safety standards, prior to licensing the unit for recommissioning. IAEA specialists had previously visited the plant to review technical, seismic and staff-related issues and the Agency had submitted to the government in Erevan a set of recommendations and reaffirmed its readiness to assist in the resolution of safety-related issues. Once it reaches full power the reactor, which was newly fuelled in June and officially reopened in early July, will provide 30 per cent of the country's energy needs. Azerbaijan, Georgia and Turkey have expressed concern about the environmental threat posed by the reactors, which were closed in 1988, after an earthquake. In a statement distributed at the IAEA's General Conference the former called on the IAEA to 'take all steps available to it to prevent [the] start-up [of Medzamor] in order to avert disaster'. Reportedly, the IAEA's observers were impressed by the rigour and range of the examinations undergone by the personnel trained to operate the plant. Work is also said to be proceeding on emergency plans to respond to any major accident. There is a report that Armenia is considering the construction of two more reactors at Medzamor. (**IAEA Newsbriefs**, June/July; **Financial Times**, 28/6; **Guardian**, 8/7; **Nucleonics Week**, 10/8; **East European Energy Report**, September, in **UI News Briefing**, 95.39; **Statement by the Republic of Azerbaijan**, in GC(39)/INF/26, 20/9)

- In the **Czech Republic**, the completion by the American firm Westinghouse and the Czech Skoda Company of the two VVER-1000 Temelin power station is expected to take a year longer than scheduled, and to be completed only in 1997/98. Reportedly, it will also be considerably above budget. Installation of the reactor pressure vessels at Temelin 2 is said to have begun. Westinghouse is said to have half-finished the new instrumentation and control system and hopes to start testing it in late 1996. (**Salzburger Nachrichten**, 22/6; **Frankfurter Allgemeine Zeitung**, 22/6; **NucNet News**, 28/7; **Nucleonics Week**, 24/8)

- **Cuba** has announced that a feasibility study on the completion of the two VVER-440/318 power reactors at Juragua will be finished during the summer and is in fact almost complete. Reportedly, the companies involved in the work are Ansaldo of Italy, National Nuclear Corporation of the UK, as well as another British firm whose name was not mentioned in the relevant information, and Furnas of Brazil. Investigators from the General Accounting Office of the US Congress are quoted as saying that the station has deteriorated severely. Reportedly this judgement is based on the analysis of a limited amount of video footage. Cuba claims that the station has been rigorously maintained, and wishes to resume construction as soon as funding is found; a Russian source claims that work has already started. Reportedly, the B-318 version of these reactors is a much safer model than older VVER-440s. Republican members of the US Congress have faulted the President for failing to speak out against Cuba's plans, which they say affect American security. (**Nucleonics Week**, 29/6, 3/8; **Prensa Latina** [Havana], 2/7 in **FBIS-LAT**-95-128, 5/7; **International Herald Tribune**, 3/8; **NucNet News**, 9/8)

- It is reported that **Estonia** is taking official responsibility for the former Soviet nuclear naval training centre at Paldiski. The site contains two reactors. The move means that henceforth Estonia will take charge of clean-up at the site. (**Nucleonics Week**, 7/11)

- In August, **France**'s fast breeder reactor 'Superphénix' was given permission to resume operation at 30 per cent of capacity. The reactor entered into service in 1984, and was shut down in 1990 for extensive maintenance work. It was restarted in August 1994 but was shut down again in December, when a leak was found in the argon piping. The 1240-MW reactor will be used for research and

demonstration purposes. The decision of France's nuclear safety authority, to allow 'Superphénix' operations is strongly opposed by environmentalists. (**ENS NucNet**, 22/8; **SFEN:la Correspondance Nucléaire**, 23/8; **International Herald Tribune**, 23/8; **Neue Zürcher Zeitung**, 23/8; **La Libération**, 23/8)

- **France** plans to start building the first of a new generation of nuclear power reactors around the year 2000. The plant will based on the Franco–German design for what is called the European Pressurised Water reactor or EPR-2000. The plant is still in the design stage, which reportedly will be completed in 1997. Construction would begin in 1999–2000 and the plant — designated 'REP-2000' in France — should be operational in 2006. Apparently, energy needs would not by themselves justify the construction of the plant, the more so since four 1,400 MWe N-4 units will come on line between now and 1998. However, the main purpose of this project is said to enable Electricité de France to come forward by the beginning of the new century with an up-to-date and standardised type of power reactor. (**NucNet News**, 28/6; **Nucleonics Week**, 29/6)

- Electricité de **France** and the design and engineering association MOHT of **Russia** have completed a joint project defining a generic reference upgrade programme for VVER-1000/320 power reactors. As reported, 14 reactors of this type are in operation (4 in Russia; 8 in Ukraine; 2 in Bulgaria); 19 are under construction (of these, 1 each in the Czech Republic and Russia and 4 in Ukraine are said to be almost complete), and 22 that were planned have been abandoned. The programme is understood to introduce a western-style methodology for selecting, classifying and prioritising the many modifications necessary or desirable for safety, availability and operability. All the operators concerned are said to go along in principle with the programme, but there is a question whether and how fast they will (or have the means to) implement it. Reportedly, the first use to be made of the reference document will be at the Rovno-4 and Khmelnitski-2 plants in Ukraine, the completion of which the West has promised to support if Chernobyl is shut down. Engineering studies and preparatory work for the completion of those two reactor units will be done by a group of French, Belgian and Finnish companies, in association with organisations from Russia and Ukraine. (**Nucleonics Week**, 6/7; **NucNet News**, 13/7)

- **Germany** is reported to have rejected Washington's suggestions to convert the 20-MW research reactor now under construction at Garching, near Munich, which is designed to use uranium enriched to 93 per cent, so as to use low-enriched uranium fuel. American critics, including the Nuclear Control Institute, allege that this is a 'brazen violation' of non-proliferation policy and maintain that the reactor could achieve its purposes also if it used low-enriched uranium. The United States has failed to persuade Germany that roughly similar scientific results could be achieved by using low-enriched uranium (LEU) in a redesigned version of the same reactor. In response to arguments advanced by Argonne National Laboratory, which conducts the programme on 'Reduced Enrichment in Research & Test Reactors' (RERTR), in favour of the use of low-enriched fuel, sponsors of the German project maintain that it would take a much larger reactor to use LEU, that adapting to LEU-use would drastically slow down completion of the reactor and that doing so would in practice kill the whole project. (**International Herald Tribune**, 21/7; **New York Times**, 22/7; **Guardian**, 22/7; **NuclearFuel**, 25/9)

- On the occasion of a visit to **Indonesia** by the Director General of the IAEA, Hans Blix, it was confirmed that the country continues to consider the construction of up to twelve 600-MW nuclear power plants in the area of Mount Muria, on the North coast of Java. Dr. Blix offered the IAEA's cooperation with the project. The plan is criticised by environmentalists, who say that the site in question is in an earthquake-prone region. The Director of Indonesia's National Atomic Energy Agency, Djali Ahimsa, is reported to have said that the site was safe. (**Reuter's**, 17/7; **United Press International**, 17/7)

- In **Japan**, the 280-MWe prototype fast-breeder reactor Monju was connected to the grid, briefly supplying 14 MW electricity, on 29 August. It is scheduled to achieve full thermal output in June 1996, will then undergo a maintenance check, receive a new fuel load and enter into full operation by the end of the year. (**Atoms in Japan**, July; **NucNet News**, 29/8; **New York Times**, 30/8; **Nucleonics Week**, 7/11)

- A review by the World Bank and the Overseas Economic Cooperation Fund of Japan is said to have concluded that **Pakistan**'s project for the construction of a 300-MW nuclear power station of Chinese design should not be regarded as a high priority investment. (**Nucleonics Week**, 3/8)

- Recent reports indicate that the government of the **Slovak Republic** has now taken the decisions to set in motion the completion of the two VVER-440/213 units of the Mochovce nuclear power station. Following a meeting of firms that had previously indicated an interest in participating in the project it was announced that Siemens and Electricité de France (EdF) will carry out international safety audits, on which the Slovak nuclear authorities would base decisions — thus bearing out earlier expectations that these two firms might be willing to participate as subcontractors even if EdF and the EBRD were not involved. They would be retained further to make studies and analyses regarding improvements in nuclear safety. Reportedly Skoda Praha has been named general contractor for the completion of the station, Hydrostav Bratislava would be responsible for civil engineering, and Energoprojekt Prague will be general designer, in cooperation with Russian designers — although one report has it that the latter would be the general project managers for the completion of the station, and that Skoda Praha's responsibility would seem to be limited to the supply of components and main equipment. Final contracts are expected to be signed in early 1996.

  This decision — which is qualified as having been taken 'in principle' — has followed several months of contradictory reports about the future of the project. Uncertainty about the source of financing prompted Western companies that had been involved in the preliminary work, including the German firms of PreussenElektra and Bayernwerk AG, to withdraw from the project as initially conceived although reports from Bratislava indicated that they might yet be associated with it. Earlier in the summer EdF, which was to be the

major contractor under the plan submitted to the European Bank for Reconstruction & Development (EBRD) that was withdrawn when Bratislava considered plans for Czech and Russian financing, had removed the personnel it had on-site pending restart of the construction. An EdF official had expressed the view that the project as originally conceived was, in fact, 'dead'. Press reports raised doubt about the feasibility of proceeding without the support of EBRD. The Austrian press claimed that Russia would be able to assist the project with only about $80 million, of which $30 million would have to be spent on preparatory costs for the Russian firms involved, and only $50 million would be available as direct bank credits. It appears, however, that Russia has in fact said it would provide $150 million. At the end of August the Slovak economy minister announced that negotiations on the completion of the plant were nearing a conclusion and that a search was on for the cheapest money source for the project. The original estimated cost for the completion of the two units had been reduced to $677.5 million; the original estimate by EdF and the EBRD was over $1 billion. The minister said that EdF and EBRD were still his country's preferred partners, and had been asked to consider reducing their bids. French sources are understood to have said that at the lower price, it would not be possible to include the same safety upgrades that were foreseen in the more expensive EBRD version. Czech sources were quoted, however, as saying that the difference in costs would be due mainly to lower labour costs.

Following a cabinet meeting on 5 September, it was announced in Bratislava that the Slovak government had decided to pursue an alternative offer from the Czech firm of Skoda Praha (which reportedly already has invested $30 million in the project), to complete the two reactor units, with financing from Russian, Czech and, possibly, Japanese banks; there are reports that Nomura International of Japan would be ready to issue $1 billion in bonds for the project. One condition for Russian involvement is said to be that it would supply the fuel over the lifetime of the reactors. Some aspects of the financing plans are said to be still under consideration.

All along, the Austrian press had continued its campaign against the project in a way seen by some media analysts as potentially counter-productive and certainly not helpful in improving relations between Bratislava and Vienna. Much has been made in Austria of the supposition that, with the shrinking probability that West European firms would be involved, the bulk of the work would be done on the basis of Russian and Czech plans, which were said to pay less attention to safety considerations. Sources in Vienna have also alleged that the plans of the Slovak Republic that now seem to take shape would leave that country in financial straits.

Reportedly, a non-nuclear alternative has been given serious consideration, but it is not clear if this is still the case. The Austrian government, which remains adamantly opposed to the completion of the Mochovce plant, has offered to contribute a $50-million credit to a gas-fired power plant. During a visit to Austria in August, Slovak Prime Minister Meciar said that the alternative of a gas-fired station would not be ruled out. Reports circulating in Vienna, that insistence on the completion of Mochovce might jeopardise the chances of the Slovak Republic joining the European Union, have been officially denied.

It has also been announced in Bratislava that the Slovak government plans to start closure of the two oldest VVER-440/230 reactor units at Jaslovske Bohunice one year after the first Mochovce unit comes on line. Meanwhile, given the country's growing demand for electric power, the two units are scheduled to undergo major backfits; these will be carried out by Siemens at a cost of $167 million. The fact that the EBRD had made it a condition for its assistance in the completion of Mochovce, that the two old Bohunice units should be shut down and also that electricity prices should be sharply increased, is said to have been one of the main reasons why the Slovak government withdrew its application for support from that side.

(**Salzburger Nachrichten**, 5/7; **Standard** [Vienna], 5/7, 24/7, 6/9, 28/9; **NucNet News**, 6/7, 24/7, 29/9; **Nucleonics Week**, 6/7, 13/7, 20/7, 24/8, 14/9, 28/9, 5/10; **Süddeutsche Zeitung**, 7/7, 14/7, 26/9; **Kurier**, 8/7, 10/7, 24/7; **Die Presse**, 8/7, 12/9, 21/9, 22/9, 23-24/9; **Les Echos**, 10/7, in **UI News Briefing**, 95/28; **ENS NucNet**, 24/7, 14/9; **CSTK Ecoservice**, in **UI News Briefing**, 95/36; **Wall Street Journal**, 22/8, 6/9; **Enerpresse**, 23/8)

- In **Sweden** a new referendum may be held about the shutdown of its nuclear power plants, which now provide about half the country's electricity. When the initial decision was taken to close out nuclear energy in 2010 it was generally assumed that by then adequate alternatives would be available. In the realisation that even if alternative sources are available early in the next century, they will at best play a marginal role, some members of the government apparently hope that a popular verdict would go against decommissioning or result in a postponement. The announcement of the current Prime Minister, Ingvar Carlsson, who is seen as a supporter of decommissioning, that he plans to retire early next year, is seen as complicating the situation. Some key politicians hope that before Carlsson withdraws, a decision should be taken on decommissioning. Others, including the Vice Prime Minister, who is expected to succeed him, are said to feel that economically this would not be the time to decommission, as that would increase electricity prices and hamper an economic recovery. A Swedish accounting firm which had earlier announced that the country's nuclear power plants were 30 per cent more expensive to operate than industry had said they were, has revised its calculations down to 20 per cent. Speakers for the utilities had criticised the accounting methods followed in the initial calculations. There still does not appear to be full agreement on the issue, however, among all concerned. (**Nucleonics Week**, 6/7, 24/8, 28/9, 5/10; **Neue Zürcher Zeitung**, 24/8; **Die Presse**, 9/9)

- In **Ukraine**, officials at the Chernobyl power station have confirmed that the concrete shell or sarcophagus over the ruined reactor unit 4 needs early replacement, pending which it will have to be stabilised. The French-led Alliance consortium has presented a project for a new sarcophagus. The consortium says that temporary stabilisation should begin as soon as possible and the construction of a new cover should start early in the next decade, which would presumably be shortly after the entire station has been closed. The cost of the project is estimated at $1.6 million. Although experts are quoted as saying that the containment should cover both units 3 and

4, because of the structural connections between those two reactor blocks, limiting the structure to the ruins of unit 4 would be $300 million cheaper and would permit unit 3 to operate for another five years. The containment would be designed to allow for the dismantling both of the ruined reactor and the existing shell, and for disposal of the radioactive waste inside. Meanwhile, the country's State Committee for the Use of Nuclear Power has reportedly decided that unless the West gives financial support for the closure of the plant, it will have to be upgraded and enabled to operate for another ten years. In fact, there has been a report that local experts consider it possible to keep the three remaining units operating for another sixteen years. Then again, Ukraine's Minister of Environment and Nuclear Safety is said to have denied that preparations are underway for operation of the station after 2000, adding that there were no plans to restart unit 2. Ukraine says it needs $4 billion to close the entire station. Reportedly, President Kuchma has written to Canada's Prime Minister Chretien, current chairman of the Group of Seven Industrial Nations, asking for urgent talks on the shut-down of the station. He is said to have pointed out that no reply had been received from the G-7 about its intended action and that if financial assistance is not forthcoming, Ukraine had the right to alter its decision to shut the plant down. Reportedly, talks between experts from Kiev and the G-7 about possible financial assistance have made little progress. A meeting of technical experts will be held in Kiev during 11–13 October. According to the Chairman of Ukraine's nuclear energy authority, electricity generated by Ukraine's nuclear power station is 20 per cent cheaper than that generated in fossil fuel plants. (**Reuter's**, 5/7, 9/8; **NucNet News**, 13/7, 12/9; **Financial Times**, 13/7; **BBC Monitoring Summary of World Broadcasts**, 31 July in **UI News Briefing**, 95/31; **Der Spiegel**, 14/8)

- According to the *New York Times*, a report prepared under contract for the US Department of Energy lists ten Soviet-designed nuclear power reactors as the most dangerous among sixty old nuclear power plants that are being operated in the former Soviet Union and East European countries. The report, titled 'Most Dangerous Reactors: A Worldwide Compendium of Reactor Risk Assessment', mentions the ten as being Bulgaria's Kozloduy 1 and 2; Lithuania's Ignalina 1 and 2; Slovakia's Bohunice 1 and 2; Russia's Kola 1 and 2; and Ukraine's Chernobyl 1 and 3. Armenia's Medzamor station, which was still shut down at the time the report was prepared, was rated at the same risk level as the ten units listed. The phenomenon that causes the greatest concern about the safety of the first generation VVER-440/230 units is said to be the embrittlement of the reactor vessels, mainly as a result of neutron bombardment and pressurised thermal shock (PTS). Experts from French and German technical safety organisations are said to have concluded that Kozloduy 1 could not be operated within current safety norms, due to the risk of deterioration in the metallurgical characteristics of the reactor vessel; they are said to be concerned because welds of the reactor vessel of this particular unit are said to be particularly vulnerable to PTS. Electricité de France has announced that it would withdraw its remaining staff from the site if that facility was restarted; as of press time, they were still in place, however. An expert who participated in the IAEA work has said that unit 1 ought to be shut down 'immediately', unit 3 within three years, and unit 2 within five years. At the time this issue went to press, an experts meeting was being held under IAEA auspices to discuss the matter. (**New York Times**, 23/7; **Nucleonics Week**, 21/9, 29/9, 5/10; **NucNet News**, 22/9)

h. Weapons-related Developments in Nuclear-Weapon States

- In the **United Kingdom**, the opposition Labour Party has voted, by a majority of 55.8 per cent, to retain the Trident nuclear missiles. The decision is a departure from the traditional Labour approach to Britain's nuclear policy. (**Guardian**, 6/10)

- A study made in the **United States** by scientists from a number of prestigious independent think tanks says that the country has spent far more on the development and production of nuclear weapons than has ever been publicly acknowledged. The study claims that in current dollar prices, the cost since 1945 of research and development, delivery systems, security, communications and control systems, dismantlement costs and environmental clean-up totals $3.9 trillion. This is said to be roughly equal to the total US output of goods and services for seven months, or one-fourth to one-third of the entire military budget since 1945. The figures are seen as especially relevant given earlier perceptions of nuclear weapons as a cost-effective alternative to conventional arms.

  Reportedly, the United States has built a total of 70,000 nuclear warheads of all kinds.

  The Republican majority in the US Congress have forced through the authorisation of $745.6 million for the near-term development of a long-range missile defence programme ('National Missile Defense', or NMD), against claims from the Administration that this will violate the Anti-Ballistic Missile (ABM) Treaty of 1972 and would raise tensions with Russia. Funds far exceeding Administration requests were also appropriated for a variety of related activities, including naval missile defence. Supporters of the missile defence plan claim that this is necessary to deter potential threats of accidental or limited missile attacks from Third World countries; they call for a network of ground-based missile sites. They say that the USA should renegotiate the ABM Treaty or withdraw from it if that is not possible.

  The Department of Defense is studying a proposal for an 'arsenal ship' that would eventually assume many of the functions of aircraft carriers and missile submarines. The ship, essentially a floating barge that could be partly submerged, would be a platform from which short-medium and long-range ballistic and cruise missiles, rockets and artillery shells could be launched against a multitude of targets. Proponents claim that it would cost $700 million to build (one report speaks of $500 million), as against $4.5 million for an aircraft carrier; that it could be run by a crew of 20, as against the 5,000 serving on an aircraft carrier, and that its annual running costs would amount to several tens of millions as against $440 million for an aircraft carrier.

  An expert study produced over six years under the auspices of the International Physicians for the Prevention of Nuclear War summarises the effects of the production of nuclear weapons on the environment and human health, even if such weapons are not detonated. Much of those effects, ranging from harm to miners of

uranium to radiation exposure of laboratory workers are said to have been kept secret or to have been deliberately understated or ignored. The US Congress has reduced the $61-million budget requested for 1996 by the Department of Energy to study the effects of radiation on workers and on the public by $22.5 million.

Studies are continuing of the technologies that might be used to make tritium, and of the place where the relevant facility would be situated. The choice is still between various reactor types on the one hand, or an accelerator on the other; either is expected to take ten years to develop and construct. The Department of Energy (DoE) has long been reported to stick to accelerators as the preferred choice: it had planned to allocate 90 per cent of available funding for that purpose. It has also been studying various reactor options, including the use of an existing commercial reactor, but had consistently expressed the view that the use of a civil reactor for this purpose would conflict with the tradition that using a facility at the same time for military and civilian purposes would complicate US non-proliferation objectives. Most recently, however, DoE appears to have set aside this objection to the use of an existing reactor; it is now said to consider the purchase of a commercial reactor, or obtaining irradiation services to produce tritium. Reportedly, the decisive factor in DoE's choice would be cost. A formal announcement was expected earlier, but is said to have been delayed by further studies about potential costs of the various options. It now appears that the accelerator option is the most expensive (the sum of $3 billion has been mentioned) and there are indications that DoE would find it hard to persuade Congress to accept this option. The so-called 'triple-play reactor', which would produce tritium, generate electricity and burn plutonium from dismantled nuclear weapons is said to be regarded most favourably in Congress. A study on this issue is overdue. Currently, tritium for use in nuclear warheads is obtained from retired warheads. There is said to be enough tritium in the United States to support an operation stockpile of 5,000 warheads and to keep a reserve; it is said that no new tritium will be needed until about the year 2011.

As part of their campaign to save costs the Republican majority in the US Congress wish to abolish the Department of Energy and assign those of its activities that relate to nuclear weapons, including their production, management and dismantling, to the Department of Defense. The move is resisted by the Administration and by many weapon specialists. There have also been proposals to consolidate the three nuclear- weapons laboratories, Lawrence Livermore National Laboratory, in California, and Sandia and Los Alamos National Laboratory, both in New Mexico; of these only Sandia would be kept operating. However, President Clinton has now decided to preserve the three national laboratories as separate entities, in the national security interest.

At a press conference held on 3 October President Clinton formally apologised to the persons concerned and to their families, for the government-sponsored radiation experiments carried out on humans between the years 1944 and 1974. His public statement followed the completion of an 18-month inquiry by the President's Advisory Committee on Human Radiation Experiments. The Committee singled out nine series of experiments for which compensation should be paid to the individuals involved or their next of kin.

(**Nuclear News**, July; **Bulletin of the Atomic Scientists**, July/August; **NuclearFuel**, 3/7, 25/9; **New York Times**, 11/7, 16/7, 26/7, 4/8, 3/9, 26/9, 3/10; **Nucleonics Week**, 27/7, 28/9; **SpentFUEL**, 21/8; **Inside Missile Defense**, 27/9; **Direct information**)

i. Proliferation-Related Developments

- **DPRK**: At the first general meeting of the Korean Peninsula Energy Development Organisation (KEDO), held in New York on 1 August, twelve countries pledged a total of $16.8 million to fund that organisation. KEDO was created in March to implement provisions of the Agreed Framework, particularly the financing of two light-water reactors that are to be provided to the DPRK. The contributors include Australia, Brunei, Canada, Finland, Greece, Japan, Republic of Korea, Malaysia, New Zealand, and Singapore. The European Commission is expected to make a sizeable contribution. American, Japanese and South Korean officials have visited the site at Shinpo, on the DPRK's northeast coast, where the power station might be located. Reportedly, the team was to investigate environmental conditions at the site. In mid-September, the first round of talks between representatives of KEDO and the DPRK were held in Panmunjom. These talks followed another round of discussions on the supply of technology between delegations from the DPRK and the US, in Kuala Lumpur. At further talks between representatives of the DPRK and of KEDO, held in New York on 30 September, the former repeated the demand made earlier, for $500 million in add-ons, such as roads and powerlines, in addition to the funds KEDO would provide for the reactors proper, claiming that the Agreed Framework provided for this (see **Newsbrief** No. 30, p.13). The US Administration disputes this. A Pyongyang official was reported to have said that his country could not continue to 'unilaterally fulfil our obligation–a nuclear freeze–if the US side does not fulfil its obligations ...' In Washington, this is seen as part of a move to increase pressure on the negotiating partners by turning the anniversary of the Agreed Framework into a deadline for reaching agreement on the conditions of supply.

The IAEA's Director General is said to have told the Agency's Board of Governors that the DPRK has refused to allow that organisation's inspectors to measure the plutonium content of the spent fuel rods of the closed-down reactor. Reportedly, it has also turned down the Agency's demand to measure liquid waste in the reprocessing facility.

Criticism has been expressed in South Korea about the omission from the Agreed Framework between the DPRK and the US of the participation of South Korea in the freezing and dismantling of North Korean nuclear facilities, which was foreseen in the earlier 'Joint Declaration on Denuclearization of the Korean Peninsula'. Seoul's reaction heightened by the perception that, presumably to force the United States to conclude a peace treaty and partly, it is thought, to annoy South Korea, the DPRK seems to be doing whatever it can to undermine the armistice agreement. The US Administration has made it clear that it will not discuss a peace treaty until arrangements have been made between the two Koreas but the South is said to be concerned that the US may not adhere to this policy if the North increases its military pressure.

In late August it was announced in Pyongyang that the Northern part of the Peninsula, which already suffers serious food shortages, is greatly affected by recent floods that have caused $15-billion damage. It has sought assistance from the United Nations and relief experts from several Scandinavian countries are assessing the damage.

(**Newsletter of the Research Institute for National Unification** [Seoul], June; **Nucleonics Week**, 10/8; **International Herald Tribune**, 16/8, 12/9; **New York Times**, 30/8, 31/08, 1/10; **Reuter News Service**, 11/9; **Financial Times**, 12/9; **Arms Control Today**, September; **BBC Monitoring Service of Radio Broadcasts**: KBS Radio Seoul, 26/9)

- **Iran**'s presumed interest in the acquisition of nuclear weapons remains a subject of keen interest, particularly in the American media. On 1 May, US Secretary of State Christopher stated that Iran had 'an organized structure dedicated to acquiring and developing nuclear weapons'. US sources are quoted as saying that intelligence agencies have detected procurement patterns that are not consistent with a strictly peaceful programme. Iran is said to be particularly interested in obtaining designs and equipment for uranium enrichment by means of centrifuges and there are reports that Iran has already acquired information pertaining to early-generation European centrifuge models. Reportedly, following attempts by Sharif University of Technology in Teheran to buy equipment for use in centrifuge development, the German export authority has decided not to award export permits for any equipment meant for that institution. Officials from both Kazakhstan and the United States have said that several years ago, Iran approached Kazakhstan to buy low-enriched uranium and beryllium metal but they denied that Iran had asked for weapons-usable material. Reports that Iran had sought to obtain highly-enriched uranium in Kazakhstan have been denied by the Director-General of that country's Atomic Energy Agency. (**NuclearFuel**, 17/7, 28/8; **Bulletin of the Atomic Scientists**, July/August)

- **Iraq** : Investigations carried out by the IAEA since last May, into allegations that **Iraq** had resumed its efforts to pursue a nuclear weapons programme (see **Newsbrief** 30, page 16) have led it to conclude that the documents containing this information, which were supposed to have come from an Iraqi defector who was subsequently killed, were fakes. According to a report by the IAEA, careful analyses of Iraqi correspondence and records, interviews with Iraqi personnel allegedly involved, and on-site inspections had not yielded credible evidence to suggest that Iraq was actually engaged in the activities described in the documents. Variations, inconsistencies and inaccuracies in those documents, as compared to documentation and information obtained from Iraq, were reported to have played a role in convincing the IAEA that they were forgeries.

  Since then, new allegations have surfaced that, after the UN embargo was imposed, Iraq had imported centrifuge equipment from a European manufacturer. So far, this report has not been publicly confirmed. It is not clear if the disclosures made by Baghdad in the wake of the defection of two sons-in-law of President Saddam Hussein indicate that Iraq has indeed continued its efforts to enrich uranium for weapons purposes after the end of the war in the Persian Gulf. They do show that after invading Kuwait, in August 1990, Iraq had set out on a crash programme to demonstrate its nuclear-weapon capability and to get ready to use biological weapons. Generally, the information newly released in Baghdad is seen as presenting a picture of an Iraqi programme for the development and production of weapons of mass destruction and of their delivery vehicles that was substantially more advanced and had a broader scope than had been believed so far.

  In June of the current year, the United Nations Special Commission (UNSCOM) began investigating evidence that Iraq had been engaged in a large-scale programme for the development of biological weapons. Reportedly, suspicions had been awakened by the discovery that in 1988 Baghdad had obtained a large quantity of biological growth material, as well as other items used in the production of bacteriological weapons. It is also reported that already in the late 1980s there had been indications that Iraq was working on a slow-moving delivery system for the release of biological warfare agents close to the ground. After initial denials, senior Iraqi scientists are said to have confirmed in early July that since 1985 they had been engaged in a major offensive germ warfare effort. They are understood to have told UNSCOM that the stockpiles of bacterial agents were destroyed before the 1991 war, to prevent contamination in the case of bomb damage. Reportedly, they also claimed that they never managed to produce actual biological weapons in the form of munitions. Apparently in hopes of effecting the withdrawal of the UN-imposed trade embargo in early summer, Baghdad promised a complete disclosure of its biological weapons programme, but at the time expert analysts working with the Special Commission were said not to be satisfied with the information Iraq had submitted and the investigations were continued. In early August, US sources also claimed they had new information of Iraqi violations of the UN resolutions, including its persistent failure to dismantle weapons of mass destruction.

  Meanwhile, Iraq agreed to destroy machinery used for manufacturing missile engines; UN inspectors have since reported that they had supervised the destruction of the equipment in question.

  On 10 August it was announced in Amman that on 8 August two prominent Iraqi officials, both married to daughters of President Saddam Hussein, had arrived there with their wives and with a number of other senior officers, and had asked for political asylum. They were Lt. Gen. Hussein Kamel Hassan Al-Majid, who is known to have been in charge of Iraq's programme for the production of biological, chemical and nuclear weapons and delivery vehicles, and his brother, Col. Saddam Kamel, who commanded Iraq's Special Forces. The brothers are described as having been respectively the second- and third-most powerful figures in the Iraqi government. Gen. Kamel is considered important as a source of information about his country's efforts to produce weapons of mass destruction, including the whereabouts of any remaining stocks, foreign sources of high technology, and the location and amounts of secret bank accounts Iraqi officials maintain abroad, although recent reports seem to indicate that his interrogators among Western intelligence services have obtained less new information from him than they had initially hoped. There has been speculation that a factor in the brothers' departure was that they had been shunted aside recently

in favour of Saddam Hussein's sons, after a series of domestic quarrels and several violent incidents. Their departure seems to have left the country's government almost exclusively in the hands of the President's direct relatives, with his two sons, Udai and Qusai in control of the most important functions. Gen. Kamel has said in Amman that he would work to overthrow Iraq's ruler.

Soon after Gen. Kamel's defection, Iraq's Deputy Prime Minister Tariq Aziz, supposedly in an attempt to pre-empt the defector's disclosures, extended an urgent invitation to the United Nations to come to Baghdad to receive vital new information on Iraq's weapons programme, which he said had so far been deliberately withheld upon instructions from Gen. Kamel. Senior officials from the UN Special Commission and the IAEA promptly went to Baghdad where UNSCOM's Executive Chairman, Amb. Rolf Ekéus, said they were given many thousands of documents containing highly significant new information, much of it, reportedly, with regard to Iraq's biological weapons and missile programmes. The new disclosures indicate that Iraq's biological weapons effort was much farther advanced than previously suspected; one report says that ten times more anthrax was produced than originally revealed. In obvious contradiction of previous claims, it has now become clear that the biological agents, which included substantial quantities of anthrax, botulin and aflatoxin, had not been destroyed before the Persian Gulf war. Iraqi officials who had previously said that the biological agents had been eliminated in late 1990, now say that they were not eliminated until July and August of 1991, more than four months after the war. Amb. Ekéus is quoted in the American press as having expressed concern that stocks of some of these agents, in particular anthrax, which apparently remains active longer than botulin and aflatoxin, and of which Iraq now turns out to have produced ten times more than it had originally acknowledged, may still be concealed within Iraq. The Iraqis have also disclosed that — although one report had it that this caused considerable difficulty — they had loaded 50 bombs and 10 Scud missile warheads with anthrax, and 100 bombs and 15 warheads with botulin (for a reputed total amount of 20,000 kilograms of biological agents), and had deployed the missiles at various bases on their territory. They are supposed to have been deterred from using those weapons during the Persian Gulf War by a warning from US Secretary of State James Baker that if Baghdad resorted to weapons of mass destruction, the most extreme measures would be taken — a warning reputedly interpreted by Iraq as referring to the use of American nuclear weapons.

In the US, this assertion has been taken up to support the maintenance of a powerful nuclear arsenal. It is also used elsewhere, notably in France, as an argument that nuclear weapons can be useful in deterring countries with small arsenals of mass-destruction weapons from using them. In a memoir published in September, Gen. Colin Powell, Chairman of the Joint Chiefs of Staff at the time of the Gulf War, says, on the other hand, that while the use of nuclear weapons was indeed considered, the idea was abandoned because the political cost would have outweighed the military gain.

The disclosures made in Baghdad in August — in the course of which the visitors reportedly also obtained large amounts of documents that ostensibly were found on General Hussein Kamel's private property, but which some observers think was planted there — included information about an Iraqi crash programme for the production of a nuclear explosive device for which it seems the deadline of April 1991 was set. The device would presumably have been made out of the highly enriched uranium Iraq had on hand for its research reactors, of which one, the French-supplied Tamuz reactor, was destroyed by Israel in 1981, and the other, a Soviet-designed IRT reactor, was the target of US bombs during the Persian Gulf war. The material is said to have included 12 kg of partially irradiated and 400 grammes of fresh 93 per cent enriched uranium fuel provided by France, and 13 kg of fresh and 7 kg of highly irradiated 80 per cent enriched U-235 fuel of Soviet origin. Reportedly, a centrifuge enrichment plant was being built near Baghdad that was intended to re-enrich the 80 per cent U-235 fuel to weapon-grade. On the basis of the information provided, IAEA experts reportedly do not believe that the April 1991 deadline could have been met. The IAEA's evaluation of the newly acquired documents, including a major document describing Iraq's nuclear weapons efforts between June 1990 and June 1991 is continuing, but for the present it is understood that the new information does not contain important new revelations on Iraq's nuclear weapon efforts, nor was it immediately apparent that it need affect the IAEA's plans for the long-term monitoring of Iraq's nuclear activities — a conclusion deemed premature by some experts in the US and the UK, especially given the quantity of new documents Iraq has turned over to the IAEA, and which have not yet been thoroughly studied. Reportedly, however, after a first review of those papers there was a feeling within the IAEA that they might be overly optimistic assessments prepared for internal political reasons. The Agency's Director General has used the new disclosures as a demonstration of the usefulness of remote monitoring, which presumably would promptly have detected any tampering with safeguarded fuel.

UNSCOM's Executive Chairman, Amb. Ekéus, and the head of the IAEA's task group, Dr. Zifferero, have also visited General Kamel in Jordan. The General is said to have corroborated much of the information supplied by Baghdad. He is reported to have confirmed the existence of a crash programme to produce a small number of nuclear weapons, and has said that before the war in the Persian Gulf, Iraq came within three months of testing a nuclear weapon — a contention experts tend to discount. It is noted that at a press conference he gave shortly after his arrival in Amman, General Kamel said that he would not disclose any information unless doing so was in the interest of his country.

(**Neue Zürcher Zeitung**, 21/6, 7/7, 25/7, 23/8; **Süddeutsche Zeitung**, 21/6, 10/7; **Salzburger Nachrichten**, 21/6, 7/7; **Washington Post**, 6/7; **Le Monde**, 7/7; **Reuter's**, 10/7, 11/7, 24/7, 13/8; **New York Times**, 20/7, 4/8, 10/8, 11/8, 12/8, 13/8, 14/8, 19/8, 21/8, 23/8, 26/8, 30/8; **United Press International**, 24/7; **Guardian**, 11/8; **Financial Times**, 11/8, 12/8; **International Herald Tribune**, 12-13/8, 21/8, 12/9, 20/9; **Nucleonics Week**, 17/8, 31/8, 28/9; **Economist**, 19/8; **Observer**, 20/8, 27/8; **Middle East Economic Digest**, 21/8; **Guardian**, 23/8; **PBS: McNeil/Lehrer Newshour**, 28/8: interview with Amb. R. Ekéus; **Newsweek**, 4/9; **Arms Control Today**, September)

- **Libya** announced on 9 August that it would buy uranium from **Kazakhstan**. The announcement, reported by

Associated Press, did not specify the amount of uranium involved or the level of enrichment. The plans for the sale were subsequently denied by Kazakhstan. (**New York Times**, 10/8; **BBC Monitoring Summary of World Broadcasts**, 9-10/8, in **UI News Briefing**, 95/33)

- The American bi-weekly publication *NuclearFuel* has reported that in 1991, **Pakistan**, using a joint telecommunications venture with Siemens AG, tried to buy ring magnets in Germany for use in gas centrifuge rotor assemblies to enrich uranium. A permit for the export had been issued, but before it took place the manufacturer is said to have become aware that the items might be used for non-peaceful purposes and brought the matter to the attention of the German authorities, stopping the deal.

  The US Senate has lifted the economic sanctions as well as some military sanctions it imposed on Pakistan in 1990 under the 'Pressler Amendment', which forbids military and economic assistance to Pakistan unless it can certify it does not have nuclear weapons. The White House is said to have been behind the measure, because it will improve its relations with Islamabad. Strong opposition was expressed in the Senate by traditional supporters of non-proliferation measures, who see the measure as setting a dangerous precedent and conveying the wrong image to would-be proliferators.

  Two Republican members of the US Senate who recently visited the Indian subcontinent have announced in Islamabad that Indian Prime Minister Narasimha Rao had agreed to explore the feasibility of achieving a US proposal for a nuclear-weapon-free zone in South Asia. Pakistan's Prime Minister Bhutto has reportedly asked to see the proposal and India's assent in writing.

  (**NuclearFuel**, 28/8; **Nucleonics Week**, 31/8; **New York Times**, 23/9)

- In late July, Chinese forces carried out military maneuvers and missile tests off the coast of **Taiwan**, presumably to express dissatisfaction with the official visit the Taiwanese President had paid to Washington shortly before. In apparent response to the Chinese move, Taiwan's President, Lee Teng-hui called for a study as to whether his country should reactivate its former nuclear weapons development programme. The President's remarks have called the attention of analysts to the fact that Taiwan has a relatively sophisticated nuclear infrastructure and was once in the early stages of the development of a weapons programme, which is said to have been stopped under American pressure. Within Taiwan, opinions on the issue are said to be divided; some observers apparently feel that Beijing's threat should be counted with a nuclear programme, while others believe that doing so would provoke China into a first strike. It may be recalled that Taiwan is not generally recognised to be a party to the NPT. On 27 January 1970, it ratified that Treaty. In 1971, it negotiated a safeguards agreement with the IAEA, which has never entered into force, safeguards in Taiwan being applied on the basis of document INFCIRC/66/Rev.2. (**International Herald Tribune**, 29/7; **Direct Information**)

j. Illicit Nuclear Trafficking

- In **Germany**, the summer recess has interrupted the investigation launched by the federal parliament into alleged violations by law enforcement and intelligence agents in connection with the seizure of 360 grammes of plutonium at Munich airport in August 1994. So far, it seems that the case has had little political effect, in part, reportedly, because the Bonn government is very slow providing relevant documentation. Among documents that have surfaced recently is a bank credit statement providing a secured credit line for the use of intelligence agents in purchasing the material. A major issue in the investigation is that of the involvement of Bernd Schmidbauer, the intelligence coordinator of the Bonn government. The question whether Chancellor Kohl may have known about the operation has also been raised. Yet another question is in how far Bavarian authorities had advance knowledge. Meanwhile, a Munich court has sentenced the three persons who smuggled the material into Germany, one Columbian and two Spanish nationals, to jail terms of four years and ten months, three years and nine months, and three years, respectively. The judge said that in sentencing them to relatively short jail terms, he was taking into account convincing indications that their arrest had been the result of entrapment by German officials. According to testimony given in court by, among others, an employee of the German federal intelligence agency BND, a Spanish undercover agent was promised a large cash bonus if he obtained foreign plutonium from a would-be smuggler. Two operatives of the BND are suspected of having committed perjury when they testified that they had not known in advance that in order to be seized by police in what is now known to have been a 'sting' operation, the plutonium first had to be brought into Germany; in fact, they are said to have lured the smugglers into bringing the material from Russia.

  The unsubstantiated German charges that the material in question was of Russian origin and that it reflected a chaotic security situation in Russian nuclear materials management is said to have done serious harm to German–Russian relations in the nuclear field. Allegations by German intelligence sources, which are now thought to be unfounded, have caused additional friction. Reportedly, however, Germany still hopes that Russia will provide it with plutonium from dismantled nuclear weapons to be converted into mixed-oxide fuel at the Hanau MOX plant. The Russian Ministry for Atomic Energy is said to be reluctant but German officials appear to believe that it will be possible to strike a deal if this benefits Russia financially.

  (**Bulletin of the Atomic Scientists**, July/August; **Nucleonics Week**, 6/7, 20/7, 3/8, 24/8; **Süddeutsche Zeitung**, 8/7, 15/7, 18/7; **Die Welt**, 8/7, 18/7; **Frankfurter Allgemeine Zeitung**, 15/7, 18/7; **Financial Times**, 18/7; **Independent**, 18/7; **Enerpresse**, 18/7; **International Herald Tribune**, 18/7; **Libération**, 19/7)

- It is reported that **Euratom** is trying to get the 'data signatures' for fissile materials from weapons fabrication plants in France and the UK, in connection with the investigations into the origin of smuggled material found in Germany. (**NuclearFuel**, 17/7)

- It is now known that Jacques Attali's announcement, made in the report on illicit trafficking in nuclear materials, which he prepared for the UN Secretary General, that weapon-grade fissile material sufficient for the manufacture of two nuclear bombs, had been stolen from former Soviet inventories, was based on a faulty calculation. Apparently Attali added up all the

uranium-235 and plutonium in all the material known to be missing from Eastern European inventories, and multiplied the resulting, obviously artificially derived, amount by four, in the assumption that only one theft in four is detected. (Mark Hibbs in **Bulletin of the Atomic Scientists**, Sept/Oct; See also **Newsbrief** 30, page 18)

k. Environmental Issues

- **Norway** and **Russia** are jointly studying ways of storing damaged spent fuel elements from Russian nuclear icebreakers and submarines, which are now kept in a ship in Murmansk harbour. They are also reported to be close to concluding an agreement for nuclear liability protection without which Norwegian contractors working to improve the safety of the Kola nuclear plant say they cannot continue their work. In June it was announced that Norway would not participate in attempts to seal the wreck of the Soviet *Komsomoletz* submarine, which sank in 1989 off the Norwegian coast, because it did not believe that the plutonium in the boat's torpedoes posed an urgent problem. Russian technicians went ahead with the project and sealed the holes, including a large hole in the hull. At that time Norwegian officials said they did not believe that work was necessary to secure the ship. The Russians also installed environmental monitoring equipment. The head of the Russian team expressed the expectation that the wreck would not pose a serious threat for 20 to 30 years. Shortly thereafter, it was announced that Norway had ordered an immediate investigation of Russian reports that one of the nuclear torpedoes aboard the *Komsomoletz* was in danger of exploding, because it was supposed to have been damaged and was leaking fuel. This report has since been denied. (**Die Welt**, 24/6; **Neue Zürcher Zeitung**, 28/6; **Nucleonics Week**, 6/7, 10/8; **Independent**, 20/7; **Daily Telegraph**, 28/7)

- In the **United States**, the disposal of radioactive waste generated in civilian power production and government operations is the subject of prolonged discussion in the Congress, state legislatures, law courts and the press. Current debates centre around the questions whether priority should be given to interim storage or repository storage, what use could be made of various sites and what means should be used for interim storage.

  The Congress is divided over the best use to be made of the funds available for the civilian nuclear waste storage programme of the Department of Energy (DoE). The Senate Appropriations Committee supports the view held by DoE and by the US Nuclear Waste Technical Review Board, that the repository programme, on which so far $4 billion has been spent — including $1.7 billion on the Yucca Mountain site in Nevada — should be given priority, and wishes $250 million to be used for this purpose in 1996. A draft provision for $85 million to be allocated for work on an interim spent fuel storage facility was dropped, mainly, it is said, under pressure of politicians from Nevada who resist the idea of using Yucca Mountain as the sole site for either repository or interim storage and the Nevada test site as host for an interim storage facility; they favour proposals to use the Savannah River or Hanford nuclear-weapon complexes for interim storage. Senators from South Carolina and Washington, where these facilities are located are said to be cool to this suggestion, although the former's Senator Thurmond is thought to be willing to consider it if his state also gets a new reactor to produce tritium, generate electricity and burn plutonium. For now, however, the Senate Appropriations bill omits mention of interim storage. At the time of the summer recess, no formal proposal had been presented for a nuclear waste bill and the chances that any legislation could be adopted during the current year were considered slight. It has been noted that an information session arranged by DoE to publicise preparatory work planned for the Yucca Mountain repository elicited virtually no public interest.

  In the House of Representatives the issue of an interim storage facility is still alive. A bill adopted by the House Commerce Committee on 2 August provides for funding by means of a user fee and the establishment of an interim facility at the Nevada test site. This is to begin operation by 31 January 1998. In the first phase it would have a capacity of 10,000 metric tons of uranium (MTU) and be licensed for 20 years. The second phase would have a capacity of 40,000 MTU and be licensed initially for 100 years, which could be extended. The bill, which now goes to three more committees does not make provision for the design or fabrication of containers. DoE officials criticise such interim storage proposals for their emphasis on near-term action and maintain it does not give enough time for environmental and safety analyses.

  A report by the US Nuclear Waste Technical Review Board claims that there are no clear technical reasons why interim storage of spent fuel in a central facility should be superior to interim storage at the originating facility. Extended on-site storage, while not increasing environmental risks to the public or to workers, might, however, mean that the waste remains when the reactors have ceased generating power and revenues. But off site storage is also seen to present problems. An interim storage facility would need to hold at least 30,000 tons of spent fuel, and if it is delayed beyond 2010, it would need to be able to take 80,000 tons. A facility of that size might be seen as a *de facto* repository, but it would be difficult to find sites for several smaller interim-storage facilities.

  Design and development work is continuing on the project for a monitored retrievable spent fuel storage facility on tribal land of the Mescalero Apaches in New Mexico. If work can go on as planned, the facility could reportedly be ready by the year 2002 or soon after. It would be an exclusively dry storage facility, handling only material in sealed canisters, and able to hold up to 20,000 tonnes of spent fuel and be operated for a period of 40 years. Total cost, including decommissioning, is currently estimated at $2.3 billion. Of the 33 utility companies in the original consortium, 20 have agreed to participate in the next development phase, although they have not yet decided whether to fund activities going beyond the licensing stage. The companies still involved are said to represent almost half the country's nuclear utilities. They have let it be known that even if they decide to go ahead with the scheme, they see it as a temporary device until a federal interim storage or repository opens, and they expect the US government to bear ultimate responsibility for taking the spent fuel and providing long-term storage and disposal. The agreement between the utilities and the Mescalero Apache tribe is for 20 years, with an option to renew for another 20.

  The theory that fissile material stored underground might be subject to spontaneous explosion has been rejected by the Office of Nuclear Material Safety and Safeguards of the US Nuclear Regulatory Commission. The theory was developed by scientists at the Los Alamos National

Laboratory. According to the recent rebuttal, it assumes idealised conditions that cannot exist in a repository. (See **Newsbrief**, 30, page 6)

The US Supreme Court has refused to hear an appeal brought by the State of Michigan and several environmental groups, against the verdict of a US Circuit Court of Appeals that upheld the ruling of the Nuclear Regulatory Commission allowing dry spent fuel storage at the Palisades nuclear plant. Another case of a similar nature is pending in Wisconsin. Licensing approval has been granted to a new type of multipurpose dry spent fuel storage cask which is said to be able to hold 26 PWR fuel assemblies.

An Administration scheme to transfer Federal land to the state of California for a low-level radioactive waste disposal facility is delayed by disagreement on whether the property will be controlled by the state or by the Federal government.

(**NucNet News**, 27/6, 29/8; **NuclearFuel**, 3/7, 31/7; **Nucleonics Week**, 29/6, 13/7, 27/7; **SpentFUEL**, 3/7, 10/7, 17/7, 24/7, 31/7, 7/8, 14/8, 18/9; **Enerpresse**, 5/7; **New York Times**, 16/7; **NAC International** 19/7, in **UI News Briefing**, 95/30)

- Experts from member states of the OECD's Nuclear Energy Agency have formulated an 'International Collective Opinion' providing what is described as the environmental and ethical basis of geological disposal policies. They state that they have noted that the geological disposal strategy for long-lived radioactive waste would involve a step-by-step decision making process, which would take account of the various concerns about equity and fairness in the short and long term, and that they feel that while research is pursued on other alternatives, it is justified to continue the development of current programmes on deep geological disposal. (**NEA Information Communiqué**, 27/6; **Nucleonics Week**, 29/6)

I. Miscellaneous

- In the **United States**, cryptanalysts who deciphered Soviet communications during World War II have disclosed how they found that Moscow was trying to obtain information about the American A-bomb programme. Among secret agents alleged to have been identified in intercepted messages were Julius and Ethel Rosenberg, who were executed for espionage in 1953. (**New York Times**, 12/7)

- There is discussion about a proposal to create a non-proliferation office at the United Nations Security Council, headed by a senior official who would have the task of following developments relating to the spread of weapons of mass destruction, and would report to the Council. A report on the topic: *Confronting the Proliferation Danger: The Role of the U.N. Security Council*, has been prepared under the auspices of the United Nations Association of the USA. Reportedly, the proposal is well received among American advocates of counterproliferation, who feel that the IAEA's safeguards methods are too 'soft'. Among candidates mentioned to head the office as 'non-proliferation czar' are Rolf Ekéus of Sweden, currently executive director of the UN Special Commission dealing with the elimination of Iraq's means of producing weapons of mass destruction, and Jacques Attali, former head of the European Bank for Reconstruction and Development. (**NuclearFuel** 3/7; **Report of the UNA–USA Project on the Security Council and Nonproliferation**)

- In a related move **Argentina** has proposed empowering the UN Security Council to take action against states identified as being engaged in any effort to obtain or manufacture nuclear, biological or chemical weapons. Reportedly, the proposal was well-received by four of the five permanent members of the Security Council, but China as well as a number of members of the non-aligned movement, notably India and Pakistan, have expressed opposition. The Security Council is said to have decided to postpone a discussion on the proposal. (**Telam** [Buenos Aires], 27/7 in **FBIS-LAT**-95-145, 28/7)

- **China**, which, although not a member of the Missile Technology Control Regime (MTCR), has promised to abide by its rules, is said to have systematically and deliberately broken that promise. Allegedly, China is selling missile parts to Pakistan and is supplying Iran with missile-guidance systems and machine tools for the manufacture of sophisticated missiles. Talks between China and the United States on this matter were cancelled in the wake of Washington's decision to allow the President of Taiwan to visit the United States. A report from Taiwan says that in mid-July, China test-fired four missiles close to Taiwanese territory, supposedly to highlight Beijing's displeasure with Taipei's efforts to obtain international recognition. (**XINHUA** [Beijing], 28/5 in **JPRS-TAC**-95-002, 14/6; **Economist**, 8/7; **New York Times**, 24/7; **Arms Control Today**, July/August)

- An article in the *New York Times* on the occasion of the fiftieth anniversary of the dropping of the atomic bombs on Hiroshima and Nagasaki reports that in 1940, a feasibility study was produced in **Japan** on the production of atomic weapons. Reportedly the initial effort to build the bomb was serious, but was not supported by adequate resources. Japan had difficulties obtaining uranium. It appears that once the war situation took an unfavourable turn, the project was given higher priority. In March 1945, a German submarine on its way to Japan with 1,235 pounds of uranium oxide on board surrendered to an American ship. Apparently the Japanese effort was directed at the use of enriched uranium. One of the scientists working on the Japanese project has said that Japan would have had no doubts about using an atomic bomb on the United States if it had been able to manufacture one. (**New York Times**, 8/8; **Arms Control Today**, September)

II. PPNN Activities

- At the time this **Newsbrief** went to press, the eighteenth meeting of the PPNN Core group was about to be held at the Chilworth Manor Conference Centre of the University of Southampton, United Kingdom. The first element of the meeting, from 12 to 14 October, was to be an international workshop on *Nuclear Proliferation in the Middle East*; the second, from 15 to 17 October, was to involve a review and analysis of the implications of the outcome of the NPT Review and Extension Conference, both for the nuclear non-proliferation regime and the future activities of PPNN. This was the last meeting of

the Core Group during the second phase of PPNN's activities, which ends in December 1995.

- To reduce costs during the next phase of PPNN activities, staff changes have taken place at PPNN's administrative base in Southampton. Darryl Howlett, PPNN's information officer, moved to a full-time teaching post in the Department of Politics at the University of Southampton at the end of August. His functions have been taken over on a part-time basis by Deborah Ozga, who worked before at the Monterey Institute of International Studies and the IAEA.

III. Recent Publications

Books

The fiftieth anniversary of the use of nuclear weapons has inspired the publication of a number of books about that event, and the developments leading up to it, and its consequences. The following titles are derived from:

The Economist, July 29, p. 63:

John Dower, *Japan in War and Peace*, Harper Collins, 368 pp., New Press.

Kenzaburo Oe, *Japan, The Ambiguous, and Myself: The Nobel Prize Speech and Other Lectures*, Kodansha International, 128 pp; Distributed in Britain by Kodansha Europe.

The Bulletin of the Atomic Scientists, July/August, pp. 73-74:

Robert Jay Lifton and Greg Mitchell, *Hiroshima in America: Fifty Years of Denial*, G.P. Putnam's Sons, 448 pp.*

Foreign Policy, Summer, No 99, pp. 15-34.

Gar Alperovitz, 'Hiroshima: Historians Reassess', *Foreign Policy*, Summer, No. 99, pp. 15-34.

The New York Times Book Review, July 30, pp. 9-13:

Thomas B. Allen and Norman Polmar, *Code-Name Downfall: The Secret Plan to Invade Japan — And Why Truman Dropped the Bomb*, Simon & Schuster, Illustrated, 352 pp., New York.*

Gar Alperovitz with the assistance of Sanho Tree, Edward Rouse, Winstead, Katheryn C. Morris, David J. Williams, Leo C. Maley 3d, Thad Williamson and Miranda Grieder, *The Decision to Use the Atomic Bomb and the Architecture of an American Myth*, Alfred A. Knopf, 847 pp., New York.*

Rachel Fermi and Esther Samra, *Picturing the Bomb: Photographs from the Secret World of the Manhattan Project*, Abrams.

Richard Rhodes, *Dark Sun: The Making of the Hydrogen Bomb*, Simon & Schuster, 731 pp., New York.

Ronald Takaki, *Hiroshima: Why America Dropped the Atomic Bomb*, Little, Brown & Company, 193 pp., Boston.

Lequita Vance-Watkins and Mariko Aratani (eds.), *White Flash, Black Rain: Women of Japan Relive the Bomb*, Milkweed Editions, paper.

Yosuke Yamahata, *Nagasaki Journey: The Photographs of Yosuke Yamahata, August 10, 1945*, Pomegranate Artbooks, paper.*

James M. Yamazaki (with Louis B. Fleming), *The Children of the Atomic Bomb: An American Physician's Memoir of Nagasaki, Hiroshima and the Marshall Islands*, Duke University.

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IV. Documentation

i. Statement to the Thirty-Ninth Session of the General Conference of the International Atomic Energy Agency by Hans Blix, Director General, 18 September 1995 [Extract]

The NPT Conference

In May this year the Review and Extension Conference decided to extend the Non-Proliferation Treaty indefinitely. This decision, testifying to the solid and broad commitment to nuclear non-proliferation, was greeted with relief and enthusiasm in many capitals. We should not close our eyes, however, to the reality that the decision was received with mixed feelings in a number of other capitals, where it was a matter of concern that the extension meant also an indefinite recognition of the nuclear-weapon status of five States parties. I submit that a forward-looking interpretation of the extension decision, and the principles and objectives which were also adopted, would be that they constitute a collective commitment to bring us to a world in which nuclear energy is used for positive, peaceful purposes and in which no single nation possesses nuclear weapons; that is a commitment by non-nuclear- weapon States not to acquire these weapons and a commitment by the five declared nuclear-weapon States to effective and accelerated nuclear disarmament.

The outcome of the NPT Conference has far-reaching implications for the future work of the IAEA. A continued role was envisaged for the Agency in the peaceful uses of nuclear energy and an expanded role was foreseen for it in verification. The IAEA was expressly recognized as the competent authority responsible for verifying and assuring compliance with safeguards agreements. The Conference further stated that parties to the NPT that have concerns regarding non-compliance with the safeguards agreements should direct such concerns, along with supporting evidence and information, to the IAEA for it to consider, investigate, draw conclusions and decide on necessary actions in accordance with its mandate. I read this provision as an endorsement of the Agency's verification role as it has evolved in recent years. The Conference also called for support for the Agency's ongoing actions to strengthen safeguards, and to increase its capability to detect any undeclared nuclear activities. It was further recommended that nuclear material released from military use should be placed under IAEA safeguards as soon as practicable and the universal application of safeguards was envisaged once the elimination of nuclear weapons had been achieved.

The NPT Conference set 1996 as the target date for the conclusion of a comprehensive test ban agreement – a step which is widely viewed as a vital complement to non-proliferation and a symbol of progress towards nuclear disarmament. It further called for the early conclusion of an agreement to end the production of nuclear material for use in weapons – a cut-off agreement – and it endorsed the creation of additional nuclear-weapon-free zones. The assumption underlying current discussions of the cut-off agreement is that IAEA safeguards would be an essential element of the verification mechanism. It may also be assumed – if existing models are an indication – that the Agency would have a verification role in any new nuclear-weapon-free zone. In relation to a comprehensive test ban it is relevant to note, as I have done before, that such a ban in reality already exists for all the non- nuclear-weapon States parties to the NPT and is verified under comprehensive IAEA safeguards agreements. What roles the Agency might be asked to assume under a specific comprehensive test ban treaty are yet to be determined by the States negotiating this treaty.

The French Nuclear Tests

Before I leave the question of nuclear weapon testing, let me report to you, as I did to the Board of Governors last week, that I have recently received a letter from the Foreign Minister of France in which reference is made to the irreversible commitment of France to conclude a comprehensive nuclear test ban treaty in 1996 and its intention to undertake a final series of nuclear tests before that time. The Minister asked whether the IAEA would be willing to conduct a scientific mission to assess the radiological impact of these tests. Such assessment would have to be complemented by an assessment of the geological situation of the test site. In reply I have indicated

that for the Agency to take a decision on the matter, a number of preliminary questions would need to be carefully considered — including the objective and the scope of the mission, its modalities and the composition of a team. I added that the Secretariat wanted to consult with the French authorities as well as with others on these issues. Consultations with French experts are scheduled for this week.

As you are aware, the Agency provides numerous services to its Member States in the field of nuclear safety and radiological protection and has established radiation safety standards. The French inquiry is being considered in that context. You may also be aware that a mission was sent by the Agency to Kazakhstan last year to assess the radiological situation at the Semipalatinsk test site, and that a similar mission is being planned for the Marshall Islands. Also, our Monaco Laboratory has co-ordinated two inter-laboratory calibration exercises using various samples taken in 1991 and 1994 from the area of the French Pacific test sites. We therefore have some first hand experience in this field.

Strengthened IAEA Safeguards

Credible IAEA verification that nuclear materials and related items remain in peaceful activities is an increasingly important factor in nuclear disarmament and global security planning. At the same time the magnitude and complexity of the safeguards task continues to increase. In 1994 the IAEA inspection effort rose by more than 12% over the previous year. The increasing importance and volume of the safeguards effort impels us to develop and implement a strengthened and more cost-effective system. A full report on the actions that have been taken under the so-called Programme 93+2 is given in document GC(39)/17 and corrigendum.

Increased access to information about nuclear programmes and broader inspector access to sites within the State are fundamental prerequisites for strengthened safeguards. To obtain this has been the main thrust of the 93+2 Programme which the Board of Governors is considering. While some of the desired measures will require additional authority which must be sought, other measures can be implemented under the authority of existing comprehensive safeguards agreements. I welcome that the Board has taken note of the Secretariat's intention to achieve such implementation at an early date, after consultations and clarifications to dispel any remaining concerns of Member States.

By making their nuclear activities as transparent as possible to the Agency, States can help provide the basis for more effective and efficient safeguards. They will have to decide whether they are prepared — as I think is in their interest — to routinely provide greater access to information and locations than is presently required under safeguards agreements. Needless to say, the new arrangements must be both practical and cost-effective and make use of state-of-the-art verification techniques. The experience gained in trial arrangements made with several States suggests that in practice the cost to States of, say, granting multiple visas for inspector and wider access within installations, is not great. It is really only a matter of a somewhat more co-operative attitude to facilitate strengthened and more efficient inspection.

We believe that after a start-up period the new measures will be cost-neutral to the Agency. However, any significant increase in the number of countries accepting full-scope safeguards, or in the number of facilities and amount of material under safeguards, will inevitable involve additional costs.

Large increases in the verification effort may also result if nuclear materials removed from the military sphere of nuclear-weapon States are placed under safeguards — as was urged by the NPT Conference. Verification of such material started just one year ago and the present arrangements foresee funding through extrabudgetary contributions. An expansion of the IAEA verification that such nuclear material remains in the peaceful sphere to which it has been transferred requires special arrangements which are reliable and cover the full costs of this inspection effort.

Safeguards Implementation in the DPRK

Last year I reported that the Democratic People's Republic of Korea was not in full compliance with its safeguards agreement pursuant to the NPT. Document GC(39)/18 summarizes the many developments of the past year. Important among these is the framework which was agreed between the DPRK and the USA which provides for a freeze and the eventual dismantling of the DPRK's graphite moderated reactors and related facilities and states the intention of the DPRK to come into full compliance with the safeguards agreement. On 4 November last year, the Security Council confirmed that the safeguards agreement remained in force and binding and requested the Agency to take the necessary steps to monitor the freeze. With the authorization of the Board, we have been doing this through the continuous presence of inspectors in the DPRK and I can confirm that the freeze has been put into effect and is maintained.

However, to come into full compliance with the safeguards agreement, the DPRK will have to do something it has not yet been willing to do, namely enable the Agency effectively to verify the accuracy and completeness of the DPRK's initial report of nuclear material subject to the agreement. In the absence of the required compliance, it is essential that all necessary steps be taken to preserve any information that is relevant to this verification.

Technical discussions have been held with the DPRK with respect to the activities to be carried out pursuant to the safeguards agreement at the DPRK's nuclear facilities, irrespective of their status under the freeze. Since the first of these discussions in November last year, arrangements have been in place enabling the Agency to meet many of its objectives. However, a number of issues remain, including the verification of the spent fuel of the 5 MW(e) reactor, the installation of monitoring equipment in the waste tanks of the reprocessing plant and the preservation, intact, of information relevant to the verification of the accuracy and completeness of the initial declaration. In the last few days a new round of IAEA-DPRK discussions has taken place at technical meetings in the DPRK. Limited progress was made on some issues. However, a substantial paper of technical proposals transmitted by the Agency was accepted only for study — not for discussion.

Agency Verification in Iraq under Security Council Resolutions

As I reported to the UN General Assembly in October last year, it is the Secretariat's conclusion that the essential components of Iraq's clandestine nuclear weapons programme have been identified and destroyed, removed or rendered harmless. This assessment was not based on faith in Iraqi statements, but on data gathered during inspections, on information provided by suppliers and Member States and, to a great extent, on analysis of the large number of original documents which were obtained in Iraq by the teams of the sixth and seventh IAEA inspection missions.

Since August 1994 IAEA inspectors are continuously present in Iraq to perform ongoing monitoring and verification of Iraq's compliance with relevant Security Council resolutions. This does not exclude renewed inspections for the purpose of investigations, if such should be called for to verify any new information.

Recently the IAEA has received additional information on Iraq's former nuclear weapons programme by way of new statements made and numerous documents and materials transmitted to the IAEA and UNSCOM by Iraq following the departure to Amman of General Hussein Kamel, the former Iraqi Minister of Industry and Military Industrialization (GC(39)/10., Add.1). Of the new information which has been reviewed to date nothing suggests that a change is warranted in the Agency's conclusion which I have referred to. What we have been told is that as of August/September 1990, Iraqi authorities had the intention to take the safeguarded highly enriched research reactor uranium fuel at Tuwaitha (the nuclear research centre), extract the pure uranium by the spring of 1991, transform it into weapons-grade uranium metal and then use it to make a nuclear weapon. It is uncertain whether they would have been able to overcome the considerable technical difficulties involved in this plan. As it was, the plan was made impossible by damage inflicted on Tuwaitha through bombings in January 1991.

Let me note that the new Iraqi statements and all the documents and materials to which I have referred will have to be carefully examined for any new data. That they have been withheld for so long is clearly a breach of Iraq's obligations under Security Council resolutions.

What I further think should be noted in this affair is that *prima facie* it shows that the Iraqi authorities would not have hesitated to take nuclear material under safeguards and to time the operation in such a way as to make maximum use of the period before the next scheduled IAEA inspection, at which time the violation of the safeguards agreement would have become known. While taking the

fuel would not have needed much time, processing and transforming it into bomb grade material would have taken more time. As I said, the effort was thwarted by bombing.

Some other lessons may also be drawn from this affair. One is that the replacement of high enriched uranium fuel by low enriched fuel in research reactors can, indeed, reduce the risk of proliferation. A second is that the change introduced in the safeguards system post Iraq in favour of more frequent inspections to ensure the timely detection of a diversion of a significant quantity of safeguarded material is prudent. A third is that real-time remote transmission of data, when it becomes readily available, will provide a useful tool for achieving immediate detection of diversion.

I turn now to developments in some regional arrangements.

Tlatelolco Treaty

I am pleased to be able to report further positive developments in relation to the Treaty of Tlatelolco. Since the last General Conference two States have become Party to the Treaty, two States have ratified it and one, Cuba, has signed it. This brings us closer to the date when the Treaty will enter into force for the entire zone of application and makes it essential that the required safeguards agreements be in force with all the States parties to the Treaty.

At its June meeting, the Board of Governors authorized the Secretariat to take action to obtain the prompt conclusion of all safeguards agreements outstanding pursuant to the Tlatelolco Treaty. The Secretariat is very actively engaged in ensuring that the required safeguards agreements are concluded. I appeal to the States concerned to fulfil their obligation under the Treaty to ensure that there is no delay in its entry into force for the entire zone of application.

Nuclear-Weapon-Free Zone in Africa

As requested by the General Conference last year, the Agency has continued to assist the African States in their efforts to establish an African nuclear-weapon-free zone, in particular in the elaboration of the verification regime. A draft Treaty text which, *inter alia*, entrusts the Agency with the task of verification, was considered and endorsed by the OAU Council of Minister and the African Heads of State in Addis Ababa last June and it is expected that the draft Treaty will be considered by this year's General Assembly of the United Nations and that Africa will soon become yet another nuclear-weapon-free zone.

Nuclear-Weapon-Free Zone in the Middle East

In resolution GC(XXXVIII)/RES/21, the General Conference last year called upon all parties directly concerned to consider taking the practical and appropriate steps required to establish a mutually and effectively verifiable nuclear-weapon-free zone in the Middle East region. The resolution also requested the Director General to continue consultations with the States of the Middle East to facilitate the early application of full-scope Agency safeguards to all nuclear activities in the region and the preparation of model verification agreements as a step towards the establishment of such a zone. As I have reported to previous General Conferences, model verification agreements cannot easily be prepared until the States concerned have clarified their views on the main issues of substance. This is not yet the case. Meanwhile the Agency is participating in some discussions on these issues within the peace process. I intend to continue my visits to and consultations with States in the region in order further to explore the verification questions and the material obligations which may be agreed upon and may call for verification.

Trafficking

A year ago, the international community expressed alarm at the number of incidents of illicit trafficking in radioactive materials that had been reported in 1994 and the General Conference invited me to take a number of actions to supplement the measures taken by governments. In 1995 there have been further seizures of illicitly held radioactive materials and it is clear that more efforts are needed and that States must exercise greater prudence in the use and storage of all radioactive materials.

In responding to the problems of nuclear trafficking, nuclear, customs and enforcement authorities of many countries and a number of international organizations are seeking to strengthen and co-ordinate their efforts to control and protect radioactive materials. Only last week the IAEA hosted a large interagency meeting which reached a number of useful joint conclusions. Within the IAEA, an Action Programme has been approved by the Beard of Governors. We are already conducting training courses in the operation of States systems of accounting for and controlling nuclear materials. In addition, with the help of experts from Member States, courses are being arranged on physical protection methods and technology. Activities are further underway to help States address the radiation hazards connected with illicit trafficking. For 1997 a conference is planned to further facilitate the exchange of information and expertise on physical protection. Meanwhile, the Agency is establishing a database of trafficking incidents to provide factual information to member governments and the public. In July the UN Security Council expressed its full support to the Agency and other international bodies for their work in this field. A full report on the Agency's actions is before you (document GC(39)/19).

ii. The Financing of Safeguards: Revised Arrangements for the Assessment of Members' Contributions Towards the Agency's Regular Budget

Resolution adopted by the IAEA General Conference on 22 September 1995, without a vote

(text reproduced from GC(39)/29, Footnotes containing references to previous documentation have been omitted from this text.)

The General Conference,

(a) *Recalling* its resolutions embodying principles for the assessment of Members' contributions towards the safeguards component of the Agency's Regular Budget and operative paragraph 2 or resolution GC(XXXVI)/RES/589,

(b) *Having considered* the Board's recommendation in document GC(39)/23 concerning the arrangements for the assessment of Members' contributions towards the safeguards component of the Agency's Regular Budget for each of the years 1996 through 2000,

(c) *Believing* that the arrangements now being approved for the period 1996 through 2000 should not prejudge whatever may be decided during that period, and

(d) *Taking note* of the Board's intention to continue its efforts to arrive at long-term arrangements for the financing of safeguards,

1. *Establishes* the following revised arrangements for the assessment of Members' contributions towards the Agency's Regular Budget, to be applicable for each of the years 1996 through 2000, to supplement those contained in resolutions GC(III)/RES/50 and GC(XXI)/RES/351 and to replace those which it approved by resolution GC(XXXVI)/RES/589:

(a) Each Member's contribution towards the Agency's Regular Budget shall comprise a non-safeguards component and a safeguards component, corresponding respectively to that Member's assessment in respect of:

  (i) non-safeguards expenses, which shall include all expenses required to be apportioned among Members in accordance with Article XIV.D of the Statute except safeguards expenses; and

  (ii) safeguards expenses, which shall include all expenses relating to the Agency's safeguards activities.

(b) Non-safeguards expenses shall be borne by Members in proportion to their respective base rates of assessment calculated by application of the principles set forth in resolution GC(III)/RES/350, as amended by resolution GC(XXI)/RES/351.

(c) Safeguards expenses, after deduction of such amounts as are recoverable under agreements relating to safeguards between the Agency and parties to such agreements that are not Members of the Agency, shall be borne by Members as follows:

  (i) each Member included in the list referred to in sub-paragraph (ii) below shall contribute an amount corresponding to one half of its base rate of assessment in respect of the safeguards component of the Regular Budget with the proviso that no such Member shall be obliged to contribute to any increase in the safeguards budget beyond zero real growth;

  (ii) the list (hereinafter referred to as the 'shielded' list), which shall be drawn up by the Director General (and be kept under review by the Board of Governors), shall comprise the Members — except the ten Members with the highest base rates of assessment and those Members which have notified

the Director General that they do not wish to be included — having per capita net national products of less than one third of the average per capita net national product of the fifteen Members with the highest per capita net national products, the per capita net national products being identified by examination of the documents used by the Committee on Contributions of the General Assembly of the United Nations and the 'shielded' list being reviewed and adjusted, if necessary, each time new documents on per capita net national products are made available by that Committee;

(iii) any Member not included in the 'shielded' list shall contribute on the basis of a scale to be determined for the year in question by proportionately increasing its base rate of assessment in such a way that the total contributions of such Members make up the balance of the safeguards expenses; and

(iv) in the case of admission of a new Member of the Agency which is to be included in the 'shielded' list referred to in sub-paragraph (ii) above, that Member shall contribute in the year its membership becomes effective in accordance with the provisions set out in sub-paragraph (i) above.

(d) Notwithstanding the provisions of sub-paragraph 1(c)(i) above, the following transitional arrangements shall apply in order to mitigate the burden of significant increases for Members having received partial relief under the existing arrangements in respect of their assessments for the safeguards component of the Regular Budget:

(i) for those Members which remain in the 'shielded' list referred to in sub-paragraph 1(c)(ii) above, the contributions shall be determined as follows:

In each of the years 1996 through 1999 the contribution of each Member will be calculated at half of its base rate and then compared with its contribution for 1995. A portion of the resulting difference will be incrementally added to the contribution for 1995, as follows:

in the first year (1996) — one fifth of the difference,
in the second year (1997) — two fifths of the difference,
in the third year (1998) — three fifths of the difference and
in the fourth year (1999) — four fifths of the difference.

In the fifth year (2000), each Member included in the 'shielded' list will contribute its full share, i.e. in accordance with half of its base rate.

(ii) for those Members which no longer qualify for inclusion in the 'shielded' list, the contributions shall be determined as follows:

In each of the years 1996 through 2004 the contribution of each Member will be calculated in accordance with sub-paragraph 1(c)(iii) and then compared with its contribution for 1995. A portion of the resulting difference will be incrementally added to the contribution for 1995, as follows:

in the first year (1996) — one tenth of the difference,
in the second year (1997) — two tenths of the difference,
in the third year (1998) — three tenths of the difference,
in the fourth year (1999) — four tenths of the difference,
in the fifth year (2000) — five tenths of the difference,
in the sixth year (2001) — six tenths of the difference,
in the seventh year (2002) — seven tenths of the difference,
in the eighth year (2003) — eight tenths of the difference and
in the ninth year (2004) — nine tenths of the difference.

In the tenth year (2005), each of those Members will contribute its full share in accordance with sub-paragraph 1(c)(iii).

(e) These arrangements, applicable for each of the years 1996 through 2000, shall be reviewed by the Board in 2000 at the latest.

2. *Requests* the Board, in conducting the review referred to in sub-paragraph 1(e), to include consideration of changes in the contributions of 'shielded' countries, the criteria for determining contributions, and other relevant issues.

iii. Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System

Resolution adopted by the IAEA General Conference on 22 September 1995, without a vote
(text reproduced from GC(39)/46)

The General Conference,

(a) *Recalling* resolutions GC(XXXV)/RES/559, GC(XXXVI)/RES/586, GC(XXXVII)/RES/619 and GC(XXXVIII)/RES/10 on the strengthening of safeguards,

(b) *Convinced* that the Agency's safeguards can promote greater confidence among States and thus contribute to strengthening collective security,

(c) *Considering* the Treaty on the Non-Proliferation of Nuclear Weapons, the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean and the South Pacific Nuclear Free Zone Treaty and the Agency's essential role in applying safeguards in accordance with the relevant articles of these treaties and noting the outcome of the 1995 Review and Extension Conference on the Treaty on the Non-Proliferation of Nuclear Weapons,

(d) *Noting* decisions adopted by the Board of Governors aimed at further strengthening the effectiveness of IAEA safeguards should be supported and implemented, and the IAEA's capability to detect undeclared nuclear activities should be increased, and

(e) *Stressing* that the strengthening of the safeguards system should not entail a decrease in the resources available for technical assistance and co-operation and that it should be compatible with the Agency's function of encouraging and assisting the development and practical application of atomic energy for peaceful uses and with adequate technology transfer,

1. *Stresses* the need for effective safeguards in order to prevent the use of nuclear energy for prohibited purposes in contravention of safeguards agreements entered into by States and underlining the vital importance of effective safeguards for facilitating co-operation in the field of peaceful uses of nuclear energy;

2. *Affirms* that increasing the Agency's capability to detect undeclared nuclear activities in contravention of safeguards agreements will contribute to strengthening the effectiveness of safeguards;

3. *Endorses* the decision of the Board of Governors to authorize the Secretariat to implement at an early date, after consultations between the Secretariat and individual Member States, the first part of the measures it has proposed;

4. *Confirms* its resolve to maintain and strengthen the effectiveness and cost-efficiency of the safeguards system in conformity with the Agency's Statute and calls upon all States to co-operate with the Agency in implementing the decisions taken by the Board of Governors to that end;

5. *Requests* the Director General to continue to develop the measures proposed under Programme 93+2, in order to bring about a more effective and efficient system covering all nuclear material in all peaceful nuclear activities within the territory of a State which has concluded a comprehensive safeguards agreement, and to make arrangements to implement at an early date the measures outlined in Part 1 of document GOV/2807 after consulting individual States;

6. *Also requests* the Director General, taking account of the views on Part 2 of Programme 93+2 expressed in the Board of Governors and at the General Conference's thirty-ninth regular session and the outcome of the consultations with Member States individually or collectively, to put before the Board of Governors as soon as possible clear proposals for the measures proposed in Part 2; and

7. *Further requests* the Director General to report on the implementation of this resolution to the General Conference at its fortieth regular session.

iv. Implementation of the Agreement between the Agency and the Democratic People's Republic of Korea for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons [extract]

Resolution adopted by the IAEA General Conference on 22 September 1995, with 70 votes in favour, none against and ten abstentions (text reproduced from GC(39)/35)

The General Conference,

...

(d) *Noting* that the DPRK has decided to remain a party to the Treaty on the Non-Proliferation of Nuclear Weapons and reaffirming that the IAEA-DPRK safeguards agreement (INFCIRC/403) under the Treaty remains binding and in force,

(e) *Noting also* the stated intention of the DPRK to come into full compliance with the safeguards agreement and the continuing IAEA-DPRK discussions on outstanding safeguards issues, and

(f) *Regretting* the withdrawal of the DPRK from the Agency and expressing the hope that the DPRK will rejoin,

1. *Strongly endorses* the actions taken by the Board of Governors and commends the Director General and the Secretariat for their impartial efforts to implement the IAEA-DPRK safeguards agreement;
2. *Commends* the Secretariat for its efforts to monitor the freeze of specified facilities in the DPRK as requested by the United Nations Security Council;
3. *Expresses* concern over the continuing non-compliance of the DPRK with the safeguards agreement and calls upon the DPRK to comply fully with the IAEA-DPRK safeguards agreement;
4. *Urges* the DPRK to co-operate fully with the Agency in the implementation of the safeguards agreement and to take all steps the Agency may deem necessary to preserve, intact, all information relevant to verifying the accuracy and completeness of the DPRK's initial report on the inventory of nuclear material subject to safeguards until the DPRK comes into full compliance with its safeguards agreement; and
5. *Decides* to include in the agenda for its fortieth regular session an item entitled 'Implementation of the agreement between the Agency and the Democratic People's Republic of Korea for the application of safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons'.

v. Nuclear Testing

Resolution adopted by the IAEA General Conference on 22 September 1995, without a vote
(text reproduced from GC(39)/26/Rev.1/Mod.1)

The General Conference,

(a) *Recalling* United Nations General Assembly resolution 48/70 of 16 December 1993, in which the entire international community, for the first time, supported the commencement of multilateral negotiations on a Comprehensive Nuclear Test Ban Treaty,

(b) *Reaffirming* that a Comprehensive Nuclear Test Ban Treaty is one of the highest priority objectives of the international community in the field of disarmament and non-proliferation,

(c) *Reaffirming* that a universal and internationally and effectively verifiable Comprehensive Nuclear Test Ban Treaty should contribute to the prevention of the proliferation of nuclear weapons in all its aspects, to the ultimate goals of the complete elimination of nuclear weapons and a treaty on general and complete disarmament under strict and effective international control, and therefore to the enhancement of international peace and security,

(d) *Reaffirming* the conviction that the exercise of utmost restraint in respect of nuclear testing would be consistent with the negotiation of a Comprehensive Nuclear Test Ban Treaty, as reaffirmed in United Nations General Assembly resolution 49/70 of 5 December 1994, and *recalling* the undertaking of the nuclear-weapon States in this regard as well as all the Principles and Objectives for Nuclear Non-Proliferation and Disarmament adopted by the 1995 NPT Review and Extension Conference,

(e) *Recalling* the important mandate and role of the International Atomic Energy Agency in promoting non-proliferation and also nuclear safety,

(f) *Recalling* Article III.B.1 of the Agency's Statute, which states that in carrying out its functions the Agency shall 'Conduct its activities in accordance with the purposes and principles of the United Nations to promote peace and international cooperation, and in conformity with policies of the United Nations furthering the establishment of safeguarded worldwide disarmament and in conformity with any international agreements entered into pursuant to such policies', and

(g) *Recalling* United Nations General Assembly resolution 49/65 of 15 December 1994 on the report of the International Atomic Energy Agency, in which the General Assembly *inter alia* urged all States to strive for effective and harmonious co-operation in promoting the use of nuclear energy and the application of necessary measures to strengthen further the safety of nuclear installations and to minimize the risks to life, health and the environment,

1. *Expresses grave concern at* the resumption and continuation of nuclear testing and *calls upon* those States which have active nuclear testing programmes in place to desist from testing until a Comprehensive Nuclear Test Ban Treaty enters into force;
2. *Calls upon* all States, particularly those with nuclear weapons programmes, to take further effective steps toward fulfilling their obligations as regards nuclear disarmament and the non-proliferation of nuclear weapons;
3. *Expects* that the negotiations for a Comprehensive Nuclear Test Ban Treaty will be completed and the Treaty signed in 1996 as may be further specified by the Fiftieth Session of the United Nations General Assembly, and *urges* all participants in the negotiations to further intensify their efforts to this end;
4. *Affirms* that cessation of nuclear testing would contribute to the successful conclusion of a Comprehensive Nuclear Test Ban Treaty and to the promotion of nuclear non-proliferation and disarmament;
5. *Recognizes* that nuclear testing raises serious concerns about the risks to life, health and the environment;
6. *Calls on* all States concerned to fulfil their responsibilities to ensure that sites where nuclear tests have been conducted are monitored scrupulously, and to take appropriate steps to avoid adverse impacts on health, safety and the environment, as a consequence of such nuclear testing;
7. *Requests* all States concerned to inform the International Atomic Energy Agency of any adverse impact on health, safety and the environment as a consequence of such nuclear testing as necessary to assist the Agency to discharge its functions under the Statute; and
8. *Calls* for co-operation between the States concerned and the International Atomic Energy Agency in accordance with its Statute in the implementation of the two preceding paragraphs.

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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